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Olga Grimalt Moraga

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LOYOLA MARYMOUNT UNIVERSITY

The Biliteracy Achievement of Latino English Learners in
Two-Way Immersion Elementary Programs

by

Olga Grimalt Moraga

A dissertation presented to the Faculty of the School of Education,
Loyola Marymount University,
in partial satisfaction of the requirements for the degree
Doctor of Education

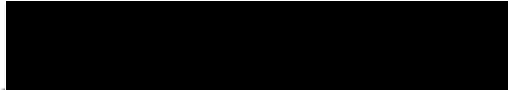
2010


**Loyola Marymount University
School of Education
Los Angeles, CA 90045**


This dissertation written by Olga Moraga, under the direction of the Dissertation Committee, is approved and accepted by all committee members, in partial fulfillment of requirements for the degree of Doctor of Education.

Sept. 27, 2010
Date

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DEDICATION

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ABSTRACT

The Biliteracy Achievement of Latino English Learners in Two-Way Immersion Elementary Programs

By

Olga Grimalt Moraga

This normative comparative study sought to compare the reading achievement, in English and Spanish, of Latino English learners in a 50/50 two-way immersion (TWI) bilingual program to Latino English learners in a 90/10 TWI program. The scores from 55 students across four TWI programs, two 50/50 and two 90/10, were analyzed. The principal from each school was also interviewed.

Quantitative data from the district's reading Benchmark Book Test, California Standards Test/English Language Arts and Standards-based Test in Spanish were analyzed using repeated measures ANOVA, Bonferroni Post Hoc and Chi Square to compare the means between the students' reading achievement in Spanish and English by program model. Overall the biliteracy results revealed that the main effect between programs was not significant ($p = .23$) nor was the within subjects effect ($p = .42$).

However, the interaction of grade and program was significant ($p = .001$). English and Spanish literacy results showed the students in the 50/50 TWI program outperformed students in the 90/10 TWI program by end of fifth grade; however across program models more students reached grade level literacy in English than in Spanish. Interviews with the principals of each school revealed that when analyzing test data at the school site level, English data were analyzed more closely and more systematically due to accountability measures indicating that NCLB has had a profound effect on the biliteracy attainment of Latino English learners in two-way immersion.

CHAPTER ONE

INTRODUCTION

Background of the Problem

The United States has been home to many languages and cultures since its inception. Just as the population of the country has always been diverse, and many languages spoken, the nation has historically assumed a monolingual/assimilationist ideology dating back to colonial times when American Indian languages came under assault along with German during the first and second world wars and Spanish in the late 1990's. Even though the United States has never adopted an official language, there persists an insistence to guard English as the language that counts. Macedo, Dendrinos, & Gounari (2003) posited "As the mainstream culture felt threatened by the presence of multiple languages, which were perceived as competing with English, the reaction to the media, educational institutions, and government agencies was to launch periodic assaults on languages other than English." (p. 23)

These "assaults" on languages other than English became prevalent in California beginning with the passage of Proposition 63 in 1986, which declared English the official language of California. This English language amendment to the constitution catapulted the state to the forefront of issues that dealt with language and immigration and led to Proposition 187 in 1994, an anti-immigrant initiative that restricted education and medical services to non-documented immigrants. Proposition 187 passed mainly due to the economic recession that plagued California at that time. The blame on the negative economic atmosphere was placed on illegal immigrants. This sentiment continued into

the late nineties (Alvarez, 1999) with the passage of Proposition 209, the anti-affirmative action initiative approved by voters in 1996. Propositions 63, 187 and 209 clearly indicated that California had embarked on a pro-English/anti-immigrant journey that culminated with the passage of Proposition 227 in 1998. Prop. 227 restricted the use of languages other than English for instruction in public schools. The initiative was specifically targeted at elementary age English learner students who were receiving instruction in their primary language. Proponents of Proposition 227 asserted that use of a student's primary language as a vehicle to acquiring English was deterring students from achieving academically. However Alvarez (1999) concluded that Proposition 227 passed due to racial and ethnic divisiveness influenced by the passage of Proposition 187 and Proposition 209 and not for any concern over the academic achievement of English learners. Alvarez (1999) asserted that opponents of Proposition 227 could have defeated the initiative had they persuaded more voters that "this initiative removed local authority, that existing bilingual education programs were effective or that this initiative was poorly drafted." (p. 15)

Attacks on bilingual education and students who enter school fluent in a language other than English are not a unique occurrence on a state or national level. Early in the 20th century researchers claimed that bilingual children were inherently at a disadvantage and in some cases were mentally deficient. Macnamara (1966) reviewed 77 studies from 1918-1962. In these studies, children were tested using a variety of assessments including but not inclusive of vocabulary tests, spelling tests, and reading tests. Based on the studies, Macnamara (1966) concluded that bilinguals have a "weaker grasp of

language” than monolingual children. Four reasons were cited for this conclusion: a) acquiring two languages causes interference, b) cultural assimilation is essential for language learning, c) language models are often times inadequate because the parents are not fluent speakers of the majority language, and d) time available to learn two languages is limited. Studies conducted in the latter part of the 20th century not only refuted Macnamara’s (1966) findings, but also criticized the validity of the studies due to methodological problems.

The idea that acquiring two languages causes the interference of the acquisition of English continues to persist as is evidenced with the passage and subsequent implementation of Proposition 227. However, before and after the passage of Prop. 227, studies have claimed that instruction in a student’s primary language does not hinder the development of English. Recently the National Literacy Panel (NLP) conducted a review of studies and concluded that teaching English learners in their primary language is positively correlated to their reading achievement in English. Five of the studies reviewed by the NLP included the random assignment of Spanish speaking students to educational settings where the language of instruction was English-only or instruction was in English and Spanish. The studies spanned kindergarten through twelfth grade with three being in elementary schools, one being in a middle school, and one being in a high school. All five studies found that teaching English learners to read in Spanish positively affects their reading in English (Goldenberg, 2008). In other words, teaching children to read in their primary language helps and does not hinder the acquisition of English reading. Goldenberg (2008) stated in reference to the NLP review, “No other

area in educational research with which I am familiar can claim five independent meta-analyses based on experimental studies much less five that converge on the same basic finding.” (p.15)

If this is the case, then why is the controversy surrounding educating students in a language other than English, at the elementary level in particular, still not supported by a number of policymakers, educators, and communities? The answer to this question is more about language ideology at a national and state level than effective pedagogy. Prior to Proposition 227, 30% (California Department of Education, 2009) of English learners enrolled in California public schools participated in a bilingual program. Today that percentage is a mere 5% (California Department of Education, 2010). Although various models of bilingual education exist, most English learners today are enrolled in a two-way immersion (TWI) bilingual model. In TWI, language minority and language majority students are purposefully mixed in the same educational setting. The goals of a TWI program are biliteracy, academic achievement and intercultural competence (Lindholm-Leary, 2001). The difference between this model of bilingual education and the transitional bilingual programs that abounded before the passage of Proposition 227 is the goal of the program. The primary goal of a transitional bilingual program is the acquisition of English (Linguanti, 1999). In a transitional bilingual program a student’s primary language becomes a means to acquiring English, whereas in a TWI program the goal is for all students to be bilingual/biliterate by the end of the program, usually fifth grade.

Since there are several variations of TWI, it is important that studies are conducted to validate the effectiveness of such programs so that more English learners may have the opportunity to participate in a program that validates their first language and successfully develops their second language. The time has come to not only report the positive effects of bilingual programs on the academic achievement of English learners, but it is of equal importance to begin to chip away at the monolingual/assimilationist viewpoint that has a choke-hold on California schools and recognize that developing two languages as early as kindergarten is not only beneficial, but also validates the culture and identity of English learners.

Problem Statement

Due to the passage of Proposition 227 in 1998, currently only 5% of English learners (California Department of Education, 2010) are enrolled in bilingual programs that offer an opportunity to develop biliteracy skills. Proponents of Proposition 227 asserted that bilingual programs provided Spanish-only instruction and that English learners were not learning to read and write in English. Furthermore, they blamed low-test scores and high dropout rates on bilingual education. Ten years after the passage of Proposition 227, Latino students, particularly English learners continue to struggle academically (Parrish, Perez, Merickel, & Linqianti, 2006; Wentworth, Pellegrin, Thompson, & Hakuta, 2010).

Immediately after the passage of Proposition 227, most bilingual programs were dismantled. The model of bilingual education that survived in spite of the anti-bilingual education initiative was the two-way immersion (TWI) program. Implementation of TWI

at the elementary level has slowly risen since 1998. The Center for Applied Linguistics (CAL) reports 335 two-way immersion programs nationwide. One-third of two-way immersion programs are in California, with 104 schools listed on the CAL database. Today most Latino English learners participating in bilingual education are enrolled in a two-way immersion program. Although a number of studies show that teaching English learners in their primary language does lead to academic achievement, studies that focus on Latino English learner academic achievement in two-way immersion programs is small. Even fewer have researched the biliteracy achievement of Latino English learners in TWI.

During the last ten years, the achievement gap between Latino English learners and English-only students has remained significant (Butler, Gutierrez, & Hakuta, 2000; Gándara, 2000; Wentworth et al., 2010). Therefore studies are needed to identify effective programs for English learners. As schools continue to implement TWI programs giving English learners the opportunity to develop biliteracy, it is of utmost importance to conduct studies to learn the effect of two-way immersion for the academic achievement of Latino English learners.

Purpose of the Study

The purpose of this study was to compare the reading achievement of Latino English learners in a 50/50 TWI program to Latino English learners in a 90/10 TWI program in order to identify if one form of TWI is more effective in the biliteracy achievement of Latino English learners.

This study sought to answer the following research questions:

Research Question 1 (RQ1): Do Latino English learners achieve biliteracy more effectively in a simultaneous literacy program such as a 50/50 two-way immersion program or in a sequential literacy program such as a 90/10 two-way immersion program?

Research Question 1a (RQ1a): Are there any differences in the Spanish reading achievement of Latino English learners, over time, in a 50/50 TWI and in a 90/10 TWI?

Research Question 1b (RQ1b): Are there any differences in the English reading achievement of Latino English learners, over time, in a 50/50 TWI program as compared to a 90/10 TWI program?

Research Question 2 (RQ2): How are data used at school site level to determine the biliteracy attainment of English learners?

Significance of the Research

This research is significant because Latino students in California continue to demonstrate low academic achievement throughout elementary, middle and high school. Clearly, the English-only educational programs offered to most English learners in California are not producing the high academic results Proposition 227 promised (Butler et al., 2000; Gándara, 2000; Wentworth et al., 2010). Proponents of Proposition 227 asserted that the initiative was in favor of properly educating English learners in California through the use of English. However, a study conducted five years after the passage of Proposition 227 found no clear indications that teaching English learners in English-only was most effective (Parrish et al., 2006).

Research shows that two-way immersion is an effective educational model for English learners (Christian, 1996; Lindholm-Leary, 2001; Genesse, Lindholm-Leary, Saunders & Christian, 2005).

The emerging results of studies of two-way immersion programs point to their effectiveness in educating nonnative-English-speaking students, their promise of expanding our nation's language resources by conserving the native language (L1) skills of minority students and developing second language (L2) skills in English-speaking students, and their hope of improving relationships between majority and minority groups by enhancing cross-cultural understanding and appreciation. (Lindholm-Leary et al., 2005, p.66)

Most of the research conducted on two-way immersion programs has focused on single-grade levels or non-matched students at different grade levels. Studies have also been conducted that compared the academic achievement of language majority students with the academic achievement of English learners in a TWI program. However, there is little research on the literacy development in both Spanish and English for Latino English learners throughout their participation in a two-way immersion program, or to learn how a particular student progressed in the attainment of oral, reading and writing proficiency (Dworin, 2003; Genesse et al., 2005). Also, very little research is available that compares the academic achievement of Latino English learners enrolled in different models of TWI.

This study focused on the biliteracy achievement in English and Spanish attained by a set group of Latino English learners who completed a two-way immersion program through fifth grade in spring 2009. The study purposefully focused on the acquisition of both English and Spanish so as to give the acquisition of Spanish literacy equal importance to the acquisition of English literacy.

It is imperative that researchers continue to study the effectiveness of two-way immersion programs particularly for linguistic minority students who have been robbed of the opportunity to develop biliteracy through the California initiative process. It is of equal importance that both language and educational policy begin to move our educational system toward more equitable opportunities in our schools and to recognize that the acquisition of two languages, whether the student is in the language majority or the language minority, is key in developing and maintaining cross-cultural relationships and ensuring future economic and cultural capital for all.

Conceptual Framework

The conceptual framework for this study was situated in Hornberger's (2003) *Continua of Biliteracy* to explain how biliteracy is attained in the context of biliteracy, the development of biliteracy, the content of biliteracy and the media of biliteracy. Hornberger's (2003) *Continua of Biliteracy* looks at biliteracy from an ecological point of view. In order to further explore the relationship between the literacy acquisition of two languages, this study also analyzed data based on Cummins' Contextual Interaction Theory, which includes the threshold and linguistic interdependence hypothesis.

Hornberger's (2003) *Continua of Biliteracy* situated biliteracy as a phenomenon that occurs along a continuum, and therefore it was important for this study to analyze the biliteracy attainment of the elementary students along a continuum and not at opposing fixed points. Cummins' Contextual Interaction Theory contributed to the understanding of the relationship between the literacy development of two languages. It is through both

Hornberger (2003) and Cummins (1979) that biliteracy achievement in both a 50/50 and 90/10 TWI program was examined.

Continua of Biliteracy

Hornberger (2003) posited that a complete theory of bilingualism still does not exist. The term biliteracy evokes a dualism between two opposites such as first versus second language, monolingual versus bilingual. However Hornberger (2003) suggested that the concept of biliteracy is not an end in and of itself. Hornberger (2003) proposed a framework in the form of a continuum for understanding biliteracy in differing contexts. One is not just monolingual or bilingual, but instead biliteracy exists on a continuum that is a part of a bigger whole. The points on the continuum are not definite; many points can exist at one time and the points are related to each other (Hornberger, 2003).

Hornberger (2003) described twelve continua related to the context of biliteracy: the context of biliteracy, the development of biliteracy, and the media of biliteracy. The context of biliteracy is characterized by the continua of micro-macro, oral-literate, and monolingual-bilingual. The development of biliteracy is characterized by the continua of reception-production, oral language-written language, and L1-L2 transfer. The content of biliteracy is characterized by the continua of minority-majority, vernacular-literary, and contextualized-decontextualized. Lastly, the media of biliteracy is characterized by the continua of simultaneous-successive exposure, similar-dissimilar structures, and convergent-divergent scripts.

This study focused on three aspects of the Continua of Biliteracy: the micro-macro and monolingual-bilingual continuum of the context of biliteracy and the simultaneous-successive exposure continuum of the media of biliteracy.

Linguistic Interdependence Hypothesis

Cummins (1981) argued that controversy over bilingual education lies in two separate concepts of bilingual proficiency called Separate Underlying Proficiency (SUP) and Common Underlying Proficiency (CUP). SUP encompasses the belief that English learners must be instructed in English due to the fact that proficiency in the first language is separate from proficiency in a second language. Since proficiency in the first language is separate from proficiency in the second language, then the transfer of information from one language to the other is non-existent. The assumption is made that a student cannot make connections from one language to the other; each language exists in its own compartment in the brain. Under the CUP model, first and second language proficiency are connected. The notion that each language exists in a separate compartment in the brain is refuted. CUP supports the notion that students can learn academic content in their first language and that the material learned transfers to the second language. The student doesn't need to relearn the concept in the second language once it is learned in the first language.

Threshold Hypothesis

The Threshold Hypothesis postulates that the level of first and second language proficiency is an indicator of cognitive ability in both languages. A student whose first and second language are not well developed may demonstrate low levels of cognitive

ability in either language, whereas a student with well developed language proficiency in both their first and second language may demonstrate high levels of cognitive ability (Cummins, 1981). The Threshold Hypothesis supports two-way immersion programs where the goals of such programs are biliteracy and academic competence in the target language as well as English.

Basic Interpersonal Communication Skills and Cognitive Academic Language Proficiency

Cummins (1981) has been at the forefront of discussion about the differences between conversational language and academic language in the acquisition of a second language. Cummins called the difference: Basic Interpersonal Communication Skills (BICS), and Cognitive Academic Language Proficiency (CALP). He contended that it takes approximately two years to acquire BICS, also referred to as “playground language” and five to seven years to acquire CALP. The distinction between BICS and CALP is rooted in the thought that language processing required for everyday language is different from the language processing required for academic language. It is critical that second language learners receive academic language instruction through comprehensible input because the language of the classroom is “context reduced” meaning that academic language is abstract and language based. In order for a student to learn, the academic content being taught must be presented in a way that is comprehensible to the student. BICS is “context embedded” where the language being used is accompanied by gestures and other context clues to aide in comprehension. It is often believed that a student who is seemingly fluent in English (high level of BICS) should be able to learn grade level

academics. Cummins contends that since there is a difference in the level of processing required for BICS and CALP it is not surprising that a student who appears to have a strong command of a second language when engaging in everyday conversation is failing in academic subjects. Therefore subjects that are “content-reduced” need to be taught in such a way that the material becomes context embedded for maximum learning.

This study looked at the biliteracy development of English and Spanish for Latino English learners enrolled in 50/50 and 90/10 two-way immersion programs along various continua in order to determine if one program model yielded higher biliteracy levels. The results of this study were also analyzed to counter current monolingual language ideologies in an attempt to begin to change the tide created by the passage of Proposition 227 with the hope that California public schools will widely offer the opportunity for English learner students to become fully bilingual and biliterate in effective bilingual programs.

Research Design and Methodology

This was a normative comparative study of the reading achievement of Latino English learners who participated in a 50/50 or 90/10 two-way immersion program (TWI). Latino English learners selected for this study participated in either a 50/50 or a 90/10 TWI program from first through fifth grade in 2004 through 2009. For the quantitative portion of this study standardized test data in English and Spanish was collected along with data from the school district-developed Benchmark Book Test. As a means of triangulating data, the qualitative portion of the study was included. The

principal from each TWI program was interviewed in order to determine how the school sites use the data that is collected each year at the district level.

Table 1 states each of the research questions for this study, along with the measurement tool, the construct and the analyses conducted.

Table 1

Methodology

Research Questions	Measurement Tool	Construct	Analysis
RQ1: Do Latino English learners achieve biliteracy more effectively in a simultaneous literacy program such as a 50/50 Two-Way Immersion program or in a sequential literacy program such as a 90/10 Two-Way Immersion program?	English/Spanish LBUSD District Reading tests	English/Spanish Grade-Level Reading Achievement Fiction and Non-Fiction	Repeated Measures ANOVA
	CST/English Language Arts	English Language Arts Achievement	Chi Square
	STS/Spanish Language Arts	Spanish Language Arts Achievement	<i>t</i> tests
RQ1a: Are there any differences in the Spanish reading achievement of Latino English learners, over time, in a TWI 50/50 program as compared to a 90/10 TWI program?	Spanish LBUSD District Reading tests	Spanish Grade-Level Reading Achievement Fiction and Non-Fiction	Repeated Measures ANOVA
			Bonferroni Post Hoc Test
	STS/Spanish Language Arts	Spanish Language Arts Achievement	<i>t</i> tests
RQ1b: Are there any differences in the English reading achievement of Latino English learners, overtime, in a 50/50 TWI program as compared to a 90/10 TWI program?	English LBUSD District Reading tests	English Grade-Level Reading Achievement Fiction and Non-Fiction	Repeated Measures ANOVA
			Bonferroni Post Hoc Test
	CST/English Language Arts	English Language Arts Achievement	Chi Square

Research Questions	Measurement Tool	Construct	Analysis
RQ2: How is data used at school-site level to determine the biliteracy attainment of English learners?	Interviews	How data is used at the school-site to measure biliteracy	Coding of interviews for emerging themes and patterns for triangulation

Data from research question 1 (RQ1, 1a & 1b) were collected from the district's Research, Planning and Evaluation office. RQ2 was answered by interviewing the principals at each of the schools included in the study.

Analyses for quantitative data were conducted using SPSS. Repeated measures ANOVA and Bonferroni Post Hoc tests were conducted for the district Benchmark Book test scores to compare means of students in the 50/50 TWI and 90/10 TWI. Chi Square was conducted for the Benchmark Book test scores along with the scores from the California Standards Test (CST) to determine the percent proficient at each grade level by program model. Independent *t* tests were conducted for the means on the Standards-based Test in Spanish (STS) by program. The qualitative portion of this study included interviews of the four principals at each of the participating schools. The interviews were transcribed and then coded for themes. As themes emerged, the researcher conducted a pattern analysis comparing the themes from the principal interviews to the results of the quantitative data.

Participants

Four schools were selected for this study. Test data was collected for Latino English learners who were enrolled from first to fifth grade at Schools A and B which have 50/50 two-way immersion programs and School C and D which have a 90/10 two-

way immersion program. All programs are a strand within the school and have been in existence for over ten years. Only students who were classified as English learners in first grade were selected for the study. The original sample included 67 students across the four programs. However upon closer analysis, complete data from first to fifth grade for the district Benchmark Book test and the California Standards Test were available for 55 students. Therefore the final sample size for this study was 55 Latino students who were classified as English learners in first grade. The principal of each TWI school participated in an interview; therefore four principals were also selected for this study.

The four schools are located in a southern California large urban school district. The district has a total student population of 88,186 students. Latino students represent 51% of the student population. The district also has a significant number of English learners with 21,816 students whose primary language is not English. Latino English learners account for 88% of the total English learner population, however only 196 English learners participate in a bilingual program representing less than 1% of total English learners in the district.

Delimitation

The delimitation for this study was that this study looked only at reading achievement.

Limitations

The limitations to this study are as follows:

1. The sample size is small $n = 55$; findings may be difficult to generalize to other two-way immersion programs.

2. In order to determine Spanish literacy attainment, data from Standards-based Test in Spanish (STS) were collected and analyzed. In 2008 the state of California required that all Spanish-speaking English learners who are being instructed in Spanish be tested using the Standards-based Test in Spanish. Prior to 2008, Spanish-speaking English learners enrolled in a Spanish bilingual program were tested using the Aprenda[®]: La prueba de logros en español. Although students in this sample also took the Aprenda[®] standardized test, Spanish language arts data from this test were not collected since the district does not systematically collect data from the Aprenda[®] test. Therefore only three years of Spanish language arts standardized test data were available for analysis, even though the students took a standardized test in Spanish for four years: one year of Aprenda[®] and three years of STS. The district-created Benchmark Book Test was analyzed to determine on-grade literacy levels in English and Spanish. Since the assessment is used in this district only, findings may be difficult to generalize.
3. All four programs in the district are labeled as two-way immersion programs. However, where 50% of the student population should be language minority students and 50% of the student population should be language majority students, none of the programs had the exact 50/50 student population. Three out of the four schools had more English learners than English-only and one school had more English-only than English learners. All English learners across the four programs were of a low socioeconomic level. Also, there may have been some variation within the same program model. For example in one 50/50 program

Spanish and English were taught on a daily and weekly alternating schedule and in the other 50/50 program both English and Spanish are taught on a daily basis.

There was less variation among the two 90/10 programs.

4. All four schools were in one school district, which may limit the ability to generalize to two-way immersion programs in other districts.

Definition of Terms

Academic Performance Index (API): Accountability system used by states to measure the academic performance and growth of public schools. The numerical scale ranges from 200 to 1000. All schools receive an API score each year.

Annual Yearly Progress (AYP): Accountability system used by the federal government as legislated by the No Child Left Behind Act of 2001 to measure the academic performance and growth of public schools. A certain percentage of students need to be proficient in English Language Arts and Math. Each year the percentage increases with the goal being 100% proficient by 2014.

Benchmark Book Test: Reading test given to students to determine grade level reading proficiency of students K-5.

Bilingual Programs: Programs that use the students' native language as well as English for instruction.

Biliteracy: The ability to listen, speak, read and write in two languages.

California Standards Test: A criterion reference test given to students K-12 in the state of California to measure grade specific content standard knowledge.

Dominant Culture Ideologies: The worldviews and system of ideas that legitimize the power of a dominant social group or class in society and that rationalizes the existing social order.

English Learner: A student who is not fluent in English upon entering school and is classified, based on the California English Language Development Test, as an English Learner.

English-only Student: A student whose primary language is English.

Language proficiency: Level at which an individual is able to demonstrate the use of language for both communicative tasks and academic purposes.

Language Minority: Students whose primary language is a language other than the dominant national language. In the United States, language minority students are those whose primary language is a language other than English.

Language Majority: Students whose primary language is the dominant, national language. In the United States, language majority students are those whose primary language is English.

Mainstream: A program model where English learners are instructed only in English and no support is given in order to better comprehend content.

Language Policy: The decisions made by government (federal, state or local) through legislation, course decisions, policy or the electorate to determine how languages are used in a society and in its key institutions.

Primary-language instruction: Instructional program where instruction is delivered in a student's first language.

Primary-language support: Use of a student's primary language in order to support the acquisition of content material in English.

Sequential Biliteracy: Literacy instruction in one language precedes literacy instruction in a second language. Literacy in the second language is introduced when literacy in the first language has been sufficiently attained.

Simultaneous Biliteracy: Literacy instruction in two languages that is developed within the same academic year.

Standards-based Test in Spanish: A criterion reference test that measures grade-specific; content-standards knowledge in Spanish.

Structured English Immersion: A program model where students are instructed primarily in English, but receive support such as SDAIE in the acquisition of academic content.

Target language: Language other than English that is used for instruction in a two-way immersion program. In most cases the target language in a two-way immersion program is Spanish.

Transitional Bilingual Programs: Bilingual program where English learners are instructed in their primary language in order to develop primary language academics that will transfer to English. The goal of a transitional bilingual program is academic competence in English.

Two-Way Immersion: A model of bilingual education where English-only and English learners are purposefully mixed in the same classroom with the primary goal being biliteracy.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This study investigated the biliteracy achievement of Latino English learners enrolled in 50/50 and 90/10 two-way immersion elementary programs. The literature reviewed for this study is divided in two sections. Section one focuses on the development of bilingualism and biliteracy along with second language acquisition theories. Section two focuses on the history of bilingual education in the United States including an examination of the political and ideological beliefs surrounding bilingual education on a national and state level. The review then continues with a brief description of bilingual education models, particularly the two-way immersion model of bilingual education. The review concludes with current research on two-way immersion programs.

Conceptual Framework

Bilingualism

At first glance, the term bilingual seems simplistic: To be bilingual means to speak two languages. However bilingualism is a multifaceted phenomenon that includes the existence of more than one language at an individual and societal level. Individual bilingualism refers to the ability of an individual to function in two languages, whereas societal bilingualism refers to the influence of a group or community on the maintenance, survival or loss of a language (Baker, 2006). This section of the literature review

concentrates on individual bilingualism, specifically the bilingualism of elementary school children.

On an individual level the process of acquiring two languages is complex and involves a number of factors. Bialystok (2001) asserted that two paradigms apply when explaining children's acquisition of two languages: formal and functional. The formal paradigm considers the simultaneous and sequential acquisition of a second language to be similar because language acquisition is "guided by the language acquisition device and shaped under the constraints of universal grammar" (p. 56). Any input leads to the acquisition of the second language. Whether the second language is acquired simultaneously or sequentially is inconsequential. The functional paradigm, however, differentiates between simultaneous and sequential second language acquisition. Social interaction and previous knowledge influence language acquisition and experiences are different in learning a second language at the same time as the first language or sequentially (Bialystok, 2001). Bialystok (2001) posited that bringing together the two perspectives, formal and functional, allows for a broader view when studying bilingual children. The process of acquiring two languages is complex, and therefore understanding the acquisition of two languages must be described in a way that leaves out a dichotomous view of being either monolingual or bilingual.

Grosjean (1998) described five characteristics of bilinguals:

First, they usually acquire and use their languages for different purposes, in different domains of life, with different people. Second, and as a direct consequence of this first characteristic, bilinguals are rarely equally fluent in all language skills in all their languages. Level of fluency depends in large part on the need and use of a language (and a particular skill). Third, some bilinguals may still be in the process of acquiring a language (or language skill) whereas others

have attained a certain level of stability. Fourth, the language repertoire of bilinguals may change over time; as the environment changes and the need for particular language skills also change, so will their competence in these skills. Finally, bilinguals interact both with monolinguals and with other bilinguals and they have to adapt their language behavior accordingly. (Grosjean, 1998, p. 3)

Research on the development of bilingualism has typically come from a monolingual perspective (Moll & Dworin, 1996; Valdés, 1992, 1997). Grosjean (1989) expressed the negative impact of such a view on understanding the development of bilingualism. The study of bilingualism is unique and should not rely on the study of the processes by which monolinguals acquire their only language. Grosjean (1998) viewed bilingualism as a fluid phenomenon that can change depending on the bilingual individual and the environment. The development of biliteracy also follows a similar path as is described in the next section with Hornberger's (2003) *Continua of Biliteracy*.

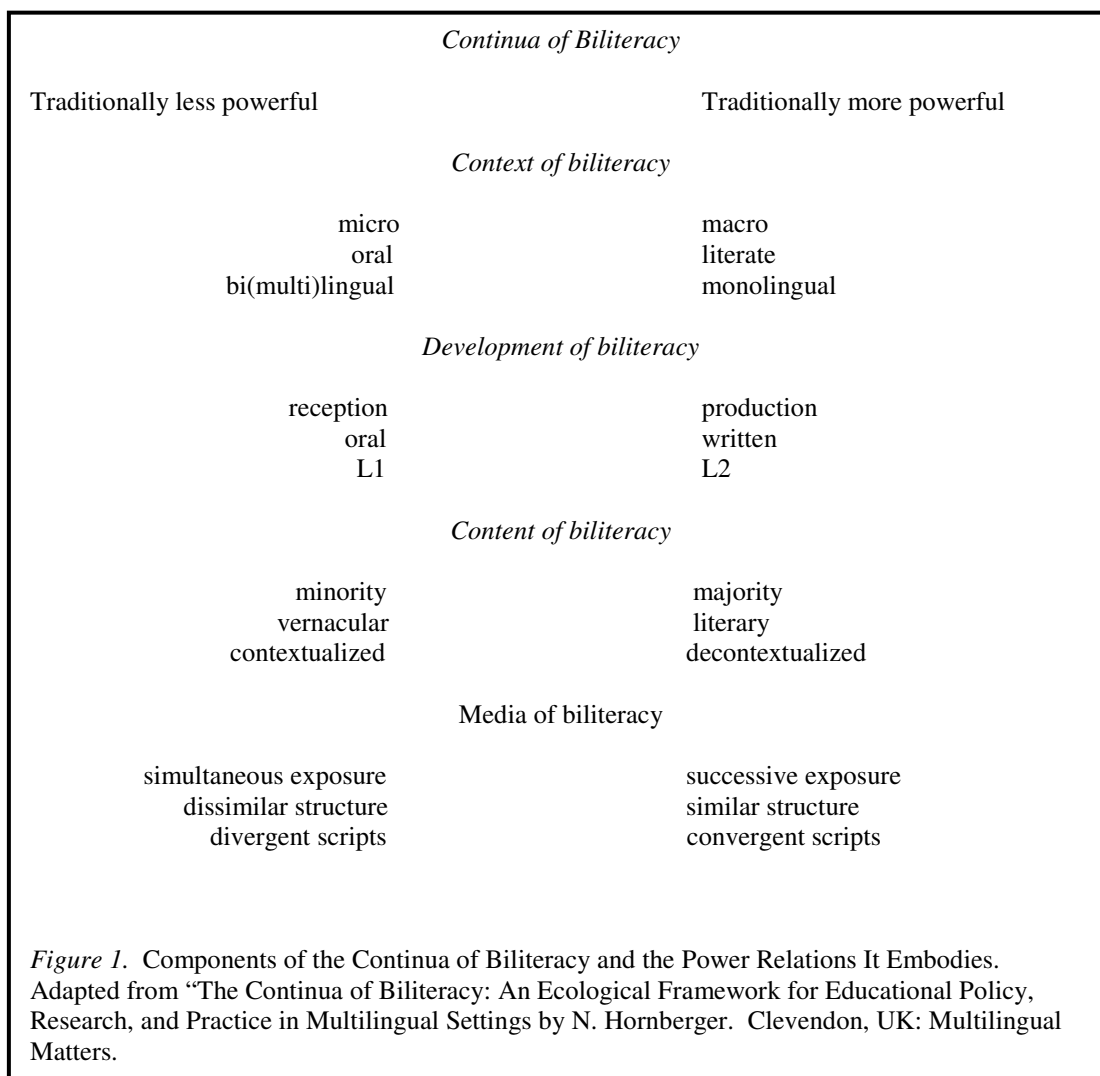
Biliteracy

The vast majority of research on biliteracy is grounded in a monolingual view of the development of language and literacy (Moll & Dworin, 1996; Valdés, 1992, 1997). Dworin (2003) stated "Biliteracy is a special form of literacy that must be understood as distinct from that of monolinguals" p.173. Valdes (1992) stated that the study of biliteracy among bilingual individuals is a different process and therefore requires a different research lens from the study of literacy among monolingual individuals. The study of biliteracy should come from a bilingual, not a monolingual perspective as it applies to biliteracy.

Hornberger (2003) posited that although the term biliteracy evokes a dualism between two opposites such as first versus second language and monolingual versus

bilingual, the concept of biliteracy is not an end in and of itself. Hornberger (2003) proposed a framework in the form of a continuum for understanding biliteracy in differing contexts. An individual is not just monolingual or bilingual, but instead biliteracy exists on a continuum that is part of a bigger whole.

Hornberger (2003) described twelve continua related to biliteracy: the context of biliteracy, the content of biliteracy, the media of biliteracy and the development of biliteracy. The context of biliteracy is characterized by micro-macro, oral-literate, and monolingual-bilingual. The development of biliteracy includes the continua of reception-production, oral language-written language, and L1-L2 transfer. The content of biliteracy includes the continua of minority-majority, vernacular-literary, and contextualized-decontextualized. Lastly, the media of biliteracy includes the continua of simultaneous-successive exposure, similar-dissimilar structures, and convergent-divergent scripts. Figure 1 shows the *Continua of Biliteracy* along with the power relations implicit in each of the twelve continua:



The context in which biliteracy is acquired can be examined through a micro-macro as well as a monolingual-bilingual continuum. Examining biliteracy through the micro-macro continuum involves micro and macro levels of linguistic analysis including micro-micro, micro-macro, macro-macro and macro-micro levels of analysis. The micro-micro level of the context of biliteracy situates a particular feature of language and its relationship within a particular text or discourse; at the micro-macro level, analysis centers on patterns of language in the context of a situation or a speech; at the micro-

macro level, a particular feature of language is examined in the context of society or a social unit; and at the macro-micro level patterns of language are examined within or across societies or nations. One also has to consider that at the macro level, an unequal power relationship between languages is found where literacy in one or the other language may be marginalized (Hornberger, 2003).

The monolingual-bilingual continuum of the context of biliteracy recognizes the fact that languages can share common features. The discussion of monolingual-bilingual should not pose one against the other, but rather examine the context in which each language is used and its function. Grosjean (1998) supported this notion stating that the degree to which an individual dominates in one language or the other can change depending on the situation.

Finally the successive-simultaneous continuum examines the positionality of languages during the acquisition of more than one language. Studies have indicated that first language literacy development leads to the acquisition of the second language; however, the first language does not need to be fully developed in order for second language acquisition to begin. Whether the second language is introduced simultaneously or sequentially is inconsequential, but it is important to note that the first language should not be abandoned while the second language is being developed. This notion supports the idea of additive bilingualism, where the first language continues to be developed while the second language is being introduced and subsequently acquired (Lambert, 1985). It is important to note that points exist along all the continua and that

those points are not finite. Many points can exist at one time, and the points are related to each other within and across the continuas (Hornberger, 2003).

This study focused on three aspects of the *Continua of Biliteracy*: the micro-macro and monolingual-bilingual continuum of the context of biliteracy, and the simultaneous-successive exposure continuum of the media of biliteracy as described previously. It is through these lenses that data was analyzed in order to determine whether the 50/50 TWI model or the 90/10 TWI model was more effective in the biliteracy achievement of Latino English learners.

The following section explores theories on second language acquisition. The biliteracy attainment of Latino English learners involves the development of a second language; therefore it is important to look at theories that focus on the acquisition of a second language in order to understand the juxtapositioning of those theories within the concept of attaining literacy in two or more languages.

Second Language Acquisition

In the late 1970's James Cummins introduced theories on second language acquisition that are still relevant today in the continued search for effective instructional approaches for English learners. Cummins' Contextual Interaction Theory includes a number of principles that have informed educators regarding the education of English learners for three decades. The aspects of Cummins' Contextual Interaction Theory addressed in this section include the linguistic interdependence and threshold hypothesis along with the basic interpersonal communication skills (BICS) and cognitive academic language proficiency principle (CALP).

Linguistic Interdependence Hypothesis

Cummins (1981) argued that the controversy over bilingual education lies in two separate concepts of bilingual proficiency called Separate Underlying Proficiency (SUP) and Common Underlying Proficiency (CUP). The SUP model of bilingualism points to the fact that proficiency in the first language is separate from proficiency in a second language. Since proficiency in the first language is separate from proficiency in the second language, then the transfer of information from one language to the other is non-existent. The assumption is made that a student cannot make connections from one language to the other; each language exists in its own compartment in the brain. The CUP model is often depicted by two icebergs, where two tips of the iceberg represent the surface features of each language. Underneath the surface lies the common underlying proficiency described by Baker (2006) as a central operating system. Under the CUP model of bilingualism, first and second language proficiency are connected. Baker (2006) summarized CUP in six parts:

1. When someone has two or more languages, thoughts that derive from using those languages come from one “central engine.”
2. An individual can function in two or more languages because one has the capacity to store more than one language.
3. One can learn both monolingually or bilingually. Attainment of academics can be achieved in one or two languages because the information is stored and accessed in one central location.

4. The language being used in the classroom needs to be developed well in order for a child to be successful academically.
5. First or second language listening, speaking, reading or writing aids in the development of the cognitive system.
6. Cognitive functions will be hindered if a child's first and/or second language are not functioning fully.

CUP supports the notion that students can learn academic content in their first language and that the material learned transfers to the second language. That is, the student doesn't need to relearn the concept in the second language once it is learned in the first language. This theory supports the view that developing a student's first language leads to and contributes to the acquisition of the second language.

Threshold Hypothesis

The Threshold Hypothesis postulates that the level of first and second language proficiency is an indicator of cognitive ability in both languages. A student whose first and second language are not well developed will demonstrate low levels of cognitive ability in both languages, whereas a student with well developed language proficiency in both their first and second language will demonstrate high levels of cognitive ability (Cummins, 1981). The Threshold Hypothesis supports the goals of two-way immersion programs where the goals of such programs are biliteracy and academic competence in the target language as well as in English.

Lindholm (1991) studied the Spanish and English proficiency of second and third graders enrolled in a bilingual/immersion program along with the academic achievement

of the students in order to assess the theoretical assumptions and empirical evidence for academic achievement in two languages. Lindholm (1991) sought to prove three assumptions regarding language and thought that are at the core of two-way immersion programs and that are related to Cummins' Threshold Hypothesis: (a) High levels of proficiency in the two languages will facilitate cognitive processing; (b) there are two types of language proficiency, academic and communicative, and the extent to which one is proficient in these two types may vary; and (c) content transfers across languages. The study consisted of second and third grade students who had been enrolled in a two-way immersion programs for two to three years. Lindholm (1991) stated that although early studies regarding the cognitive ability of bilingual students concluded that instructing young students in two languages resulted in negative academic attainment, these studies were flawed due to the social status of the dominant language. Monolingual students in the study were clearly at an advantage due to the status of the dominant language and bilingual students' socioeconomic situation led to bias in the tests of intelligence used. Lindholm (1991) continued that numerous studies have shown that bilingual students not only have mental flexibility, but also have more diverse mental abilities than their monolingual counterparts. She concluded by saying "that bilingual development may facilitate cognitive and academic functioning" supporting Cummins' threshold theory that full development of both languages leads to higher cognitive functioning.

Basic Interpersonal Communication Skills and Cognitive Academic Language Proficiency

Cummins (1981) has been at the forefront of discussions about the differences between conversational and academic language in the acquisition of a second language. Cummins called the difference between conversational language and academic language, basic interpersonal communication skills (BICS) and cognitive academic language proficiency (CALP). The distinction between BICS and CALP is rooted in the thought that language processing required for everyday language is different from the language processing required for academic “school” language. Cummins (1984) found that it was not unusual for English learners to perform poorly on psychological assessments and academic tasks, and at the same time have the ability to converse fluently in English. Oller (1979) contended that only one underlying factor called global language proficiency exists. Cummins countered by claiming that not all aspects of language could be situated under one category such as the global underlying proficiency, but rather that there are distinct differences between the ability of a child to communicate on a social level and the ability to perform academically (Cummins, 2000). He explained that when a child begins school at age five, he or she has acquired the ability to function completely in a familiar social context, but that same child will then spend 12 years acquiring academic language.

For English learners who enter school without BICS, Cummins (1981) contended that it takes approximately two years to acquire BICS and five to seven years to acquire CALP. It is critical that second language learners receive academic language instruction

through comprehensible input because the language of the classroom is “context reduced” meaning that academic language is abstract and language based. In order for a student to learn, the academic content being taught must be presented in a way that is comprehensible to the student. BICS is “context embedded” where the language being used is accompanied by gestures and other context clues to aide in comprehension. It is often believed that a student who is seemingly fluent English proficient (high level of BICS) should be able to learn grade level academics. Cummins contended that because a difference is present in the level of processing required for BICS and CALP, it is not surprising that a student who appears to have a strong command of a second language when engaging in everyday conversation fails in academic subjects. Therefore academic subjects that are “content-reduced” need to be taught in such a way that the material becomes context embedded for maximum learning (Cummins 1981, 2000).

BICS and CALP have not been without critics (Cummins, 2000). August and Hakuta (1997) contended that implicit in the distinction between BICS and CALP was that BICS needed to precede CALP. However, Cummins (2000) explained “the sequential nature of BICS/CALP acquisition was suggested as typical in the specific situation of immigrant children learning a second language” (p.74). However, the above mentioned sequence does not suggest that it is the only way that BICS and CALP are acquired. High levels of CALP in a second language can precede basic communications skills in certain situations such as when an adult is able to read in a second language but not able to carry a conversation in said language.

English learners that are transferred prematurely into mainstream classes because they appear to have acquired sufficient English language skills may fail academically, leaving educators trying to understand why they are not able to make academic gains (Baker, 2006). The distinction between BICS and CALP helps when trying to understand why students who appear to be fluent in their second language perform below grade level on academic tasks (Baker, 2006; Cummins 2000).

Cummins (2000) extended the meaning of CALP by including three aspects that influence instruction: cognitive, academic and language. The cognitive aspect of CALP focuses on the need for instruction to be cognitively demanding including the use of higher-order thinking skills. The academic aspect focuses on the need for the content subject to be integrated with language instruction, and the language aspect of CALP focuses on the development of critical language awareness both linguistically and socioculturally.

Amid all criticism, Cummins' (1981, 2000) development of BICS and CALP has provided a lens to understanding the second language acquisition of English learners and has afforded a framework that informs educators regarding the importance of developing both communicative and academic knowledge.

Having discussed biliteracy and second language acquisition, this literature review now turns to the historical aspects and language ideology that surrounds bilingual education in order to set the context and explain the trajectory of bilingual education in the United States.

History of Bilingual Education in the United States

The notion that the cultural legacy of the United States consists of a White Anglo-Saxon English speaking society is false (Ovando, 2003). The United States has always been a society rich in diversity. People from many countries have immigrated to the United States, calling their new land home but also bringing with them the cultural and linguistic aspects of the country they left behind. As these diverse cultures and languages inhabited the United States, swings from acceptance to rejection of non-Anglo cultures and non-English languages have occurred.

Educating students in a language other than English is also not a new concept in the educational system of the United States. As immigrants settled in different parts of the United States, instruction in schools incorporated the native language of the community (Baker, 2006; Brisk, 2006). Languages such as French, German, Spanish, and Swedish were used for instruction alongside English. By the mid 19th century, German/English schools could be found in Ohio, Pennsylvania, Maryland, Missouri, Minnesota, Nebraska, Colorado, Oregon, North/South Dakota and Wisconsin. French was found in Louisiana, Spanish in New Mexico and California, and Swedish, Norwegian and Danish in Wisconsin, Illinois, Minnesota, Iowa, North/South Dakota, Nebraska and Washington. (Brisk, 2006; Baker, 2006; Ovando, 2003).

In the late 19th century, public and private schools offered instruction in the language of the community as a way of attracting students to their schools. The acceptance of immigrant languages was fueled by a competition among public and private schools vying for students. Also before World War I, there existed a tolerance

towards bilingual education due to the permissive attitude of administrators, isolation of schools in rural areas and the ethnic homogeneity of the community. During this time, schools in most cities in the United States offered monolingual English-only instruction. However, cities such as Cincinnati, Baltimore, Denver, and San Francisco did offer dual language instruction (Baker, 2006).

However at the turn of the 19th century, the attitude towards bilingual education changed. In the 1880's, the Bureau of Indian Affairs established schools for Indian children with the purpose of stripping them of their language in an attempt to "civilize" Indians. By the early 20th century, the Americanization Department of the U.S. Bureau of Education adopted a resolution recommending that all states teach only in English. By 1923, 34 states mandated English-only instruction in all public and private schools. (Ovando, 2003; Baker, 2006). United States involvement in World War I brought with it an anti-German sentiment that fueled a strong sense of English monolingualism as being "American." Being American meant ignoring the language of origin and embracing English (Baker, 2006). It is also important to note that the Naturalization Act of 1906, which required that immigrants learn English in order to become naturalized citizens, also contributed to the exaltation of English and the demise of other languages.

As this anti-bilingual stance was being pushed, the case of *Meyer v. Nebraska* brought some hope of instructing students in a language other than English (Ovando, 2003). In *Meyer v. Nebraska* the Supreme Court declared unconstitutional, based on the 14th amendment, the prohibition of teaching foreign languages in elementary schools. In this case, a teacher was prosecuted for teaching a 10 year old to read in German. The

Supreme Court supported the decision to mandate English instruction but found it unconstitutional to prohibit the teaching of foreign languages.

After decades of an anti-bilingual sentiment, the mid 20th century saw a change in the attitude towards foreign language instruction in the United States. During this time, three events brought the teaching of a language other than English into a positive light: National Defense Education Act, 1960 Civil Rights Movement, and in 1963 the establishment of the first two-way immersion bilingual program at Coral Way Elementary School in Florida.

The National Defense Education Act (NDEA) in 1958, which promoted foreign language instruction, was established due to the launching of Sputnik by the Soviet Union. The NDEA focused on encouraging English monolinguals to learn a foreign language. However, non-English speakers still received monolingual English instruction. Preserving the native language of non-English speakers was not the agenda of the National Defense Education Act:

Although the National Defense Education Act promoted much-needed improvement in the teaching of foreign languages, it did not alter the linguistically disjointed tradition of the United States. On the one hand, the country was encouraging the study of foreign languages for English monolinguals, at great cost and with great inefficiency. At the same time, it was destroying through monolingual English instruction the linguistic gifts that children from non-English language backgrounds bring to our schools. (Ovando, 2003, p.7)

The 1960's brought in a change of climate in regard to the use of other languages in educational settings. The Civil Rights Act of 1964 positively influenced the instruction of languages other than English in the education of language minority students. In 1963, due to the large influx of Cubans in South Florida, Coral Way

Elementary School established the first two-way immersion program (Lindholm-Leary, 2001). The Cubans who fled Fidel Castro believed that they would soon be returning to Cuba once Castro was overthrown. Since they had every intention of returning to Cuba, the program at Coral Way was established so that the students could continue to develop academically in their primary language as well as learn English. Many factors are believed to have contributed to the success of the program at Coral Way: support of educated professional parents, well-trained teachers, and the Cuban Refugee Act. The program in south Florida had political support as well as funding support (Baker, 2006; Romaine, 1995).

The Bilingual Education Act of 1968 (Title VII of the Elementary and Secondary Education Act) sought to help language minority students by allowing instruction for English learners in their native language and English. The law also monitored the education of English learners; therefore school districts that received federal funds were mandated to address the needs of English learners (Baker, 2006; Ovando, 2003).

For the first time in American educational history, the federal government embarked on an educational experiment that sought to build upon students' home cultures, languages, and prior experiences in such a way that they could start learning without first being proficient in English. (Ovando, 2003, p. 8)

However, the law was not specific regarding the type of bilingual program that it supported. In fact under the law, school districts could receive funds without using students' native languages for instruction. Even so, due to the Bilingual Education Act, many school districts throughout the United States implemented bilingual programs as well as English as a second language programs to meet the academic and linguistic needs of language minority students. In 1978 the Bilingual Education Act was reauthorized

allowing native language instruction to be used only as a bridge to achieving competence in English. Title VII federal funds could not be used for maintenance bilingual programs (Baker, 2006). In 1984 and 1988 amendments allocated funds to language minority programs not using native language instruction (Baker, 2006).

Following the Bilingual Education Act of 1968, *Lau v. Nichols* (414.U.S. 5637) in 1974 made a huge impact on bilingual education in the United States. *Lau v. Nichols* was a class action suit filed by the families of 1800 Chinese students who claimed they were being discriminated against because they could not learn the content that was being taught to them in English by English speaking teachers:

There is no equality of treatment merely by providing students with the same facilities, textbooks, teachers, and curriculum; for students who do not understand English are effectively foreclosed from any meaningful education... We know that those who do not understand English are certain to find their classroom experiences wholly incomprehensible and in no way meaningful. (Ovando, 2003, p. 9)

Since the original court decision did not prescribe methods or program models, the implementation of bilingual programs was left open to interpretation. Previous to the *Lau* verdict, English learners were subjected to a sink or swim approach to schooling, but the new decision led to the Equal Educational Opportunities Act in August 1974 (Ovando, 2003). The Equal Educational Opportunities Act confirmed *Lau* and extended the intent of the law to include all public schools not just those receiving federal funds.

The Equal Educational Opportunities Act stated:

No state shall deny equal educational opportunity to an individual on account of his or her race, color, sex or national origin by ...the failure of an educational agency to take appropriate action to overcome language barriers that impede equal participation by its students in its instructional programs. (20 USC Sec. 1703)

In 1975 the Office for Civil Rights issued the *Lau* remedies in order to solidify the intent of *Lau*. Whereas Title VII provided a focus on the education of disadvantaged language minority students where the home language could be used, the *Lau* remedies required schools that received federal funds to teach students in their home language and culture (Wiese & Garcia, 2001; as cited in Baker, 2006). *Lau* remedies stipulated that bilingual education should be implemented when at least 20 English learners of the same language background were enrolled. While learning academic content in the home language, students were to receive instruction in English so as to catch up to English-only peers. *Lau* remedies also promoted the implementation of strong bilingual programs that promoted biliterate/bicultural goals. Schools had to demonstrate that their programs were effective for language minority students or they would lose federal funding (Ovando, 2003).

Prompted by a lawsuit against a school district in Raymondville, Texas, *Castañeda v. Pickard* is regarded as the second most important court decision in terms of the education of English learners (Ovando, 2003). The school district in this case was charged with violating the civil rights of English learners under the Equal Education Opportunities Act of 1974. As a result, the Fifth Circuit Court of Appeals established a three-step test in order to determine if schools were meeting the requirements of the *Lau* remedies: “a) the school program must be anchored in sound educational theory, b) adequate resources and personnel must be evident in the school program,

and c) the school program must reflect sound practices and results, not only in language but also in such content areas as math, science, social studies and language arts” (Ovando, 2003, p.10).

After 20 years of development and research, the 1980’s once again showed a renewed increase in anti-bilingual education policy. The Reagan and Bush administrations favored English-only instruction. In 1985, William Bennett, United States Secretary of Education from 1985-1988, changed Title VII claiming that no evidence had been produced to show that Title VII was helping language minority students. Reagan also cancelled the *Lau* remedies making them no longer enforceable by law (Baker, 2006; Ovando, 2003). During this time views on the instruction of language minority students returned to the sink or swim methods seen early in the 20th century.

The National Education Goals Panel of 1994 sought to increase the number of students who gained proficiency in more than one language. The panel recognized that proficiency in more than one language brought economic benefits to individuals and the nation. The 1994 Reauthorization of Title VII provided limited funding for bilingual education, particularly two-way immersion programs. Congress was unsuccessful in its attempt to repeal the law and end funding. However, funding was reduced by 38% between 1994 and 1996 leading to cuts in all bilingual programs and teacher training, as well as decreases in budgets for research, evaluation, and support of bilingual education in the United States (Baker, 2006).

It is important to study the trajectory of bilingual education in the United States to understand that historically perspectives on bilingual education have swung from support

for instruction in English plus another language to opposition to educating students in two or more languages. The driving forces of support or opposition for bilingual education have been politically charged and not a consequence of sound pedagogical principles. Understanding where we've been will inform where we need to go in terms of the education of English learners in bilingual programs. The following section explores the most recent policies on language learning and the ideology that have fueled a predominately anti-bilingual stance that led us into the 21st century.

Language Policy/Ideology

Although the founding fathers did not adopt a national language nor a government sanctioned body to regulate speech (Kloss, 1998; Ovando, 2003), there exists what Macedo, Dendrinos, & Gounari (2003) call a “covert assimilationist policy” prevalent throughout the United States. This assimilationist policy has worked decisively in promoting English as the “official” language, and solidifying its worth as the most suitable language for instructing English learners. This English monolingual ideology views language diversity as a problem and equates patriotism and the unity of the nation as having only one language: English.

In recent years, California, Arizona, and Massachusetts have passed laws prohibiting the use of non-English language for instruction in public schools. Bartolomé & Leistyna (2002) refer to the recent English-only laws as a “modern day prohibition,” not unusual in U.S. history. Similar laws were attempted in Colorado and Oregon, but were defeated. In Colorado the anti-bilingual education initiative was unsuccessful due to the fact that a wealthy parent spent a large amount of money convincing the middle-

class Whites not to vote for the initiative so that English learner students would be kept out of their classrooms. The initiative was not defeated as a way of supporting or acknowledging the benefits of bilingual education; it was defeated due to the fear that English learner students would end up in the mainstream classroom.

Proposition 227

In 1998, California became the first state to pass an anti-bilingual initiative. Proposition 227 was passed by California voters by an overwhelming 60.88% of voters (Alvarez, 1999). Authored by Ron Unz, a millionaire software developer, Proposition 227, mandated that English learners be taught “overwhelmingly” in English (Stritikus, 2001). Unz established an organization called ‘English for the Children’ in order to place the initiative on the ballot and abolish the option of educating English learners in their native language. Most English learners in California are Latino; therefore Proposition 227 most affected Latino students’ option of receiving instruction in their primary language. Ron Unz launched “English for the Children” as a forum to support immigrant students; however, the initiative encountered objection from many politicians including then-President Clinton. The measure became divisive among two camps: those who believed that immigrants need to become Americanized and learn English quickly and those who believed that English learners learn best when taught through their native language (Stritikus, 2001; Kerper Mora, Wink, & Wink, 2001).

Once passed, school districts had 90 days to implement the new law. Although Proposition 227, mandated one year of structured English immersion for English learners, the law did not delineate how to teach English learners other than saying they were to be

taught in English, using English. It did not clearly define what one-year of sheltered English instruction included (Kerper et al., 2001). It also did not address the issue of students who do not meet fluent English proficiency in one year. The law was not based on sound second language acquisition pedagogical principles (Kerper Mora et al., 2001).

Proposition 227 did leave a window of opportunity for bilingual programs to continue through the parental waiver process. Parents may request a waiver in order for their child to participate in a dual language program (Stritikus, 2001). Waivers are allowed under three specific circumstances: a) The child is already a fluent English speaker; b) the child is 10 years or older; c) and or the child has special needs. Parents must sign the waivers in person. The law also stipulates that if 20 or more students at a school request the waiver, the school is obligated to offer a bilingual program. If the school cannot offer such a program, then the students must be allowed to transfer to another public school where the program is offered.

Studies have shown that although English Learner achievement on State standardized tests has increased over the past 10 years, the achievement gap between English-only and English learners has remained virtually the same: the achievement gap has not gotten worse, but it has also not improved as the proponents of Proposition 227 believed it would. According to a study conducted for the California Department of Education by the American Institute for Research and West Ed, it is difficult to attribute the reason for the academic gains made by English learners in the last decade to English-only instruction. During this time other reforms have been implemented such as class size reduction and stricter accountability that can explain why English learners have

made some gains along with other subgroups such as White and African-American students.

Parrish et al. (2006) found that no single path has been identified to academic excellence among English learners. Administrators in their study, however, pinpointed the following key features as critical for academic success

1. staff capacity to address EL needs;
2. school-wide focus on English Language Development and standards-based instruction;
3. shared priorities and expectations in regard to the education ELs; and
4. systematic, ongoing assessment and data-driven decision-making.” (Parrish et al., 2006, p. x)

The study also found “little to no difference” in English learner academic performance by model of instruction, particularly bilingual programs versus English-only programs. The researchers concluded that Proposition 227 focused on the wrong issue. Program model is not the determinant of English learner academic achievement, but a variety of other factors contribute to the academic success of English learners.

More than ten years after the passage of Proposition 227, as studies have shown, instructing English learners in a language other than English did not hinder students’ academic progress. Continuing studies are needed in order to further identify the most effective models of instruction for English learners. The following section will explore past and current models of bilingual education.

Bilingual Education Models

Bilingual programs in the United States have existed under a variety of program models. This section briefly explores the types of models most prevalent in California, particularly the two-way immersion model of bilingual education. Table 2 summarizes the types of instructional models of bilingual education based on Linqunti’s (1999) “Types of Instructional Program Models.”

Table 2

Types of Instructional Models of Bilingual Education

Instructional Model	Definitions and Characteristics	When Appropriate
Early-Exit Transitional	<ul style="list-style-type: none"> • Goal is to develop English skills without sacrificing or delaying learning of academic core and develop English fluency to successfully move students to mainstream classrooms • Students are ELL and from same language background • Some content instruction in native language, transition to English as rapidly as possible • Usually transition to mainstream in 2-to-3-years 	<ul style="list-style-type: none"> • Sizable group of ELLs who speak the same language and are in the same grade • Limited number of bilingual teachers available to teach in the higher grades
Late-Exit Transitional/ Developmental or Maintenance	<ul style="list-style-type: none"> • Goal is to develop academic proficiency in English and students’ first language • <u>Transitional programs</u>: generally place less emphasis on developing students’ first language and more emphasis on the first language as a bridge to English language development • <u>Developmental programs</u>: generally place equal emphasis on developing and maintaining students’ primary language and academic English proficiency • Students are ELL and from same language background • Significant amount of instruction in native language while continuing to increase instruction in English (4-6 years) 	<ul style="list-style-type: none"> • Sizable group of ELLs who speak the same language and are in the same grade • Bilingual teachers available to teach in the higher elementary (or later) grades • Interest and support from language-minority community in maintaining primary language, learning English, and achieving academically in both languages

Instructional Model	Definitions and Characteristics	When Appropriate
Bilingual Immersion	<ul style="list-style-type: none"> • Goal is English language development • Students are ELL and from same language background • Most instruction in English; first hour of the day, teachers teach primary language literacy and explain concepts in students' primary language. Sheltered English for all subjects. • Students may use primary language even when instructed in English • Transitional model, usually 2-4 years, then enter mainstream 	<ul style="list-style-type: none"> • Sizable group of ELLs who speak the same language and are in the same grade • Limited number of bilingual teachers available to teach in the higher grades
Integrated TBE	<ul style="list-style-type: none"> • Goals are English Language Development and partial bilingualism • Targets minority students within majority classroom • Allows teachers and students to use native language in mainstream classrooms 	<ul style="list-style-type: none"> • When there are significant numbers of students with same language background, but not necessarily enough for a whole class • Bilingual teachers and/or assistants, who are available and trained, share a classroom with a monolingual-English teacher.
Dual language Immersion (aka two-way bilingual)	<ul style="list-style-type: none"> • Goal is to develop strong skills and proficiency in students' first language and a second language • About half the students are native speakers of English and half are English-language learners from the same language group • Instruction in both languages ("90/10": begins 90% in non-English, 10% English, gradually increasing to 50/50; or "50/50": 50% non-English, 50% English for all students from beginning) 	<ul style="list-style-type: none"> • Approximately half the students are native English speakers and half are native speakers of another language • Bilingual teachers who are trained to teach learners in both languages

Transitional Bilingual Programs

Prior to the passage of Proposition 227, many bilingual programs for Latino English learners followed a transitional program model. In transitional bilingual education, students are instructed in their primary language and are transitioned into English usually by third grade. The idea behind transitional programs is to use the students' primary language (L1) as a vehicle to acquiring the second language (L2). L1 is eventually abandoned, with the ultimate goal being assimilation (Baker, 2006). This

program model is also referred to as subtractive in nature since the acquisition of L2 is at the expense of L1 (Baker, 2006). “Thus, transitional education is a brief, temporary swim in one pool until the child is perceived as capable of moving to the mainstream pool” (Baker, 2006, p. 221). Transitional bilingual programs are comprised of two models: early-exit and late-exit. Early-exit programs offer instruction in the student’s primary language for approximately two to three years (Linguanti, 1999; Baker, 2006). Late-exit programs offer instruction in the student’s primary language for up to 40% of instructional time to sixth grade, or four to six years (Linguanti, 1999; Baker, 2006). In both types of transitional programs the student population consists of English learners who speak the same primary language; therefore the ethnic makeup of the students are the same.

Maintenance Bilingual Programs

Maintenance Bilingual programs, also referred to as Developmental, differ from transitional program models in that the goal of the former is biliteracy. Equal status is given to both the development of English and the students’ primary language. L1 instruction is maintained throughout the program in all grades. This program model is also referred to as additive since the acquisition of L2 is added onto the development of L1 with the ultimate goal being bilingualism/biliteracy.

Two-way immersion

Two-way immersion programs purposely mix language majority and language minority students in the same educational setting. The students are taught in English and a target language. The target language consists of the native language of the language minority students. Christian (1996) stated that two-way immersion programs provide an

effective educational model for English learners in an “additive bilingual environment” where English learners’ primary language is developed alongside English language development. This bilingual program model is more closely aligned to a maintenance bilingual program since both program models promote biliteracy.

Since the passage of Proposition 227, the number of two-way immersion programs in the United States has risen. According to the Center for Applied Linguistics (CAL) (2009) 178 two-way immersion programs were underway in the United States in 1998. By 2010, that number grew to 346 two-way immersion programs. California has the highest number with 107 TWI programs, followed by Texas with 53 TWI programs. It is important to note that the California Department of Education lists 201 TWI programs in California; this may be due to the fact that CAL is dependent on schools registering their programs with CAL. Nevertheless, California leads the country with the number of TWI programs implemented throughout the state.

Two-way immersion programs fall into two primary program models: 90/10 and 50/50. The 90/10 program was first developed in San Diego in the 1970’s and the 50/50 program was developed in Dade County, Florida in the mid-1960’s (Lindholm-Leary, 2001). In a 90/10 TWI program, instruction in kindergarten begins with 90% of the instruction in the target language and 10% in English. As the students progress through the grades, the percentage of instruction in English increases. By the fourth grade, instruction is 50% in English and 50% in the target language. In the 50/50 TWI program, 50% of instruction is in English and 50% of instruction is in the target language in all grades. Regardless of the program model, one of the goals of two-way immersion

programs is for all students to become bilingual/biliterate in English and a target language by the end of the elementary program. Other models of TWI exist, such as 70/30 and 80/20. Each program model is dependent on the proportion of target language instruction and English instruction at the onset of the program (Lindholm-Leary, 2001).

The 90/10 model is based on the literacy development of the target language, usually Spanish, before formal literacy instruction in English. Therefore 90/10 model can be considered a sequential literacy program since literacy instruction in the target language precedes literacy instruction in English. For English learners, the 90/10 model follows the belief that literacy instruction in a child's first language is necessary for the later development of literacy in English. This model follows the belief that English learners gain English literacy more effectively when the student's primary language literacy has been developed first. Therefore literacy in L1 precedes literacy in L2. Formal literacy instruction in English doesn't usually begin until second or third grade. In a 50/50 TWI program, literacy in both the target language and in English are developed from the onset of the program, usually kindergarten. The 50/50 TWI model can be considered a simultaneous literacy program, where both languages are developed at the same time. In this model, it is believed that English learners can gain literacy in both languages simultaneously and that the literacy development of an English learner's primary language doesn't have to precede literacy development in English.

Research on Two-Way Immersion Programs

A number of studies have been conducted to study student achievement and program effectiveness within two-way immersion programs. The following section is a review of studies conducted on the two-way immersion model of bilingual education.

Early Two-Way Immersion Studies

Christian, Montone, Lindholm, & Carranza (1997) conducted a comparative study which included three schools across the country. Key Elementary School in Arlington, Virginia implemented a 50/50 program. Students in this program scored higher than the national average on the Iowa Test of Basic Skills (ITBS) in English (50th percentile) over three years. The immersion students scored better than their peers on a state and county level and also outperformed non-immersion students at Key Elementary School. Spanish speakers attained high levels of English particularly by fourth grade. Standardized tests were not administered in Spanish; therefore no formal way of determining achievement in Spanish was provided. The study focused on English attainment, not biliteracy.

River Glen School in San Jose, California implemented a 90/10 program. At River Glen, when the study was conducted, most students scored above the 50th percentile in English reading achievement as measured by the Comprehensive Test of Basic Skills (CTBS). By fifth grade students were scoring at the 32 percentile. A significant increase in scores occurred in seventh grade. Being that it was a 90/10 program, English reading was not introduced until third grade. The researchers noted that English reading increased steadily but did not reach the 50th percentile until seventh

grade, however English speakers reached the 50th percentile in third grade (Christian et al., 1997).

Inter-American Magnet School (IAMS) in Chicago, Illinois followed an 80/20 model, where 80% of instruction in kindergarten was in Spanish and 20% of instruction was in English. At the time of the study the 80/20 model was being followed in grades kindergarten through third grade. Spanish achievement was assessed using *La Prueba Riverside de Realización en Español* in reading and writing in grades three through eight. Reading and writing percentiles were average to above average across the grade levels with scores ranging from the 53rd percentile to the 70th percentile. However the data was not disaggregated by language background. Therefore it is unknown if the native Spanish speakers outperformed the native English speakers. In English, the Illinois Goals Assessment Program (IGAP) was administered in reading, math and writing in grades 3, 6 and 8 and the Iowa Test of Basic Skills (ITBS) in reading and math in grades four through eight. Test results for the 1994-1995 school year showed that the students at IAMS outperformed district and state averages on the IGAP. Results on the ITBS tested showed students performing at or just below national averages across all grade levels. It is important to note that English learners from other countries are not required to take state standardized tests until they have received three years of schooling in the United States. Therefore if the IAMS program enrolled native Spanish speakers from another country, those students were excused from taking the test. Therefore the scores would not represent all students in the IAMS program. However in Spanish, all Spanish and

English background students took the Spanish test; no student was exempt from the Spanish test (Christian et al., 1997).

Large-Scale Studies on Bilingual Programs

Some large-scale studies have been conducted that included two-way immersion programs. The following is a review of the studies conducted by Thomas and Collier (2002), Lindholm-Leary (2001) and Howard, Christian & Genesse, (2004).

Thomas and Collier (2002) have been leaders in the field of researching the effectiveness of bilingual programs. The researchers conducted a five-year longitudinal study that compared eight program types in five large districts throughout the United States that served language minority students. They found that students in Grade 5, with a minimum of four years in the two-way immersion program, reached the 50th percentile in English reading and the 65th percentile in Spanish reading (Genesse et al., 2006). In this study only students enrolled in programs that promoted bilingualism and biliteracy, such as two-way immersion programs, reached the 50th percentile or higher in L1 and L2 after participating in the program for four to seven years.

Lindholm-Leary (2001) also conducted a large-scale study focusing on student achievement in 90/10 two-way immersion programs, 50/50 two-way immersion programs, and transitional bilingual programs by collecting data from over 6,000 students in 18 schools. Each school was categorized based on number of ethnic minorities and family income level. The 90/10 models were categorized as 90/10 HI meaning high ethnic minorities or 90/10 LO meaning a low percentage of ethnic minorities were

enrolled in the program. The 50/50 and transitional bilingual education programs were not categorized based on the number of ethnic minorities and family income level.

A variety of measures were used including surveys, rating scales and norm-referenced tests to collect data regarding academic achievement in reading and math, oral language development in English and Spanish, and attitudes towards bilingualism.

Results showed that students in both program models of two-way immersion outperformed the students in non-TWI settings. When comparing the students in the 90/10 two-way immersion programs to the 50/50 two-way immersion program, higher levels of Spanish proficiency were reported for students in the 90/10 TWI, particularly among Spanish speakers. This study found that Spanish speakers benefited from the higher percentage of instructional time dedicated to Spanish in the early grades. In terms of English academic achievement no significant difference was found between the 90/10 and 50/50 program. Therefore receiving less instruction in English in the early grades did not impede progress in English for the Spanish speakers enrolled in a 90/10 program. Overall the study found that both English and Spanish speakers were achieving in English and Spanish and in some cases outperforming state averages, indicating that the two-way immersion model of bilingual education is an effective program model for both English-only and Spanish-speaking students (Lindholm-Leary, 2001).

Another large-scale study ($n = 484$) included 11 two-way immersion programs across several states (Howard et al., 2004). Spanish speaking English learners' achievement was compared to English-only achievement. Although Spanish speakers

scored below English-only speakers, the difference in test scores was reduced by the upper grades. Students were followed for three years from third through fifth grade.

Literacy Squared® Project

Studies on the trajectory towards biliteracy, framed in the context of a continua with multiple points, are virtually non-existent within the literature. Transitions to biliteracy: Literacy Squared®, a five year longitudinal study on the biliteracy trajectory of what the researchers called Spanish/English Emerging Bilinguals, emerged from a need to identify more clearly the transition from Spanish to English literacy among transitional bilingual programs. In other words, in this study Spanish speaking English learners received literacy instruction in their first language and subsequently transitioned into English literacy instruction in third grade. Schools that participated in this project implemented a bilingual education model where paired literacy instruction began in first grade (Escamilla, 2010). Therefore students in the study received literacy instruction in Spanish and English from the early grades of the program. The Literacy Squared® project examined whether the paired literacy instruction could help Spanish speaking English learners to “become biliterate in a way that would enhance and maintain literacy acquisition in Spanish and at the same time accelerate literacy acquisition in English.” (p.10) While students received literacy instruction in Spanish, they also received literature-based English as a Second Language (ESL). The project was conducted in three phases: exploratory year, pilot testing year and longitudinal study 2006-2009. In studying up to 1500 students, Escamilla (2010) found that students were on a “positive trajectory toward biliteracy.” The researchers also found that introducing literacy in both

Spanish and English simultaneously had a positive effect on the attainment of biliteracy. An important finding in the Literacy Squared[®] Project was the importance of cross-language connections where there was purposeful instruction focusing on the connections between the two languages being learned.

Since the Literacy Squared[®] project included transitional bilingual education type programs the findings may be difficult to apply to two-way immersion programs.

However, one of the goals of two-way immersion programs is biliteracy attainment and these programs also consisted of a percentage of students who were Spanish speaking English learners. Therefore the Literacy Squared[®] study is helpful in understanding the biliteracy attainment of Spanish speaking English learners and may be helpful in understanding if simultaneous literacy programs such as the 50/50 TWI program are more effective for Spanish speaking English learners than the 90/10 TWI program.

Small-Scale Studies on Bilingual Programs.

Most studies that involve two-way immersion programs can be considered small-scale studies in that the *n* is under 200 students and/or only one or two schools are involved in the study. The following is a review of small-scale studies that tested English and/or Spanish academic achievement.

Cabazon, Nicoladis and Lambert (1998) studied the English and Spanish achievement of students in the Amigos 50/50 two-way immersion program in Cambridge, Massachusetts over a span of six years. The Amigos program began in kindergarten and concluded in eighth grade. Achievement results for the Amigos students were compared to control groups within the same school and across Cambridge public schools. English

Achievement was measured with the California Achievement Test 1985 (CAT) and Spanish Achievement was measured with the Spanish Achievement in Bilingual Education 1991 (SABE). Both the native English speakers (English Amigos) and the native Spanish speakers (Spanish Amigos) scored above the English control group on the CAT. In Spanish, the English Amigos scored below the Spanish control group and the Spanish Amigos scored above the Spanish control group. The researchers found that although both the English and Spanish Amigos were attaining high levels of biliteracy, data at the upper grade level were scant. Therefore only preliminary conclusions could be made with this study.

DeJong (2002) studied the Barbieri 50/50 two-way immersion program in Framingham, Massachusetts. Scores on the Stanford Achievement test were collected for English achievement and scores on the Aprenda[®] were collected for Spanish achievement. Both Spanish and English speakers scored above the national norms on the Aprenda[®] demonstrating Spanish literacy achievement across the grade levels studied. English speakers scored above the national norms on the Stanford Achievement test; however Spanish speakers scored below the national norms in English through fifth grade. Therefore in this study the English speakers reached expected levels of achievement by the end of fifth grade in both English and Spanish. Although the Spanish speakers reached high levels of achievement in Spanish, they lagged behind the national norms in English particularly by fifth grade.

Lopez and Tashakkori (2004, 2006) conducted two studies in Florida to investigate the effects of bilingual programs on the academic achievement of English

learners. In one study, Lopez and Tashakkori (2004) investigated the literacy development of kindergarten and first grade students in a two-way immersion program in Florida. After one year of instruction they found no significant difference in achievement between the students enrolled in a two-way immersion classroom and the students enrolled in a mainstream classroom. A pretest-posttest control group design was used for this study. At the beginning of the school year, the students in the experimental group scored lower on district measures than the students in the control group. However, at the end of the school year, no significant achievement gap was evident between the students in the control group versus the students in the experimental group. Thus, Lopez and Tashakkori (2004) concluded that participation in the two-way program did not hinder the students' academic progress.

The Lopez and Tashakkori's (2004) study is difficult to generalize to all two-way programs since the program consisted of 70% English instruction and 30% Spanish instruction. Other TWI programs spend much more than 30% of the instructional day in the target language (i.e. Spanish); therefore one cannot conclude that other TWI programs, such as 90/10 TWI programs, where 90% of instruction is in the target language in kindergarten, would yield the same results. It is possible that the achievement gap between the students in the control group versus the students in the experimental group was due to the fact that most of the instruction was in English, and not a direct result of being in a TWI program. In fact, instruction was primarily in English in all of the program models in the Lopez and Tashakkori (2004) study.

In a more recent study, Lopez and Tashakkori (2006) investigated the academic outcomes of EL students in a two-way bilingual program as compared to students in a transitional bilingual program after the students had been enrolled in the program through fifth grade. Results indicated that students who were most proficient in English in kindergarten scored the highest in English in fifth grade, meaning that the students who already entered kindergarten with higher English proficiency, achieved higher than those who entered with lower English proficiency. Lopez and Tashakkori (2006) noted that being in a bilingual program, particularly TWI, had a positive academic impact on the English Learners. English Learners did make academic gains in both English and Spanish; however it was also noted that native English speakers still outperformed the English Learners, therefore not shrinking the achievement gap. Lopez and Tashakkori (2006) contended that participation in a bilingual program did not significantly reduce the achievement gap as measured by standardized test scores. Other measures are needed to accurately measure the academic progress of English learners in TWI.

The Lopez and Tashakkori (2006) study was consistent with Carlisle and Beeman (2000) who also found that the English reading scores of students being taught bilingually did not differ significantly from the scores of students who are taught monolingually. This study investigated the effects of teaching literacy in two classes of Hispanic first graders. One class was taught literacy in Spanish, whereas the other class was taught literacy in English. Although Carlisle and Beeman (2000) concluded that there was no significant difference in the scores in English reading and writing, the student's level of vocabulary in English was a predictor of performance on a reading

comprehension measure. The Lopez and Tashakkori (2006) and the Carlisle and Beeman (2000) studies are important in that they both demonstrated that vocabulary development had a direct relationship to a student's ability to comprehend text. The sample size was small, particularly in the Carlisle and Beeman (2000) study, consisting of only two first grade classes, but the results are still significant in that the findings show that primary language instruction had a positive effect on the academic achievement of English.

Summary

Instructing English language learners in their primary language has been a contentious issue throughout the United States for decades. Although in some periods of U.S. history bilingual education has been seen in a favorable light, particularly from 1960 to 1980, instruction in English-only has reigned superior to bilingual education. The issue came to a head in California with the passage of Proposition 227. It is interesting to note that Proposition 227 mostly affected the primary language instruction of a minority of Latino English learners. However, the measure was passed by a White majority who favored English-only instruction. Muharrar (1998) reported that when actual votes were counted, a majority of Latinos were opposed to Proposition 227 even though the mass media reported prior to election day that a majority of Latinos were in favor of English-only instruction.

Restricting languages other than English with initiatives such as Proposition 227 confirms the monolingual/assimilationist language policy that has persisted in education. However since the passage of Proposition 227 eleven years ago, the academic achievement of Latino English learners has not reached the same levels as English-only

students, particularly when compared to White English-only students. The achievement gap has not narrowed. Latino English learners continue to struggle to reach proficiency in content areas. Research has shown that no one model of instruction has been identified as most effective in the education of English learners, particularly between English-only program models and bilingual program models. In fact, studies have shown that both English-only and bilingual models can be effective if implemented correctly. Therefore, it is of utmost importance to continue to conduct research on the academic achievement of English learners in bilingual programs. In the 1980's and 1990's most Latino English learners were enrolled in transitional bilingual programs whose primary goal was the acquisition of English. In the past eleven years, the two-way immersion model of bilingual education has been the most widely implemented program in California. One of the primary goals of the two-way immersion model is bilingualism and biliteracy. This situates bilingual education in a much different light. Two-way immersion programs recognize that although the acquisition of English is important, the development of both primary and second language academic achievement is essential for the overall success of Latino English learners in a bilingual program.

The preponderance of research on effective programs for Latino English learners in the U.S. has not focused on biliteracy attainment. In fact, there are only approximate ways to determine biliteracy, as noted by Hornberger (2003). A complete theory on bilingualism does not yet exist (Hornberger, 2003) and further studies are needed that focus on the biliteracy development of Latino English learners. In addition, few studies are available that examine program models to determine if one model of two-way

immersion is more effective in the biliteracy achievement of Latino English learners.

This study adds to the literature on two-way immersion program models in order to begin to identify if one model is in fact a better fit for English learner students. It is imperative that data is collected on a regular basis so that when bilingual education comes under attack, the discussion can be about effective bilingual pedagogy and not about sustaining a monolingual language ideology.

This study sought to provide information on the biliteracy achievement of Latino English learners in two program models of two-way immersion to determine if learning two languages sequentially is indeed more effective for English Learners. The next chapter addresses the methodology used and analyses conducted in this study to identify the biliteracy achievement of Latino English learners in 50/50 and 90/10 two-way immersion elementary programs.

CHAPTER THREE

METHODS

Introduction

This normative comparative study of the biliteracy achievement of Latino English learners who participated in a 50/50 or 90/10 two-way immersion program (TWI) from first through fifth grade sought to identify if one program model developed biliteracy at higher levels than the other program model. This chapter presents the research questions and methodology, including participants, data collection procedures and data analysis.

Research Questions and Hypotheses

This study compared the biliteracy achievement of Latino English learners in a 50/50 two-way immersion program (TWI) to Latino English learners in a 90/10 TWI program. This study was conducted in a large urban public school district in southern California. The primary research question was: Is the biliteracy achievement of Latino English learners dependent on the type of TWI program model the student is enrolled in?

In order to answer the primary research question the following questions were explored:

RQ1: Do Latino English learners achieve biliteracy more effectively in a simultaneous literacy program such as a 50/50 two-way immersion program or in a sequential literacy program such as a 90/10 two-way immersion program?

Ho1. This study will show that there is no significant difference in the biliteracy achievement of Latino English learners in a 50/50 two-way immersion program compared to Latino English learners in a 90/10 two-way immersion program.

RQ1a: Are there any differences in the Spanish reading achievement of Latino English learners, over time, in a 50/50 TWI program as compared to a 90/10 TWI program?

H₀1a: This study will show that there is no significant difference in the Spanish reading achievement of Latino English learners in a 50/50 TWI program compared to Latino English learners in a 90/10 TWI program.

RQ1b: Are there any differences in the English reading achievement of Latino English learners, over time, in a 50/50 TWI program as compared to a 90/10 TWI program?

H₀1b: This study will show that there is a significant difference in the English reading achievement of Latino English learners in a 50/50 program by third grade, where English and Spanish literacy have been taught simultaneously since kindergarten, compared to students in a 90/10 TWI program, where Spanish reading instruction preceded instruction in English reading. However, by the end of the program at fifth grade it was hypothesized that there would be no significant difference in the English reading achievement of Latino English learners in both the 50/50 TWI program and the 90/10 TWI program.

RQ2: How is data used at the school site level to determine the biliteracy attainment of Latino English learners?

H₀2: The interviews conducted will show that data is collected and analyzed minimally when looking at biliteracy. School site leaders will be more concerned with English literacy data as opposed to both Spanish and English literacy data.

This normative comparative study looked at the biliteracy achievement of Latino English learners in a 50/50 TWI program as compared to the biliteracy achievement of Latino English learners in a 90/10 TWI program. The California Standards Test (CST), English Language Arts exam (ELA), a state criterion-referenced test that measures the achievement of the English Language Arts Content Standards in grades two through eleven and the district's English Benchmark Book test that measures the grade-level reading achievement of students in kindergarten through sixth grade, were used to compare academic results in English literacy. The California Standards-based Test in Spanish (STS), a state criterion-referenced test that measures the achievement of the California Content Standards in reading-language arts and mathematics in Spanish and the district's Spanish Benchmark Book test that measures Spanish grade-level reading achievement in grades kindergarten through sixth grade, were used to compare academic results in Spanish literacy. In addition, each of the four principals was interviewed to determine the use of data from the state and district tests at the individual school sites.

Methodology

This was a normative comparative study on the biliteracy achievement of Latino English learners who participated in a 50/50 or 90/10 two-way immersion program (TWI) from first grade in the 2004-2005 school year through fifth grade in the 2008-2009 school year. For the quantitative portion of the study, standardized test data along with district reading assessments were collected for Latino English learners who attended the 50/50 TWI programs and the 90/10 TWI programs in a large urban school district in southern California. The data were collected from the district's Research, Planning and Evaluation

Department. CST/ELA data were collected for spring 2006, spring 2007, spring 2008 and spring 2009. STS/Spanish language arts data were collected for spring 2007, spring 2008 and spring 2009. End of year district Benchmark Book test scores were collected for fiction and non-fiction in English and Spanish first through fifth grade. In order to understand how the data collected is used at the school site level, the principal at each TWI school was interviewed.

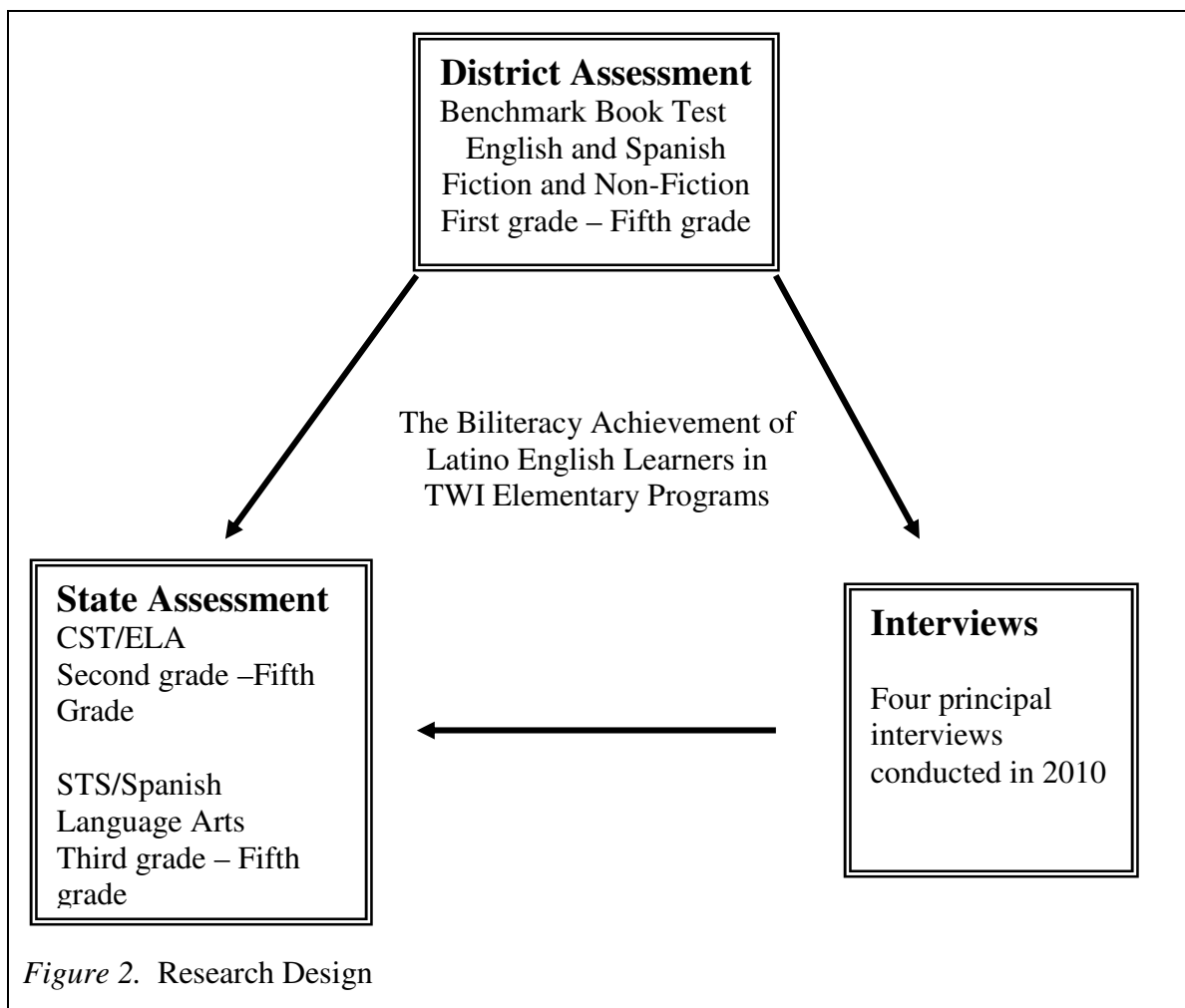


Figure 2 is a graphic representation of the measures used to answer the research questions.

The primary research question was: Is the biliteracy achievement of Latino English learners dependent on the type of TWI program model the student is enrolled in?

In order to answer the primary research question the following questions were explored:

RQ1a: Are there any differences in the Spanish reading achievement of Latino English learners, over time, in a TWI 50/50 program as compared to a TWI 90/10 program?

Research Question 1a (RQ1a) focused on the Spanish reading achievement of Latino English learners enrolled in a 50/50 and 90/10 Spanish/English TWI program, first through fifth grade. Spanish reading achievement was determined by analyzing the district's Spanish Reading Benchmark tests for first through fifth grade. The district Benchmark Book test included assessments pre-kindergarten through fifth grade. Reading is assessed at a mid-grade level and end of grade level in fiction and non-fiction. For example in first grade, a Spanish Benchmark Book is administered that measures middle of first grade reading level and a Spanish Benchmark Book test measures end of first grade reading level. Two tests are given per level. If a student doesn't pass a particular test, the alternate test is used when the assessment is re-administered. The district Benchmark Book tests are given individually to each student by the classroom teacher when the student is ready to take the assessment. Therefore, unlike standardized tests which are given on a predetermined date, the district Benchmark Book tests are

administered throughout the school year. For this study, end-of-year district Spanish Benchmark Book test scores were collected.

Since 2007, all Spanish-speaking students who are classified English learners and who receive instruction in Spanish are required to take the STS. In spring 2006, participants in this study took Aprenda[®]: La prueba de logros en español in order to measure achievement in Spanish language arts. Since the district did not systematically collect Aprenda[®]: La prueba de logros en español data, only data from the STS was available for collection and analysis. Therefore, reading achievement in Spanish was also measured by examining scores on the California Standards-based Test in Spanish (STS): Spanish Language Arts section in 2007, 2008 and 2009 when the participants of the study were in third, fourth and fifth grade.

RQ1b: Are there any differences in the English reading achievement of Latino English learners, overtime, in a 50/50 TWI program compared to a 90/10 TWI program?

Research Question 1b (RQ1b) focuses on the English reading achievement of Latino English learners enrolled in a 50/50 and 90/10 Spanish/English TWI program from kindergarten through fifth grade. Reading achievement in English was measured by analyzing the district's English Benchmark Book tests for first through fifth grade. As with the Spanish Benchmark Book test, the district Benchmark Book test in English included assessments pre-kindergarten through fifth grade. Reading is assessed at a mid-grade level and end of grade level in fiction and non-fiction. For example in first grade, an English Benchmark Book test measures middle of first grade reading level and an English Benchmark Book test measures end of first grade reading level. Two tests are

administered per level. If a student doesn't pass a particular test, the alternate test is used when the assessment is re-administered. The district Benchmark Book tests are given by the classroom teacher one-on-one when the student is ready to take the assessment. Therefore, unlike standardized tests, which are given at a predetermined time, the district Benchmark Book Tests are administered throughout the school year. For this study, end-of-year district English Benchmark Book test scores were collected.

English reading achievement was also measured by analyzing scores on the California Standards Test (CST), English Language Arts (ELA) section, in second through fifth grades. Standardized test data was analyzed for second, third, fourth and fifth grades. Second grade data was chosen because second grade is the grade when standardized testing begins in California. In order to study achievement on the language portion of the standardized test over time, it is important to examine the initial standardized score for each student. In third grade it is expected that students are reading at a third grade level in Spanish in both the 50/50 and 90/10 TWI programs. In English, it could be expected that students have reached a third grade reading level by third grade in a 50/50 TWI program where the students have been receiving simultaneous reading instruction; however in a 90/10 TWI program it would not be unusual for English learners to enter third grade below grade level in English reading, since a higher percentage of instructional time is in Spanish from kindergarten through third grade. By fourth grade, instruction in both the 50/50 TWI program model and the 90/10 program model is 50% in the target language and 50% in English. Therefore data was analyzed at the fourth grade level to determine progress by Latino English learners in the acquisition

of literacy in both Spanish and English since at this grade level the percentage of instructional time by language is equal in both program models. One of the goals of both the 90/10 and the 50/50 TWI programs is biliteracy by the end of the program, which in the case of this study was fifth grade; therefore fifth grade data was analyzed to determine biliteracy achievement upon completion of the 50/50 and 90/10 TWI programs.

RQ2: How were data used at the school site level to determine the biliteracy attainment of English learners?

Research question RQ2 sought to determine how data at the school-site level were used to measure biliteracy. The researcher interviewed the principal at each of the TWI schools to learn how state and district assessment data in Spanish and English were used at the school site level to determine if students were reaching the goal of biliteracy.

Table 1, which also appears in Chapter 1 of this dissertation, states each research question, the data that was collected for each question and the analysis that followed in order to answer the research questions.

Table 1

Methodology

Research Questions	Measurement Tool	Construct	Analysis
RQ1: Do Latino English learners achieve biliteracy more effectively in a simultaneous literacy program such as a 50/50 Two-Way Immersion program or in a sequential literacy program such as a 90/10 Two-Way Immersion program?	English/Spanish District Reading tests	English/Spanish Grade-Level Reading Achievement Fiction and Non-Fiction	Repeated Measures ANOVA Bonferroni Post Hoc Test
	CST/English Language Arts	English Language Arts Achievement	Chi Square
	STS/Spanish Language Arts	Spanish Language Arts Achievement	<i>t</i> tests
RQ1a: Are there any differences in the Spanish reading achievement of Latino English learners, over time, in a 50/50 TWI and in a 90/10 TWI?	Spanish District Reading tests	Spanish Grade-Level Reading Achievement Fiction and Non-Fiction	Repeated Measures ANOVA Bonferroni Post Hoc Test Chi Square
	STS/Spanish Language Arts	Spanish Language Arts Achievement	<i>t</i> tests
RQ1b: Are there any differences in the English reading achievement of Latino English learners, overtime, in a 50/50 TWI program as compared to a 90/10 TWI program?	English District Reading tests	English Language Arts Achievement Fiction and Non-Fiction	Repeated Measures ANOVA Bonferroni Post Hoc Test Chi Square
	CST/English Language Arts	English Grade-Level Reading Achievement	Chi Square
RQ2: How is data used at school-site level to determine the biliteracy attainment of English learners?	Interviews	How data is used at the school-site to measure biliteracy	Coding of interviews for emerging themes and patterns for triangulation

Participants

Participants in this study consisted of Latino English learners who completed fifth grade during the 2008-2009 school year at Schools A and B that have a 50/50 TWI program model and School C and D that have a 90/10 TWI program model. All programs were a strand within the school and had been in existence for over ten years. Participants were selected based on their language designation in first grade. Only students who were classified as Latino English learners in first grade were selected for the study. The original sample included 67 students across the four programs. However upon closer analysis, complete data from first to fifth grade were available for 55 students. Therefore the final sample size for this study was 55 Latino students who were classified as English learners in first grade. The principal of each TWI school participated in an interview; therefore four principals were also selected for this study.

The four schools are located in a large urban school district in southern California. The district has a total student population of 88,186 students. Latino students represent 51% of the student population. The district also has a significant number of English learners with 21,816 students whose primary language is not English. Latino English learners account for 88% of the total English learner population; however only 196 English learners participate in a bilingual program, representing less than 1% of total English learners in the district. Table 3 represents the demographics at each of the participating schools including school population, number of Latino students, number of Latino English learners, number of Latino English learners participating in the TWI program, the Annual Performance Index (API) and Program Improvement (PI) status.

Table 3

Participating Schools

	School A	School B	School C	School D
Total School Population	903	671	769	459
Total Latino students	626	361	584	243
Percentage of Latinos	70.4%	53.8%	75.9%	52.9%
Total Spanish English Learners	424	244	459	124
Percentage of Spanish English learners	47%	36%	60%	27%
Number of EL's receiving primary language instruction	43	24	93	25
API	791	780	784	813
PI status	Not in PI	Not in PI	Not in PI	Not in PI

This large urban school district was selected for this study because it had both 90/10 and 50/50 TWI program models. School A and School B had a 50/50 TWI program. School C and D had a 90/10 TWI program. In all four schools, the TWI program was a strand within the school, meaning that each school offered a TWI program along with other district program options such as the mainstream English program. School A had 626 Latino students representing 70% of their student population, School B

had 361 students representing 54% of their student population, School C had 584 Latino students representing 76% of their student population and School D had 243 Latino students representing 53% of their student population. Latino students represented more than 50% of the total school population at all four schools. All four schools made their Academic Program Index (API) target growth, and none of the schools is in program improvement status. However, School B did not meet its Adequate Yearly Progress (AYP) growth target in English language arts.

Instrumentation

California standards test/English language arts.

The California Standards Test (CST) is part of California's STAR system. This study collected data from the CST/English Language Arts section for second through fifth grade. English learners enrolled in a California public school take the CST annually.

California standards test/Spanish language arts.

The California Standards-based Test in Spanish (STS) is part of California's STAR system. English learners enrolled in a California public school take the STS if they have been enrolled in a public school for less than 12 months or if they are receiving primary language instruction.

District benchmark book test.

The district Benchmark Book Assessment is a one-on-one reading test that measures grade level proficiency. The assessment was developed in 1995 by the district's Curriculum Office, which at the time were given the task to design a way of measuring grade level literacy in order to ensure that all students reach grade level

reading by the end of third grade. The initial district Benchmark Book Assessment was based on the district-adopted Language Arts Content Standards and research on the process of reading. The Benchmark Book Assessments were revised in 1996, 1998, 1999, 2002, 2003 and 2004. The assessment was revised when the California Content Standards were adopted by the state. Subsequent revisions included the addition of new titles and modification of comprehension questions. A team of district bilingual teachers developed the Benchmark Book Assessment in Spanish in order to have a comparable assessment for the bilingual programs in the district.

Students are administered the reading benchmarks throughout the school year when the classroom teacher determines that the student is ready to be assessed at a particular grade level. The kindergarten through third grade Benchmark Book Tests consist of a running record, which measures decoding accuracy, along with comprehension. Passing is set at 93% word reading accuracy with four out of five correct answers on the comprehension questions. The fourth and fifth grade assessments require that students read a passage and answer comprehension questions independently. The kindergarten and first grade assessments require that the classroom teacher take a running record of the student reading a portion of the text aloud. The comprehension questions are answered orally and subsequently the answers to the comprehension questions are scripted by the teacher. The second and third grade assessments require that the classroom teacher take a running record of the student, however unlike kindergarten and first grade, at this level students are required to answer the comprehension questions independently. Each assessment is accompanied by specific instructions including a

teacher script for administering the Benchmark Book Test. All benchmark assessment results are entered on-line with teacher's indicating the exact test and grade level passed.

Interviews.

The principals at each of the TWI schools in the district were interviewed to establish triangulation. Since the interviews were added after the Loyola Marymount University Institutional Review Board (IRB) application was approved, an addendum to the initial IRB application was submitted to the university. Upon approval, the complete IRB application with the addendum included was submitted to the school district's Research, Planning and Evaluation Office. The Assistant Superintendent of Elementary Instruction was contacted, who then emailed each of the principals informing them that the study had been accepted by the district and that they were to expect to be contacted by the researcher. The researcher contacted each of the principals by email and scheduled the interviews with each one. The principals were interviewed at their respective school-sites. Each interview lasted a minimum of 60 to a maximum of 90 minutes.

Validity and Reliability

Validity for the identification of English learners in the district is strong because all parents in the state of California complete the Home Language Survey when they are enrolling a child in school. The questions on the Home Language Survey serve as a preliminary identification of children that have proficiency in a language other than English. If the parent or guardian indicates any language other than English on any

question, the child is then tested using the California English Language Development Test (CELDT) in order to determine if the child is an English learner or English proficient. Therefore the method of identifying English learners is standardized throughout the state.

Content Validity for the California Standards Test (CST) and the Standards-based Test in Spanish (STS) is strong. Both the CST and STS were developed to align with the content standards. Experts in the field were called upon to review test items to ensure that each item measured its intended construct.

The district Benchmark Book test was developed by the district's Curriculum and Instruction department. The Benchmark Book test was developed to align with the English language arts content standards. The tests were field tested before district-wide implementation. The Benchmark Book test has been implemented systematically throughout the district in all elementary program since 1996.

The district's Research, Planning, and Evaluation Department provided the researcher with the state standardized test data, along with district test data.

Data Collection

Data were collected from a variety of quantitative sources. Interviews were also conducted for the purpose of further understanding the results of the quantitative data. The data for this study were collected by the district's Research, Planning and Evaluation Department. The researcher completed the Institutional Review Board (IRB) process for Loyola Marymount University. The researcher contacted the Assistant Superintendent of Research, Planning and Evaluation and the IRB application was submitted to the district.

The district accepted the study in October 2009 and the data was requested. The district provided the researcher with the quantitative data in December 2009.

The Research, Planning and Evaluation Department provided the following data: CST/ELA scores for spring 2006, spring 2007, spring 2008, and spring 2009, STS/Spanish language arts scores for spring 2007, spring 2008, and spring 2009. The Research, Planning and Evaluation Department also provided the end of year district Benchmark Book data from 2004 to 2009.

Interviews were conducted for each of the principals at the TWI school sites in January 2010. The interviews were conducted in the offices of the principals. The interviews were tape recorded and later transcribed. The researcher sought to understand the extent of data analysis in English and Spanish undertaken at the school site level.

Data Analysis

The independent categorical variable was the two-way immersion program. The dependent variable was the achievement of Latino English learners in 50/50 TWI and 90/10 TWI programs. Students in 50/50 TWI programs were compared to students in 90/10 TWI programs. The quantitative data was analyzed using repeated measures ANOVA in order to test for significant differences between the means of Latino students in the 90/10 and 50/50 TWI programs in first through fifth grade on the district Benchmark Book Tests. Bonferroni Post Hoc test was conducted to further indicate if there were significant differences between program models. Chi-square analysis was conducted to determine statistically significant differences between the 50/50 and 90/10 TWI programs across five grade levels on the district Benchmark Book Test and across

four grade levels in the CST/ELA. Independent *t* tests were conducted to determine significant differences between the 50/50 and 90/10 program models on the STS/Spanish language arts.

The transcription of the interviews was coded and emerging themes noted. The researchers then analyzed the themes to detect patterns and to determine a relationship between the data and principals, reported use of the data.

Summary

The study of the biliteracy achievement of English learners in a bilingual program is relatively recent (Dworin, 2006). Most studies on bilingual education programs have focused on instructional features and have attempted to determine whether or not English learners can successfully attain English in a bilingual program. This study collected data from the district Benchmark Book Test, CST, and STS for a group of Latino English learners who were enrolled in either a 50/50 TWI program or a 90/10 TWI program from 2004 to 2009 in order to determine if there were significant differences in the biliteracy attainment of Latino English learners.

In this post Proposition 227 era, it is important to identify bilingual programs that are not only effective in the attainment of English proficiency, but also promote the biliteracy achievement of Latino English learners. By collecting and analyzing district assessment data along with state standardized test data this study sought to add to existing research on bilingual pedagogy, along with evaluating whether one model of two-way immersion is more effective in the biliteracy achievement of Latino English learners.

The following chapter displays the results of the test data as well as the themes that emerged from the interviews with principals.

CHAPTER FOUR

RESULTS

Introduction

This study focused on the biliteracy achievement of elementary school Latino English learners in 50/50 two-way immersion (TWI) and 90/10 TWI programs in order to identify if one form of TWI is more effective in the biliteracy achievement of Latino English learners. Although research has been conducted on the academic achievement of English learners in English and Spanish in TWI settings, few studies have compared achievement within TWI programs, such as the 50/50 and 90/10 TWI program models. This chapter will begin with the research questions and hypotheses followed by a description of the organization of the data along with a description of participants. Test data is reported in a section titled Quantitative Data, and the result of interviews with the principals is reported in a section titled Qualitative Data.

Research Questions and Hypotheses

In this study, two models of the two-way immersion program were compared in order to determine the biliteracy achievement of Latino English learners.

The following questions and hypotheses were explored:

RQ1: Do Latino English learners achieve biliteracy more effectively in a simultaneous literacy program such as a 50/50 TWI program or in a sequential literacy program such as a 90/10 TWI program?

Ho1. This study will show that there is no significant difference in the biliteracy achievement of Latino English learners in a 50/50 TWI program compared to Latino English learners in a 90/10 TWI program.

RQ1a: Are there any differences in the Spanish reading achievement of Latino English learners, over time, in a 50/50 TWI program compared to Latino English learners in a 90/10 TWI program?

Ho1a: This study will show that there is no significant difference in the Spanish reading achievement of Latino English learners in a 50/50 TWI program compared to Latino English learners in a 90/10 TWI program.

RQ1b: Are there any differences in the English reading achievement of Latino English learners, over time, in a 50/50 TWI program compared to a 90/10 TWI program?

Ho1b: This study will show that there is a significant difference in the English reading achievement of Latino English learners in a 50/50 program from first to third grade, where English and Spanish literacy have been taught simultaneously, compared to students in a 90/10 TWI program, where Spanish reading instruction precedes instruction in English reading. However, by the fifth grade it is hypothesized that there is no significant difference in the English reading achievement of Latino English learners in both the 50/50 TWI program and the 90/10 TWI program.

RQ2: How is data used at the school site level to determine the biliteracy attainment of Latino English learners?

Ho2: The interviews conducted will show that data is collected and analyzed minimally when looking at biliteracy. School site leaders will be more concerned with English literacy data as opposed to both Spanish and English literacy data.

Descriptive Characteristics of Participants

Participants in this study consisted of Latino English learners enrolled in four two-way immersion elementary programs in a large, urban public school district: Two schools implemented a 50/50 TWI model and two schools implemented a 90/10 TWI model. The students in this study were current sixth graders who were enrolled in one of the four schools from first grade through fifth grade. (Due to the fact that kindergarten data could not be collected, data begins with first grade.) Most research on two-way immersion focuses on grade level achievement of non-cohorted students. This study sought to look at longitudinal data of a cohort of Latino English learners who were enrolled in one of the four two-way immersion programs from first through fifth grade.

Table 4

Number of Latino English Learners Enrolled in TWI Programs in 5th Grade (2008-2009) by school

	School A	School B	School C	School D
English learners	20	17	24	6

Table 4 shows the number of Latino English learners who were enrolled in one of the TWI elementary program in the 2008-2009 school year. The distribution of English learners by school is similar with the exception of school D that had six Latino English

learners enrolled in their fifth grade class in the 2008-2009 school year. The fact that school D had such a small sample size does not pose a problem with the data analysis because the data was analyzed by program model and not by individual school. Table 5 represents the distribution of Latino English learners by program model along with the final number selected for this study.

Table 5

Number of Latino English Learners Enrolled in a TWI Program by Program Model in the 2008-2009 School Year

	50/50	90/10
Latino English Learners:	37	30
Total		
Latino English learners: Final Sample	31	24

Table 5 shows a total of 67 Latino English learners enrolled in a TWI program in fifth grade in the 2008-2009 school year. The final sample consisted of 55 Latino English learners who were enrolled in either a 50/50 TWI program or a 90/10 TWI program. Their data from the district Benchmark Book Tests in English and Spanish were available first through fifth grade.

The principals interviewed had a variety of experience in TWI schools. Two of the four principals were in their first year (2009-2010) as principal of the school. The principal of school C was transferred this school year after serving for a number of years as principal of school B. The principals at schools A and D had been at their schools for over four years.

Organization of Data Analysis

Several statistical tests were conducted in order to determine whether the 50/50 TWI program model or the 90/10 program model yielded higher biliteracy levels for Latino English learners enrolled in such programs. Data was collected from the Research, Planning and Evaluation Office of a large, urban school district in Southern California. Data collected included end-of-year, first through fifth grade, district Benchmark Book Test results in Spanish fiction, Spanish non-fiction, English fiction and English non-fiction. The Spanish and English Benchmark Book results were also combined to determine the level of biliteracy in fiction and non-fiction. Repeated measures ANOVA were conducted for student proficiency in biliteracy, Spanish fiction, Spanish non-fiction, English fiction and English non-fiction. The Bonferroni Post Hoc test was conducted for Spanish fiction, Spanish non-fiction, English fiction and English non-fiction. The Chi-square test was conducted to determine the percentage of students proficient in biliteracy, Spanish fiction, Spanish non-fiction, English fiction and English non-fiction. Data from the Standards Test in Spanish (STS) and California Standards Test (CST) were also collected. *t* tests for independent means were conducted for the STS Spanish raw scores based on program model along with Chi Square tests for the CST.

Results

Quantitative data are presented in three categories: biliteracy, Spanish literacy and English literacy. Research question #1 (RQ1) along with RQ1a and RQ1b and accompanying hypotheses are presented followed by the results of the statistical tests.

Qualitative data for RQ2 was collected through interviews conducted with each principal. The interviews were tape recorded and subsequently transcribed and coded for emerging themes. Results of the principals' interviews are presented, addressing each of the following themes: program design, Spanish literacy, English literacy, making adjustments to the TWI program and measuring biliteracy.

Quantitative Results

Quantitative results are reported by research question. Following each research question, the results of the analysis are presented using tables, figures and narratives followed by each hypothesis. Based on the results, the hypotheses is either recognized as supported or not supported.

RQ1: Do Latino English learners achieve biliteracy more effectively in a simultaneous literacy program such as a 50/50 TWI program or in a sequential literacy program such as a 90/10 TWI program?

Biliteracy was measured by combining the data from the district Benchmark Book Test in Spanish and English to determine grade level proficiency. Students who passed the appropriate grade level Benchmark Book Test in Spanish Fiction/Non-Fiction and English Fiction/Non-Fiction were considered to have reached biliteracy. Results of both the Spanish and English fiction/non-fiction Benchmark Book Tests were combined to create a proxy measure for biliteracy. Tables 6 and 7 show the results for bilingual fiction. Tables 8 and 9 show the results for bilingual non-fiction. Figures 3 and 4 represent the percent of students who reached biliteracy.

Table 6

Repeated Measures ANOVA Results for Bilingual Fiction Proficiency Across Grades Based on Program Model (N = 55)

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Program	0.71	1	0.71	1.45	.23
Grade	0.52	4	0.13	0.98	.42
Grade X Program	9.17	4	2.29	17.38	.001
Error (Grade)	27.97	212	0.13		
Error (Program)	26.11	53	0.49		

Table 6 displays the results for the repeated measures ANOVA test for student proficiency in bilingual fiction based on program model. Three analyses were conducted: Main effect for program, within subjects effect, and the interaction between grade and program. The main effect for program was not significant ($p = .23$) nor was the within subjects effect for the five grade levels ($p = .42$). However, the interaction of grade and program was significant ($p = .001$).

Table 7

Comparison of Percentage of Students with Grade Level Proficiency for Bilingual Fiction Based on Program Model (N = 55)

Test and Grade	Language Program				V	χ^2	p
	90/10		50/50				
	n	%	n	%			
Bilingual Fiction 1st	0	0.0	23	74.2	.75	30.61	.001
Bilingual Fiction 2nd	10	41.7	12	38.7	.03	0.05	.82
Bilingual Fiction 3rd	15	62.5	7	22.6	.40	8.98	.003
Bilingual Fiction 4th	7	29.2	12	38.7	.10	0.55	.46
Bilingual Fiction 5th	6	25.0	11	35.5	.11	0.70	.40

Table 7 displays the individual grade level comparisons for the percentage of students that achieved grade level proficiency for bilingual fiction based on program model. Inspection of Table 7 found 74.2% of 50/50 students attaining grade level biliteracy compared to 0% of 90/10 students in first grade. In third grade, a significant difference is evident between program models with 62.5% of 90/10 students reaching grade level biliteracy compared to 22.6% of 50/50. No other grade level showed significant difference in biliteracy attainment; however by fifth grade less than 50% of students in either program reached grade level biliteracy in fiction.

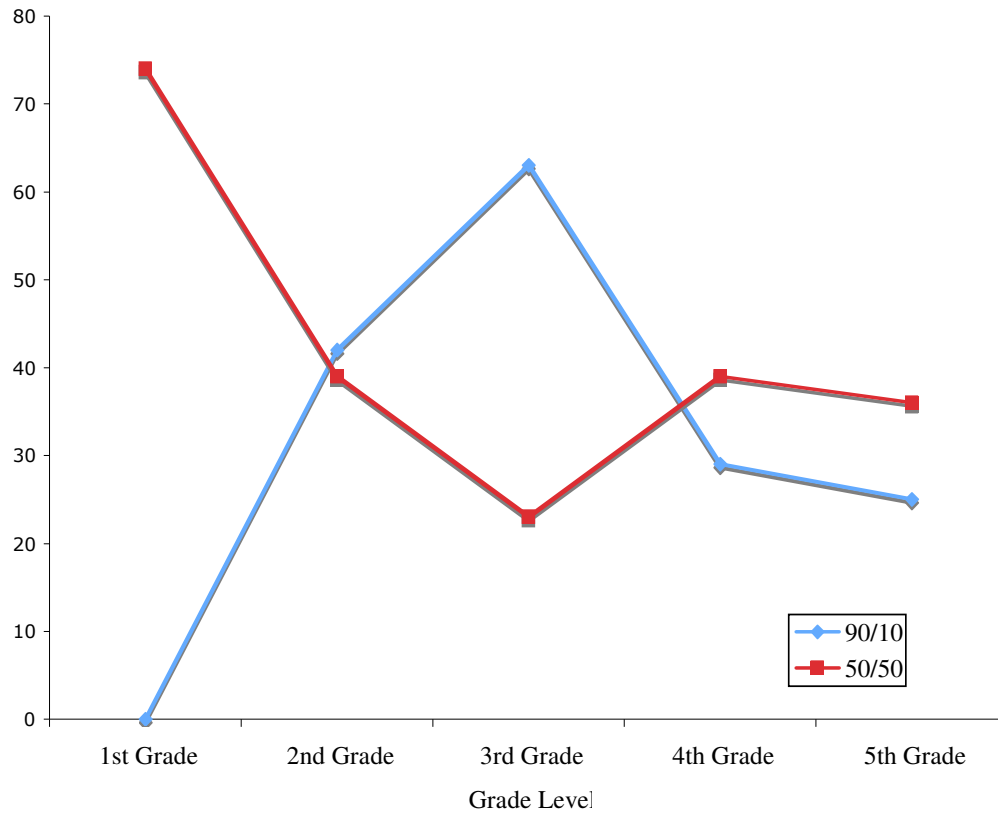


Figure 3. Percentage of Students at Grade Level Proficiency for Bilingual Fiction Based on Program Model (N = 55) Note. The percentage of students who were proficient is expressed as a mean score.

Figure 3 shows the percentage of students who reached grade level proficiency in bilingual fiction by grade level. In first grade a higher percentage of students in the 50/50 TWI program were biliterate in fiction, however percent proficient declined from first to third grade, then rose again in fourth grade. No students in the 90/10 TWI program were biliterate in fiction in first grade; however percent proficient increased from first to third grade, then declined in fourth and fifth grade. By the end of the program in fifth grade a higher percentage of students in the 50/50 TWI program model reached grade level

biliteracy in fiction; however the differences between program models were not significant in fifth grade ($p = .40$).

Table 8

Repeated Measures ANOVA Results for Bilingual Non-Fiction Proficiency Across Grades Based on Language Program (N = 55)

Source	SS	df	MS	F	p
Grade	0.56	4	0.14	1.09	.36
Program	0.89	1	0.89	1.86	.18
Grade X Program	9.00	4	2.25	17.50	.001
Error (Grade)	27.24	212	0.13		
Error (Program)	25.39	53	0.48		

Table 8 displays the results for the repeated measures ANOVA test for student proficiency in bilingual non-fiction based on language program. Three analyses were conducted: Main effect for program, within subjects effect, and the interaction between grade and program. The main effect for program was not significant ($p = .18$) nor was the within subjects effect for the five grade levels ($p = .36$).

However, the interaction of grade and program was significant ($p = .001$). Inspection of Table 9 shows 74.2 % of first grade students in the 50/50 TWI program attaining grade level biliteracy in non-fiction compared to 0 students in the 90/10 TWI program. The proficiency levels for the 90/10 students rose from no student being proficient in first grade to 62.5% in third grade. After third grade the percentage of students reaching grade level biliteracy in non-fiction declined. By the end of program in

fifth grade a higher percentage of students in the 50/50 TWI program reached biliteracy in non-fiction as compared to the students in the 90/10 TWI program; however, by fifth grade less than 50% of students in either program reached grade level biliteracy in non-fiction.

Table 9

Comparison of Percentage of Students with Grade Level Proficiency for Bilingual Non-Fiction Based on Program Model (N = 55)

Test and Grade	Language Program				V	χ^2	p
	90/10		50/50				
	n	%	n	%			
Bilingual Non-Fiction 1st	0	0.0	23	74.2	.75	30.61	.001
Bilingual Non-Fiction 2nd	7	29.2	10	32.3	.03	0.06	.81
Bilingual Non-Fiction 3rd	15	62.5	7	22.6	.40	8.98	.003
Bilingual Non-Fiction 4th	7	29.2	12	38.7	.10	0.55	.46
Bilingual Non-Fiction 5th	6	25.0	11	35.5	.11	0.70	.40

Table 9 displays the individual grade level comparisons for the percentage of students that achieved grade level proficiency for bilingual non-fiction by program model. The results for bilingual fiction are similar to bilingual non-fiction where a higher percentage of students in the 50/50 program were proficient during first grade ($p = .001$) while 90/10 students were more likely to have bilingual proficiency in the third grade (p

= .003). Figure 4 is also similar to Figure 3 in that a higher percentage of students in the 50/50 program reached bilingual proficiency by fifth grade compared to the 90/10 program; however the differences were not significant ($p = .40$).

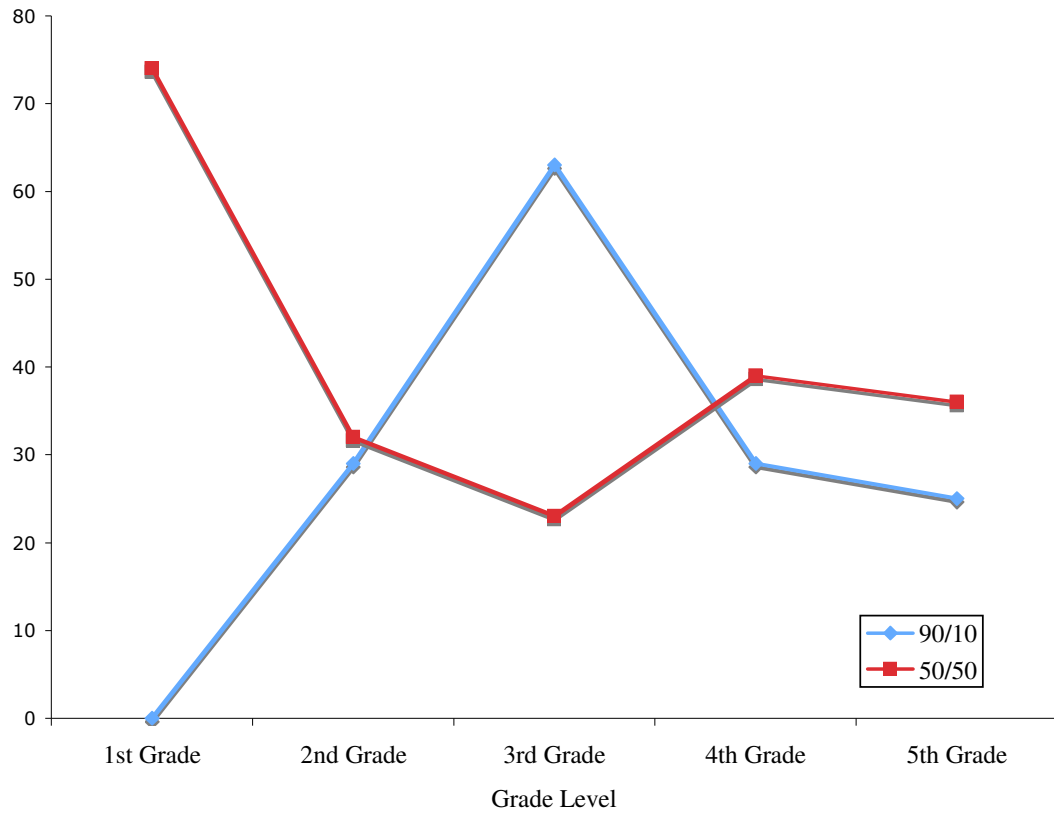


Figure 4. Percentage of Students at Grade Level Proficiency for Bilingual Non-Fiction Based on Program Model (N = 55) Note. The percentage of students who were proficient is expressed as a mean score.

Ho1. The first hypothesis states that there will be no significant difference in the biliteracy achievement of Latino English learners in a 50/50 TWI program compared to Latino English learners in a 90/10 TWI program. Overall this hypothesis is supported when comparing program models. There were no significant differences in main program effect ($p = .23$) (Tables 6 and 8). However, in certain grade levels significant

differences were found between programs, particularly in first ($p = .001$) and third grade ($p = .003$).

RQ1a: Are there any differences in the Spanish reading achievement of Latino English learners, over time, in a 50/50 TWI and in a 90/10 TWI?

Table 10

Repeated Measures ANOVA Results for Spanish Fiction Proficiency Across Grades Based on Program Model (N = 55)

Source	SS	df	MS	F	p
Program ^a	3.51	1	3.51	7.75	.007
Grade	10.27	4	2.57	20.71	.001
Grade X Program	5.11	4	1.28	10.30	.001
Error (Grade)	26.29	212	0.12		
Error (Program)	24.03	53	0.45		

Note. The percentage of students who were proficient is expressed as a mean score.

^a Program: 90/10 ($M = 66.70$, $SE = 6.10$) versus 50/50 ($M = 43.90$, $SE = 5.40$)

Table 10 displays the results for the repeated measures ANOVA test for student proficiency in Spanish fiction by program model. Three analyses were conducted: Main effect for program, within subjects effect, and the interaction between grade and program. The main effect for program was significant ($p = .007$) with students in the 90/10 program ($M = 66.70$) having higher aggregated proficiency than the 50/50 students ($M = 43.90$). In addition, the within-subjects effect for the five grade levels was significant ($p = .001$) as well as the interaction of grade and program ($p = .001$).

Inspection of Table 11 shows the sharp decline in aggregated proficiency across the five years ($M = 85.01$ to $M = 30.24$). The mean aggregated score for first grade ($M = 85.01$) was significantly higher at the $p = .001$ level than the proficiency levels for grades three, four and five. In addition, grade two ($M = 67.27$) was higher at the $p = .001$ level than grades four and five. Finally, grade three was significantly higher than grade five ($p = .02$).

Table 11

Spanish Fiction Proficiency Percentages Aggregated for Each Grade. Bonferroni Post Hoc Tests (N = 55)

Grade	<i>M</i>	<i>SE</i>
1	85.01	4.90
2	67.27	5.38
3	54.10	6.01
4	39.72	6.78
5	30.24	6.36

Note. The percentage of students who were proficient is expressed as a mean score. Bonferroni post hoc grade level comparisons: 1 > 3, 4, 5 ($p = .001$); 2 > 4, 5 ($p = .001$); 3 > 5 ($p = .02$); no other pair of means was significantly different from each other at the $p < .05$ level.

Table 12

Comparison of Percentage of Students with Grade Level Proficiency for Spanish Fiction Based on Program Model (N = 55)

Test and Grade	Language Program				V	χ^2	p
	90/10		50/50				
	n	%	n	%			
Spanish Fiction 1st	23	95.8	23	74.2	.29	4.63	.03
Spanish Fiction 2nd	23	95.8	12	38.7	.59	19.08	.001
Spanish Fiction 3rd	19	79.2	9	29.0	.50	13.61	.001
Spanish Fiction 4th	9	37.5	13	41.9	.05	0.11	.74
Spanish Fiction 5th	6	25.0	11	35.5	.11	0.70	.40

Table 12 displays the individual grade level comparisons for the two program models for the percentage of students that achieved grade level proficiency for Spanish fiction. A significantly higher percentage of students in the 90/10 program displayed proficiency during first ($p = .03$), second ($p = .001$) and third ($p = .001$) grades. The 90/10 students had declining proficiency levels from first grade with 95.8% proficient to fifth grade with 25% proficient. The 50/50 students declined from first grade with 74.2% proficient to second grade with 38.7% proficient. However the percentage of students reaching grade level proficiency in Spanish fiction rose again in fourth grade for the 50/50 program. A higher percentage of students in the 50/50 TWI program was

proficient in Spanish fiction by the end of the program in fifth grade; however the differences between the two program models were not significant in fourth and fifth grade ($p = .74$ and $p = .40$).

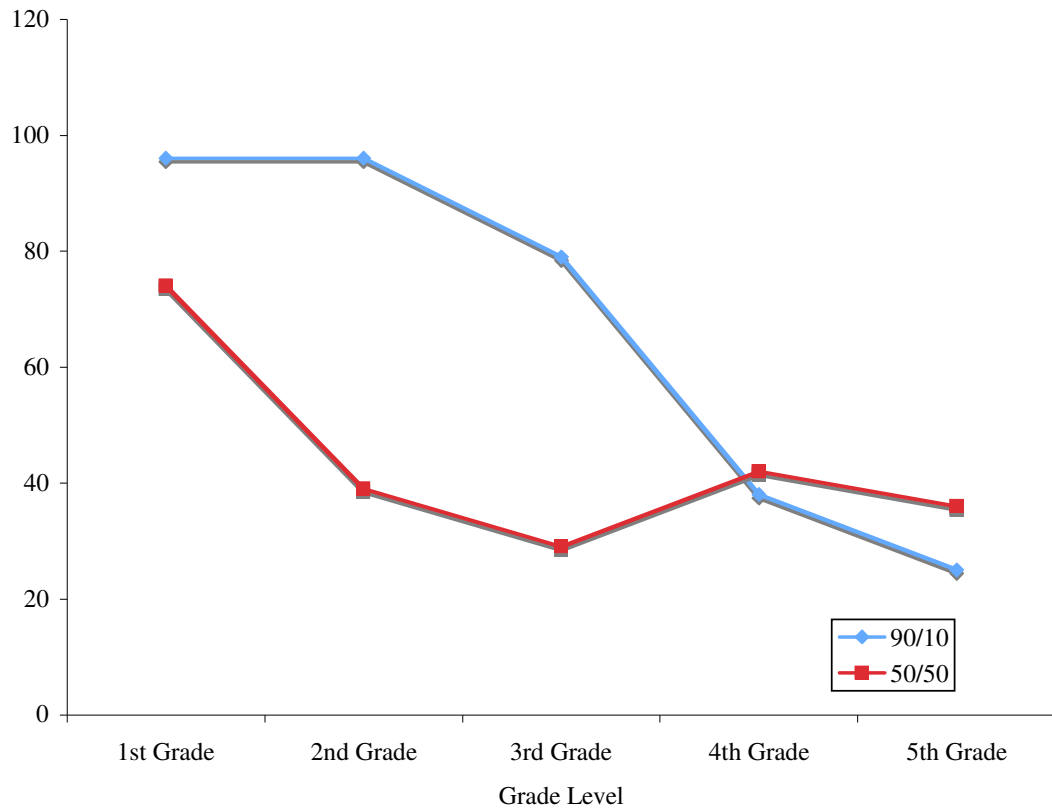


Figure 5. Percentage of Students at Grade Level Proficiency for Spanish Fiction Based on Program Model (N = 55) Note. The percentage of students who were proficient is expressed as a mean score.

Table 13

Repeated Measures ANOVA Results for Spanish Non-Fiction Proficiency Across Grades Based on Program Model (N = 55)

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Program ^a	2.63	1	2.63	5.43	.02
Grade	10.38	4	2.59	21.12	.001
Grade X Program	4.71	4	1.18	9.57	.001
Error (Grade)	26.04	212	0.12		
Error (Program)	25.71	53	0.49		

Note. The percentage of students who were proficient is expressed as a mean score. ^a Program: 90/10 ($M = 61.70$, $SE = 6.40$) versus 50/50 ($M = 41.90$, $SE = 5.60$)

Table 13 displays the results for the repeated measures ANOVA test for student proficiency in Spanish non-fiction based on program model. Three analyses were conducted: Main effect for program, within subjects effect, and the interaction between grade and program. The main effect for program was significant ($p = .02$) with students in the 90/10 program ($M = 61.70$) having higher aggregated proficiency than the 50/50 students ($M = 41.90$). In addition, the within-subjects effect for the five grade levels was significant ($p = .001$) as well as the interaction of grade and program ($p = .001$).

Inspection of Table 14 shows a sharp decline in aggregated proficiency across the five years ($M = 85.01$ to $M = 30.24$). The mean aggregated score for first grade ($M = 85.01$) was significantly higher at the $p = .001$ level than the proficiency levels for the other four grades. In addition, grade two ($M = 57.33$) was higher than grade four ($p =$

.04) and grade five ($p = .001$). Grade three was significantly higher than grade five ($p = .03$).

Table 14

Spanish Non-Fiction Proficiency Percentages Aggregated for Each Grade. Bonferroni Post Hoc Tests (N = 55)

Grade	<i>M</i>	<i>SE</i>
1	85.01	4.90
2	57.33	6.21
3	52.49	5.87
4	33.94	6.55
5	30.24	6.36

Note. The percentage of students who were proficient is expressed as a mean score. Bonferroni post hoc grade level comparisons: 1 > 2, 3, 4, 5 ($p = .001$); 2 > 5 ($p = .001$); 2 > 4 ($p = .01$); 3 > 5 ($p = .03$); no other pair of means was significantly different from each other at the $p < .05$ level.

Table 15

Comparison of Percentage of Students with Grade Level Proficiency for Spanish Non-Fiction Based on Program Model (N = 55)

Test and Grade	Language Program				V	χ^2	p
	90/10		50/50				
	n	%	n	%			
	n = 24		n = 31				
Spanish Non-Fiction 1st	23	95.8	23	74.2	.29	4.63	.03
Spanish Non-Fiction 2nd	19	79.2	11	35.5	.44	10.41	.001
Spanish Non-Fiction 3rd	19	79.2	8	25.8	.53	15.41	.001
Spanish Non-Fiction 4th	7	29.2	12	38.7	.10	0.55	.46
Spanish Non-Fiction 5th	6	25.0	11	35.5	.11	0.70	.40

Table 15 displays the individual grade level comparisons for the two program models for the percentage of students that achieved grade level proficiency for Spanish non-fiction. A significantly higher percentage of students in the 90/10 program displayed proficiency during first ($p = .03$), second ($p = .001$) and third ($p = .001$) grades. The 90/10 students had declining proficiency levels from third grade with 79.2% proficient to fifth grade with 25% proficient. The 50/50 students declined from first grade with 74.2% scoring proficient to third grade with 25.2% scoring proficient. A higher percentage of students in the 50/50 TWI program was proficient in Spanish fiction by the end of the program in fifth grade; however the differences between the two program models were

not significant in fourth and fifth grade ($p = .74$ and $p = .40$) and both programs had less than 50% of students proficient in Spanish non-fiction by the end of fifth grade.

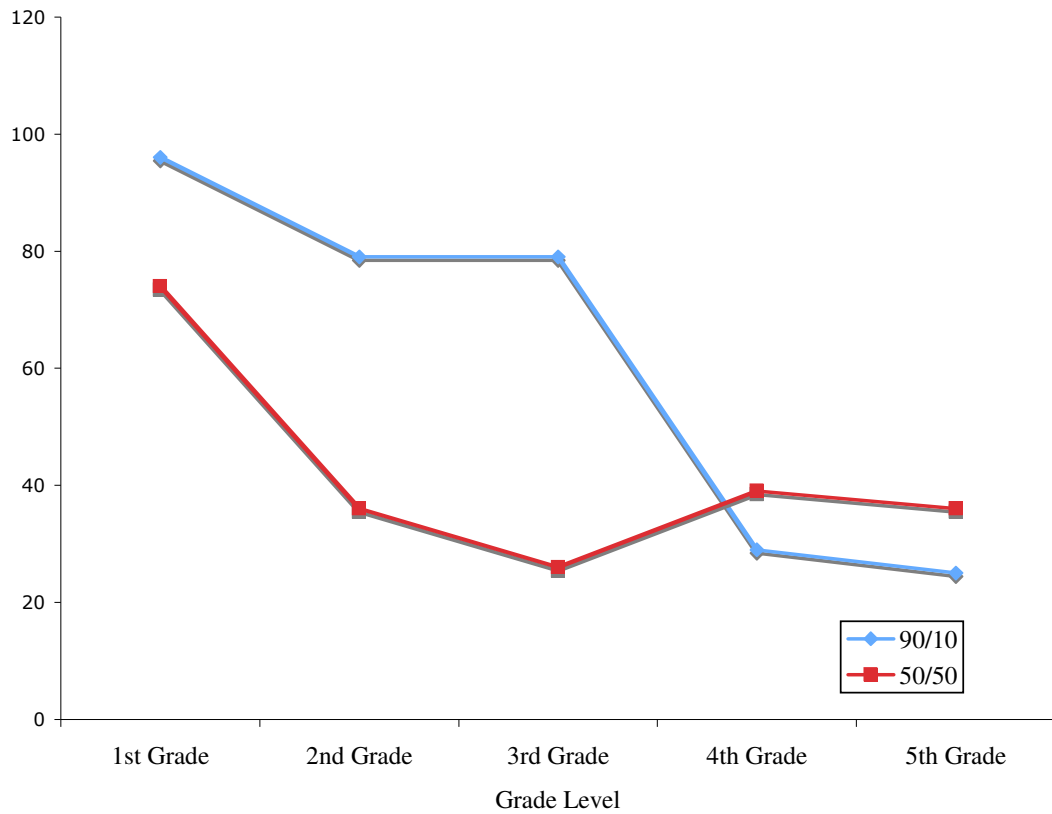


Figure 6. Percentage of Students at Grade Level Proficiency for Spanish Non-Fiction Based on Program Model (N = 55) *Note.* The percentage of students who were proficient is expressed as a mean score.

Table 16

Comparison of STAR STS Spanish Raw Scores Based on Program. t Tests for Independent Means

STS Score	Program	<i>n</i>	<i>M</i>	<i>SD</i>	Eta	<i>t</i>	<i>p</i>
Spanish Raw							
Score 3rd Grade					.10	0.55	.59
	90/10	22	36.64	9.34			
	50/50	9	38.78	11.32			
Spanish Raw							
Score 4th Grade					.42	2.62	.01
	90/10	22	35.95	12.91			
	50/50	13	47.92	13.29			
Spanish Raw							
Score 5th Grade					.47	2.85	.008
	90/10	21	26.62	9.95			
	50/50	9	38.11	10.54			

Table 16 displays the results of the *t* tests for independent means for the STAR STS Spanish raw scores based on program model. The two groups of students had similar scores during 3rd grade ($p = .59$). However, the students in the 50/50 program had significantly better Spanish scores in 4th grade ($p = .01$) and 5th grade ($p = .008$).

*H*₀1a: Hypothesis 1a states that there will be no significant difference in the Spanish reading achievement of Latino English learners in a 50/50 TWI program

compared to Latino English learners in a 90/10 TWI program. This hypothesis is supported when looking at end of program data. However, throughout the program there are grade levels where there is a significant difference. In the 90/10 program, higher percentages of students gained grade level Spanish literacy in fiction and non-fiction in the early grades. However, by fourth and fifth grade the percentage of students at grade level in Spanish fiction and non-fiction in the 50/50 TWI program surpassed the students in the 90/10 program. Less than 50% of students in both programs achieved grade level proficiency in Spanish by the end of the program in fifth grade.

RQ1b: Are there any differences in the English reading achievement of Latino English learners, over time, in a 50/50 TWI program compared to a 90/10 TWI program?

Table 17

Repeated Measures ANOVA Results for English Fiction Proficiency Across Grades Based on Program Model (N = 55)

Source	SS	df	MS	F	p
Program ^a	14.81	1	14.81	43.80	.001
Grade	1.88	4	0.47	5.51	.001
Grade X Program	5.05	4	1.26	14.80	.001
Error (Grade)	18.10	212	0.09		
Error (Program)	17.93	53	0.34		

^a Program: 90/10 ($M = 44.20$, $SE = 5.30$) versus 50/50 ($M = 91.00$, $SE = 4.70$)

Table 17 displays the results for the repeated measures ANOVA test for student proficiency in English fiction based on program model. Three analyses were conducted: Main effect for program, within-subjects effect and the interaction between grade and

program. The main effect for program was significant ($p = .001$) with students in the 50/50 program ($M = 91.00$) having higher aggregated proficiency than the 90/10 students ($M = 44.20$). In addition, the within-subjects effect, for the five grade levels was significant ($p = .001$) as well as the interaction of grade and program ($p = .001$).

Inspection of Table 18 shows the mean aggregated score for first grade ($M = 52.08$) to be significantly lower than the scores for second grade ($p = .008$), third grade ($p = .002$), and fifth grade ($p = .006$).

Table 18

English Fiction Proficiency Percentages Aggregated for Each Grade. Bonferroni Post Hoc Tests (N = 55)

Grade	<i>M</i>	<i>SE</i>
1	52.08	1.83
2	69.22	4.87
3	75.27	5.76
4	66.94	5.96
5	74.33	5.46

Note. The percentage of students who were proficient is expressed as a mean score. Bonferroni post hoc grade level comparisons: 3 > 1 ($p = .002$); 5 > 1 ($p = .006$); 2 > 1 ($p = .008$); no other pair of means was significantly different from each other at the $p < .05$ level.

Table 19

Comparison of Percentage of Students with Grade Level Proficiency for English Fiction Based on Program Model (N = 55)

Test and Grade	Language Program				V	χ^2	p
	90/10		50/50				
	n	%	n	%			
English Fiction 1st	1	4.2	31	100.0	.96	51.06	.001
English Fiction 2nd	10	41.7	30	96.8	.61	20.71	.001
English Fiction 3rd	16	66.7	26	83.9	.20	2.22	.14
English Fiction 4th	12	50.0	26	83.9	.36	7.27	.007
English Fiction 5th	14	58.3	28	90.3	.37	7.67	.006

Table 19 displays the individual grade level comparisons for the two language programs for the percentage of students that achieved grade level proficiency for English fiction. A significantly higher percentage of students in the 50/50 program displayed proficiency during four of five grade levels. By the end of the program in fifth grade, a significantly higher percentage of students in the 50/50 TWI program reached grade level proficiency in English fiction as compared to students in the 90/10 TWI program.

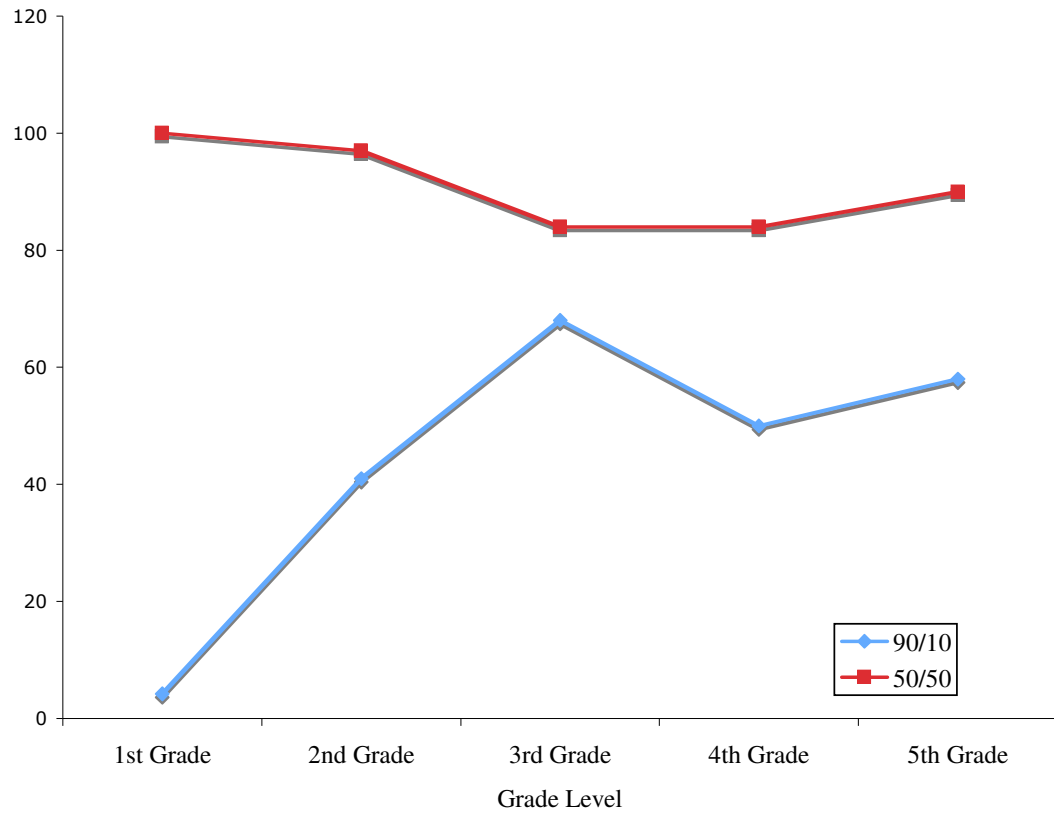


Figure 7. Percentage of Students at Grade Level Proficiency for English Fiction Based on Program Model (N = 55) Note. The percentage of students who were proficient is expressed as a mean score.

Table 20

Repeated Measures ANOVA Results for English Non-Fiction Proficiency Across Grades Based on Language Program (N = 55)

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Program ^a	16.57	1	16.57	48.40	.001
Grade	3.14	4	0.78	9.68	.001
Grade X Program	4.81	4	1.20	14.84	.001
Error (Grade)	17.18	212	0.08		
Error (Program)	18.14	53	0.34		

Note. The percentage of students who were proficient is expressed as a mean score. ^a Program: 90/10 ($M = 40.80$, $SE = 5.30$) versus 50/50 ($M = 90.30$, $SE = 4.70$)

Table 20 displays the results for the repeated measures ANOVA test for student proficiency in English non-fiction based on language program. Three analyses were conducted: Main effect for program, within-subjects effect and the interaction between grade and program. The main effect for program was significant ($p = .001$) with students in the 50/50 program ($M = 90.30$) having higher aggregated proficiency than the 90/10 students ($M = 40.80$). In addition, the within-subjects effect for the five grade levels was significant ($p = .001$) as well as the interaction of grade and program ($p = .001$).

Table 21 shows the mean aggregated scores for third grade ($M = 78.97$) to be significantly higher than the scores for first grade ($p = .001$), second grade ($p = .002$), and

fourth grade ($p = .02$). In addition, fifth grade proficiency ($M = 77.55$) was significantly higher than the scores for first grade ($p = .001$), second grade ($p = .004$), and fourth grade ($p = .02$).

Table 21

English Non-Fiction Proficiency Percentages Aggregated for Each Grade. Bonferroni Post Hoc Tests (N = 55)

Grade	<i>M</i>	<i>SE</i>
1	52.08	1.83
2	58.13	5.43
3	78.97	5.43
4	61.16	6.10
5	77.55	4.87

Note. The percentage of students who were proficient is expressed as a mean score. Bonferroni post hoc grade level comparisons: 3 > 1 ($p = .001$); 3 > 2 ($p = .002$); 3 > 4 ($p = .02$); 5 > 1 ($p = .001$); 5 > 2 ($p = .004$); 5 > 4 ($p = .02$); no other pair of means was significantly different from each other at the $p < .05$ level.

Table 22

Comparison of Percentage of Students with Grade Level Proficiency for English Non-Fiction Based on Program Model (N = 55)

Test and Grade	Language Program				V	χ^2	p
	90/10		50/50				
	n	%	n	%			
English Non-Fiction 1st	1	4.2	31	100.0	.96	51.06	.001
English Non-Fiction 2nd	7	29.2	27	87.1	.59	19.23	.001
English Non-Fiction 3rd	17	70.8	27	87.1	.20	2.24	.14
English Non-Fiction 4th	10	41.7	25	80.6	.40	8.88	.003
English Non-Fiction 5th	14	58.3	30	96.8	.48	12.49	.001

Table 22 displays the individual grade level comparisons for the two program models for the percentage of students that achieved grade level proficiency for English non-fiction. A significantly higher percentage of students in the 50/50 program displayed proficiency during four of five grade levels. By the end of the program in fifth grade, a significantly higher percentage of students in the 50/50 TWI program reached grade level proficiency in English fiction compared to students in the 90/10 TWI program.

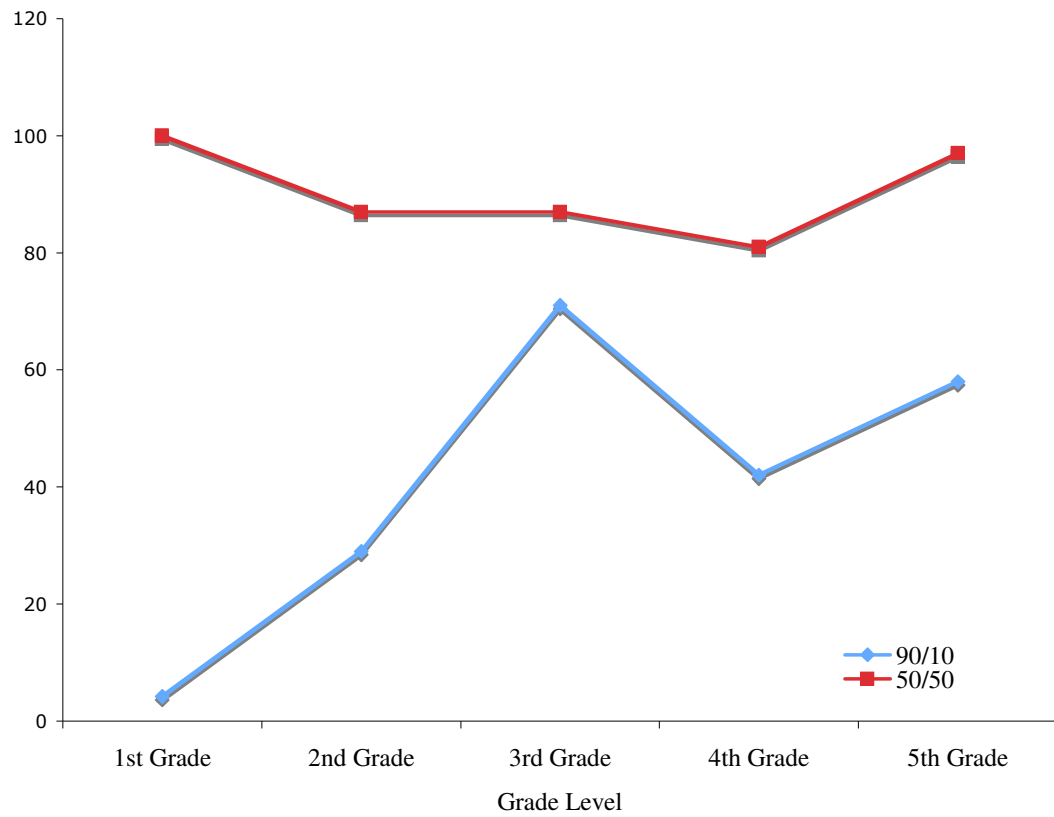


Figure 8. Percentage of Students at Grade Level Proficiency for English Non Fiction Based on Program Model (N = 55) *Note.* The percentage of students who were proficient is expressed as a mean score.

Table 23

Comparison of Percentage of Students with Grade Level Proficiency for CST English Based on Program Model (N = 55)

Test and Grade	Language Program				V	χ^2	p
	90/10		50/50				
	n	%	n	%			
		n = 24		n = 31			
2nd grade	2	8.3	16	51.6	.46	11.51	.001
3rd grade	2	8.3	9	29.0	.26	3.62	.06
4th grade	3	12.5	24	77.4	.64	22.81	.001
5th grade	4	16.7	14	45.2	.30	4.99	.03

Table 23 displays the individual grade level comparisons for the two program models for the percentage of students that achieved grade level proficiency for the CST English test. Students in the 50/50 program had a higher level of proficiency in all four years with the largest differences being in second grade ($p = .001$) and fourth grade ($p = .001$).

H_{01b}: Hypothesis 1b states that there will be a significant difference in the English reading achievement of Latino English learners in a 50/50 program by third grade, where English and Spanish literacy have been taught simultaneously since kindergarten, compared to students in a 90/10 TWI program, where Spanish reading instruction precedes instruction in English reading. However, by fifth grade Hypothesis

1b states that there will be no significant differences in the English reading achievement of Latino English learners in both the 50/50 TWI program and the 90/10 TWI program by end of program. The hypotheses were not supported. Data showed that in third grade no significant difference was evident in the percent of students who are at grade level in English fiction and non-fiction; however 83% of students in the 50/50 programs achieved grade level proficiency in English fiction and 87% of students in the 50/50 program achieved grade level proficiency in English non-fiction compared to 68% of students in the 90/10 programs in English fiction and 71% in English non-fiction. There were, however, significant differences in the percentage of students who achieved grade level proficiency in English fiction and non-fiction in first, second, fourth, and fifth grade, with students in the 50/50 program outperforming students in the 90/10 program.

Qualitative Results

Interviews with Principals.

RQ2: How is data used at the school site level to determine the biliteracy attainment of Latino English learners? The following are the themes that emerged from the principal interviews: Spanish literacy, English literacy, and making adjustments to the program model based on data and Biliteracy.

The interviews conducted for this study came about when the district's Research, Planning and Evaluation office was contacted and the researcher learned that data for the Spanish standardized test Aprenda[®] La prueba de logros en español was not collected in the district's research office. The district systematically collects data on various English assessments ranging from State standardized to district-created tests. For this study, the

district was able to provide data for the State standardized tests in English (CST) and Spanish (STS) along with the district English Benchmark Book test, a district-created reading assessment. However, when the district's research office was first contacted, the district representative the researcher contacted was unsure if the district collected data for the Spanish Benchmark Book Test. The fact that scores for the Aprenda[®] were not collected by the district and the possibility that scores for the Spanish Benchmark Book Test might not be collected on a district level either raised concerns and questions by the researcher regarding the Spanish assessments. It was clear in speaking to the district that Spanish assessment data was not a priority at the district's Research, Planning and Evaluation Office. This led the researcher to wonder what happened at the individual school sites regarding the Spanish assessment results for the students in the TWI programs. For this reason, the researcher filed an addendum to the original IRB in order to allow the interviews with principals to take place. Once approved, all four principals were interviewed at their individual school sites. The interview began with each principal being asked to describe his or her TWI program model.

Program design.

The 90/10 TWI programs are designed very similarly. Both schools begin kindergarten with 90% of instructional time in Spanish and 10% in English. In first grade, 80% of instructional time is in Spanish and 20% in English. In second grade it varies a bit with 80% of instructional time in Spanish and 20% in English in school D and 70% of instructional time in Spanish and 30% in English in school C. In third grade 60%

of instructional time is in Spanish and 40% in English. By fourth and fifth grade 50% of instructional time is in Spanish and 50% in English.

The 50/50 programs exhibited more variety within the program design. At both schools instructional time in English and Spanish was 50/50; however in school A kindergarten through third grade instructional time was divided by days: one day in English, one day in Spanish. In fourth and fifth grade the teachers taught one week in English and one week in Spanish. In school B 50% of each day was taught in Spanish and 50% in English, with certain content areas taught in English and others taught in Spanish.

Spanish literacy.

All four of the principals spoke about the district Spanish Benchmark Book Test, a district-created reading test that measures grade level literacy levels. Students are given this assessment continuously during the school year. The principals said that the students in the program are given both the Spanish reading benchmarks and the Spanish standardized test. The principal at school C described the Spanish assessments as follows:

They have their Spanish...the district has their benchmark assessment that they (the teachers) use and the kids take the Spanish benchmarks and so they're testing their reading achievement in Spanish. Then there's the standardized testing that the children also take in Spanish, so that they (the teachers) also have an idea on how they're doing on the standardized test, it's not like a version of the STAR test in Spanish. It's an actual different test and they (the students) take that...it's a norm-referenced test so that they (the teachers) kind of look and see how they're doing compared to other kids that are in that type of program.

The principal mentioned that the Standards Test in Spanish (STS) is a norm referenced test, however the STS is criterion-referenced test, just like the CST, not a norm referenced test. In fact, the STS was designed specifically to address the State content standards. The STS was meant to be aligned to the CST; however this principal was not aware of this.

The other three principals were clearly aware that the STS is a criterion-referenced test, however only one out of the four principals looked at the Spanish data. In fact two out of the four confessed that they did not look at the Spanish assessment results in any detail, particularly compared to the English assessment results. The principal at school D said:

That's it. We take it, we send the report to the parents, the teachers get a 'how their kids did last year,' but we haven't done much, nothing like we do with the CST in terms of analyzing, breaking it out in terms of what types of, which areas on there was the fall out. Was it writing strategies, writing conventions? Where was the fall out? And part of it is that it just hasn't been on the agendas.

The principal at school B was new to the school and new to two-way immersion. This principal explained that when she arrived as the new principal she discovered that the students in her TWI program took standardized tests in Spanish. The principal contacted the previous principal to gain information on the STS and Aprenda[®] tests, both of which had been administered the year before. The principal was told "not to worry" about the Spanish standardized test. The principal at school B explained:

It's interesting because when I got here and I got the data box my first thing is CST that's it, there's nothing else, they don't see anything else they don't test on anything else. I called the former principal when I saw the Aprenda[®] and I said, so what do you do with Aprenda[®], how do you analyze that? and he said, I

don't even open the Aprenda[®] packet. He said, no we don't because accountability does not come from the Aprenda[®]. The accountability from above comes from the CST.

There were concerns among three of the principals that it was challenging to maintain Spanish literacy levels.

The principals found that in the early grades, Spanish literacy levels were on grade level, but once the students entered third grade, Spanish reading levels began to dip. The principal from school A, which has a 50/50 program, described when the Spanish reading levels became more challenging, it became more difficult to maintain Spanish literacy levels.

They (students) were strong in Spanish but it just was not showing as they moved to second and of course by the time you get to third grade, it was a tremendous dip. Maintaining Spanish literacy was a struggle because as you continue to move forward it's no longer about...the story is no longer about the "lion" or the "boys working in the garden." The plot and the structures and the verb tenses begin to change and you have to put in all those pieces in reading.

The principal from school D, which has a 90/10 program describes a similar trend:

And what really comes up in the Spanish piece, is that we always, the trend is that students are near 100% at grade level in the first trimester (in third grade) in Spanish reading and kind of catching up in English, they're still not as high in English in third grade, but by 4th grade the trend changes. By the end of 4th grade the Spanish dropped to 20% reading at the end of fourth in Spanish.

One of the principals believed their students' Spanish reading benchmark scores were higher than English in fifth grade, however this principal wasn't really sure since Spanish data is not considered when analyzing assessments. This principal wasn't concerned with Spanish progress. "I would suspect that the Spanish would be good but I don't know that it would be at the level of ...it wouldn't be at the level of their English,

of course.” This statement was not corroborated with any type of data, it was the general “hunch” the principal had regarding progress in Spanish literacy. In fact this principal, cited Spanish proficiency as the problem with the lack of progress in English.

The Spanish benchmarks are high for 5th grade compared to the English benchmarks that are low. Most of our immersion 4th and 5th graders are below proficiency in the English; however the Spanish may be a little higher...and so it’s kind of a handicap actually for them because they’re not receiving as much instruction in English during the school day and of course it’s...the theory is that they would get that at home with parents etc. and that’s not always the case because 90% of our kids in that program are Spanish speakers.

This principal believed that parents in a two-way immersion program were responsible for supporting students in English at home and due to the fact that many of the students in the program were Spanish speakers. The principal believed that the time spent in Spanish instruction was negatively affecting progress in English and therefore was planning on reducing the instructional minutes in Spanish.

All four principals were interested in looking at Spanish assessment data. However the degree to which Spanish data was analyzed varied from site to site. The principals acknowledged that Spanish assessment data was important in relation to the goals of the TWI program, but due to the pressures of No Child Left Behind (NCLB), the focus was clearly on English assessment data both on a state and district level.

English literacy.

All four principals recognized that testing accountability included the English assessments only. Progress in English literacy, particularly on the CST, was the main focus of data analysis at each school site. The principal at school C said the focus was on accountability:

The emphasis these days with NCLB, of course, is on reading and literacy in English because regardless of where the kids are, when the kids get to 2nd through 5th grade, they still have to pass the content standards in English. I guess in a perfect world where we didn't have English content standard testing weighing down on the teachers we could just let them (the students) sort of progress and the English doesn't have to be as good and then we can wait and see when they get to third and fourth grade when we get to that 50/50 if it's going to sort of level off. We don't have that luxury right now.

For this principal gaining biliteracy was viewed as a luxury. There was a belief that they could not afford spending time instructing in Spanish. Only English literacy was important. In fact, the principal planned to limit instructional time in Spanish. This school had a 90/10 program where the majority of instructional time in the early grades was in Spanish. However, this principal intended to limit instructional time in Spanish and increase instructional time in English:

We're looking at moving towards more English instruction for all the kids and like I said, when I talk about all the kids, most of them are ELs anyway. The kids don't have the English models on the playground or at home. My big concern has been more English and looking at the English and where they are in the English. Spanish speakers, when they get to 5th grade, are not doing well in English at all.

The above statement refers to all students at the school. At this particular school most students are in the mainstream program and therefore receiving instruction only in English. When asked if the data was disaggregated by program to see if the two-way immersion students performed at different levels as compared to the rest of the school, the principal responded that that was the plan, but the data had not been disaggregated by program and that it was unknown specifically how the two-way immersion students did compared to students schoolwide.

The principal at school D, which also has a 90/10 program, expressed concern over the English learners' progress in English. Since the 90/10 is a sequential literacy

program, English learners' transition from Spanish to English literacy, usually in third grade. Both principals in the 90/10 programs expressed concern and frustration at the process of transitioning students from Spanish to English literacy. The principal at school C felt that the students were not proficient enough in Spanish to transition to English and the fact that the students' English vocabulary was limited impeded their ability to transition fully into English literacy. The principal at school D was more concerned with the process of transition and expressed that the teachers were not sure how to transition the students.

I think it's third grade and on when they're (the teachers) still wondering how to transition them (the students) and there's talk...the conversation usually goes to cognates and showing them ok, where is this word in Spanish and this is how it works in English. So that the ELs are doing as well as their EO counterparts in English and vice versa, and that's where I think we're stuck.

Making adjustments to the two-way immersion program based on data.

All four principals discussed adjustments that had been made to their two-way immersion programs based on data.

I did that big time over at the other school and the decision was to go 50/50 in all grades 'cause when I got there they were headed towards going 90/10 and the data just didn't support that so that's why we went 50/50 and actually it was more like a 60/40 model to be honest. The Spanish, we weren't doing too much of that.

At one of the 50/50 schools literacy achievement in Spanish was declining after first grade; therefore a decision was made to go from switching the language of instruction from week to week, to switching the language of instruction day to day because they believed that as the reading texts became more challenging, having Spanish reading every other week was not effective in the students' maintaining grade level

literacy. As they moved to switching day by day, they have seen an increase in grade level literacy in Spanish.

As we looked at the data in first grade, there were too many students that were leaving strong from the Spanish first grade teacher and I knew they were strong but it just wasn't showing as they moved to second and of course by the time you get to third grade it was a tremendous dip so changes were made to address that.

Measuring biliteracy.

In all the interviews there was an emphasis on separating the discussion between Spanish and English and in some cases Spanish versus English literacy, as if one was pitted against the other. One of the goals of a two-way immersion program is biliteracy. Students are expected to reach 5th grade literacy levels in English and Spanish at the end of the program regardless of program model. Each principal was asked how the data available in Spanish and English was used to determine if their students have reached the goal of biliteracy.

Measuring actually how you know they met that biliteracy goal, benchmark would be what we would have looked at to say whether yes or no. If you were asking me what our dip stick check point is, I would say our EL kids are not leaving 5th grade, maybe 50% proficient on their benchmarks, about half of them.

One principal spoke about trimester data analysis meetings that were conducted with individual teachers. Teachers met with the principal once every trimester. The principal along with the teacher looked at data to determine the number of students who are reading at grade level, and mid-grade level in both Spanish and English.

We are constantly doing a cross-check and when the teachers come in for my one-to-one data meetings, that's really what I'm looking at. So we're looking that they are achieving at the same rate of proficiency across the board in their reading benchmarks in both languages.

Of all the principals there was only one who was focused on student achievement in both languages. In looking at data on the individual school level, this school had the highest number of proficient students in both Spanish and English.

Summary

The purpose of this study was to determine whether students in a 50/50 TWI program developed higher levels of biliteracy compared to students in a 90/10 TWI program. A number of studies have been conducted that show that Spanish speaking English learners can reach high levels of reading proficiency in both Spanish and English in a two-way immersion program. Results of this study show that although there were no significant differences in the biliteracy achievement of students based on program model, less than 40% of the students in the 50/50 model were attaining grade level biliteracy by the end of the program and less than 30% of students in the 90/10 model were attaining grade level biliteracy by the end of the program. However higher percentages of students in both the 50/50 and 90/10 TWI program reached grade level reading proficiency in English than in Spanish. In the 50/50 TWI program 90% of students reached grade level in English reading compared to close to 60% of students in the 90/10 TWI program. The Spanish data was surprising in that only 35% of students in the 50/50 TWI program reached grade level in Spanish reading by fifth grade compared to 25% in the 90/10 TWI program.

Qualitative data for this study supported the findings of the quantitative data in that the principals all concurred that English assessment data was the focus of analysis at the school site level. Data supported this finding in that Latino English learners in both

the 50/50 TWI program and 90/10 TWI program reached higher levels of English reading as compared to Spanish reading. Although both the 50/50 and 90/10 two-way immersion programs are designed to develop equal levels of biliteracy by the end of fifth grade, it was found that regardless of program design, neither program model was yielding high percentages of students gaining biliteracy grade level proficiency by the end of the program. Chapter 5 will include the discussion and implications of why these programs are having difficulty meeting the biliteracy goal of their TWI program.

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS

Introduction

The education of English Learners continues to be a point of controversy among educators and policy makers in determining the most effective ways to instruct students whose first language is not English. Much debate has surrounded bilingual education and the use of a student's primary language in order to achieve academic success in English. Research has shown that English learners in two-way immersion programs (TWI), a model of bilingual education that emphasizes biliteracy as one of the goals of the program, can achieve academic success in two languages (Thomas & Collier, 2002; Lindholm-Leary, 2001, Block, 2007; Christian et al., 1997). Some of these studies have shown that English learners in TWI programs achieve as well as or better than English learners who are not in a TWI program as measured by standardized test scores (Thomas & Collier, 2002; Lindholm-Leary, 2001; Block, 2007; Christian et al., 1997). However, few studies have looked at the biliteracy achievement of English learners, especially a specific group of Latino English learners, to compare TWI program models.

This normative comparative study examined the biliteracy achievement of Latino English learners in a 50/50 two-way immersion program (TWI) as compared to the biliteracy achievement of Latino English learners in a 90/10 TWI, with both models focusing on reading achievement in English and Spanish. 50/50 TWI models and 90/10 TWI models share the same goals: biliteracy attainment, academic achievement in the target language as well as in English, and cultural competency (Lindholm-Leary, 2001);

however the approach to biliteracy differs. 50/50 TWI models are designed to teach literacy simultaneously from the onset of the program, usually kindergarten, whereas as 90/10 TWI models are designed to teach literacy sequentially meaning that literacy instruction in the target language, in the case of this study Spanish, precedes literacy instruction in English.

This study sought to answer the following research questions:

RQ1: Do Latino English learners achieve biliteracy more effectively in a simultaneous literacy program such as a 50/50 two-way immersion program or in a sequential literacy program such as a 90/10 two-way immersion program?

In order to answer the primary research question the following questions were explored:

RQ1a: Are there any differences in the Spanish reading achievement of Latino English learners, over time, in a 50/50 TWI and in a 90/10 TWI?

RQ1b: Are there any differences in the English reading achievement of Latino English learners, overtime, in a 50/50 TWI program compared to a 90/10 TWI program?

RQ2: How is data used at the school site level to determine the biliteracy attainment of Latino English learners?

Summary of Major Findings

The first major finding in this study occurred when I approached the research department of the school district in this study. Upon turning in my approved IRB along with my request for data, I was informed that the district did not collect standardized test data from the *Aprenda*[®], *La prueba de logros test*. The students in this study took the

Aprenda[®] in second grade only. Results from the Aprenda[®] were sent directly to the school site and were not collected at the district level. Since the students attended different middle schools across the district, it was not possible to obtain the Aprenda[®] results for second grade. The district does, however, collect data from the STS due to the fact that this test is mandated by the state for English learners who are being instructed in their primary language. Once an English learner is reclassified as Fluent English Proficient, they no longer take the STS, but may take the Aprenda[®] along with the English-only students in the two-way immersion program.

The students in the two-way immersion programs in this study took a number of assessments annually in English and Spanish. In English the students took the California Standards Test (CST) in second through fifth grade. This study also analyzed data from the district English Benchmark Book Test administered to students in grades kindergarten through fifth grade. In Spanish, the students took the Standards-based Test in Spanish (STS) in third through fifth grade along with the district Spanish Benchmark Book Test administered to students in kindergarten through 5th grade.

Overall, across grade levels, this study found no significant differences in the biliteracy achievement of Latino English learners in the 50/50 program model compared to the 90/10 model when both the Spanish and English Benchmark Book test results were combined to create a proxy measure for biliteracy. Although no significant differences were found between program models, neither program model yielded more than 40% of students' who tested as biliterate by the end of 5th grade. In the 50/50 model, less than

40% of students reached grade level biliteracy compared to less than 30% of students in the 90/10 programs.

When the Spanish and English Benchmark Book Test data were analyzed separately, significant differences were evident in the Spanish literacy attainment in the early grades. A higher percentage of students in the 90/10 TWI program reached grade level literacy in Spanish in first through third grade, although by fourth and fifth grade no significant differences were found by program model. However, significant differences were found in the English literacy attainment across grades. A higher percentage of students in the 50/50 program achieved grade level literacy in English compared to the students in the 90/10 program. These findings were supported by the principals who when interviewed said that Spanish assessment data were not a priority. English assessments were the focus of school site data analysis.

Table 24

Summary of Quantitative Data – Percentage of Students Proficient

English Benchmark Book Test	90/10 TWI	50/50 TWI	P
Fiction 1 st gr.	4.2%	100%	.001
Non-fiction 1 st gr.	4.2%	100%	.001
Fiction 2 nd gr.	42%	99%	.001
Non-fiction 2 nd gr.	29%	87%	.001
Fiction 3 rd gr.	68%	84%	.14
Non-fiction 3 rd gr.	71%	87%	.14
Fiction 4 th gr.	50%	84%	.007
Non-fiction 4 th gr.	42%	81%	.003
Fiction 5 th gr.	58%	90%	.006
Non-fiction 5 th gr.	58%	97%	.001
CST			
2 nd gr.	8.3%	52%	.001
3 rd gr.	8.3%	29%	.06
4 th gr.	12.5%	77%	.001
5 th gr.	17%	45%	.03
Spanish Benchmark Book Test			
Fiction 1st gr.	96%	74%	.03
Non-fiction 1st gr.	96%	74%	.03
Fiction 2nd gr.	96%	39%	.001
Non-fiction 2nd gr.	79%	36%	.001
Fiction 3rd gr.	79%	29%	.001
Non-fiction 3rd gr.	79%	25%	.001
Fiction 4th gr.	38%	42%	.74
Non-fiction 4th gr.	29%	39%	.46
Fiction 5th gr.	25%	36%	.40

Spanish Benchmark Book Test			
Non-fiction 5th gr.	25%	36%	.40
STS			
3rd gr.	36.64	38.78	.59
4th gr.	35.95	47.92	.01
5th gr.	26.62	38.11	.008
Biliteracy/ Benchmark Book Test			
	90/10	50/50	P
Fiction 1st gr.	0.0%	74%	.001
Non-fiction 1st gr.	0.0%	74%	.001
Fiction 2nd gr.	42%	39%	.82
Non-fiction 2nd gr.	30%	32%	.81
Fiction 3rd gr.	63%	23%	.003
Non-fiction 3rd gr.	63%	23%	.003
Fiction 4th gr.	29%	39%	.46
Non-fiction 4th gr.	29%	39%	.46
Fiction 5th gr.	25%	36%	.40
Non-fiction 5th gr.	25%	36%	.40

Table 24 represents the percentage of students proficient on each measure indicated. Data for the STS are reported as raw scores. The following sections discuss of RQ1, 1a, 1b and RQ2.

Biliteracy Achievement of Latino English learners in 50/50 two-way immersion programs compared to 90/10 two-way immersion programs (Research Question #1)

The Spanish and English district Benchmark Book test data in fiction and non-fiction were combined in order to create a proxy measure for biliteracy. The reading benchmarks were used since these assessments were measured in the same way. The

reading benchmarks were created by the district based on the California Content Standards and are scored the same for English and Spanish.

Repeated measures ANOVA were conducted to determine student proficiency in bilingual fiction and non-fiction. The results of this analysis showed that the main effect for program was not significant ($p = .23$) nor was the within-subjects effect for grades one through five ($p = .42$). Therefore when looking at grade level biliteracy no significant difference was found between the 50/50 TWI model and the 90/10 TWI model.

The interaction of grade and program was significant ($p = .001$). In the 50/50 TWI model 74.2 % of students in first grade ended the school year on grade level in both English and Spanish; however, biliteracy achievement declined steadily. By the end of fifth grade less than 40% of students in the 50/50 TWI model were equally on grade level in English and Spanish. In the 90/10 TWI model, 0% of students were on grade level in English and Spanish in first grade. Biliteracy achievement increased over the next two years peaking in third grade with 62.5% of students achieving grade level literacy in English and Spanish. However, after third grade the percent of students achieving biliteracy decreased dramatically with only 25% of students in the 90/10 TWI model achieving biliteracy by the end of fifth grade.

When comparing the 50/50 TWI model to the 90/10 TWI model, significant differences were evident in biliteracy achievement in first ($p = .001$) and third grade ($p = .003$). In the 90/10 TWI model Spanish literacy instruction precedes English literacy instruction; therefore it was expected that 0% of students in the 90/10 program would

achieve biliteracy at the end of first grade, since literacy instruction in English doesn't begin until second grade. In a 50/50 program, literacy in both languages is taught simultaneously; therefore it was not surprising that 74.2% of students were achieving biliteracy. Similarly the increase in the percentage of students achieving biliteracy from first to third grade in the 90/10 TWI model was also expected since literacy instruction in English was increased each year with 40% of instruction in third grade being in English. Therefore it would be expected that students in a 90/10 TWI model would steadily acquire biliteracy. However, the decrease in the percentage of students achieving biliteracy from first to third grade in the 50/50 TWI model was not expected. Based on program design, 50% of instruction was in Spanish and 50% of instruction was in English from kindergarten through fifth grade. Since the percentage of instructional time in each language did not change, it was surprising to find that the percentage of students achieving biliteracy in the 50/50 TWI model decreased sharply from 74.2% biliterate in first grade to 22.6% biliterate in third grade in both fiction and non-fiction. The percentage increased slightly in fourth grade; however by the end of fifth grade 35.5% of students in the 50/50 TWI model were equally biliterate. The 90/10 TWI model results after fourth grade show a sharp decline from third to fourth grade with 62.5% of students biliterate in third grade compared to only 29.2% in fourth grade. By the end of fifth grade, only 25% of students in the 90/10 TWI model were equally biliterate.

The differences in biliteracy achievement by grade level within and across the 50/50 TWI and 90/10 TWI models are consistent with the notion that the acquisition of two languages is complex (Bialystok, 2001; Hornberger, 2003). The formal and

functional paradigms of language acquisition (Bialystok, 2001) view the dynamic of acquiring two languages through two different lenses. This study supported the formal paradigm which states that no difference exists between sequential and simultaneous language acquisition. Any input leads to the acquisition of the second language. The functional paradigm states that social interaction and previous knowledge influence language acquisition. In this study no significant differences were found when looking at overall program results between the simultaneous literacy model (50/50) and the sequential literacy model (90/10), which supports the formal paradigm. However, when looking at results by grade level, the functional paradigm can explain the different experiences associated with learning a language sequentially or simultaneously, especially when interpreting the results in the early grades of the program. The functional paradigm supports the results in the early grades that showed students in the 50/50 TWI program outperforming students in the 90/10 TWI program in biliteracy development, a result attributed to the fact that the 50/50 students received instruction in both English and Spanish from the onset of the program. The fact that the 50/50 students were exposed to literacy in both languages simultaneously accounted for their biliteracy achievement, whereas the 90/10 students received literacy in Spanish only in the early grades; therefore their lack of biliteracy achievement at that stage of the program was expected.

The data showed that the biliteracy acquisition from grade to grade, regardless of program model, is fluid and likely to change. When one looks at biliteracy along a continuum, such as the Continuum of Biliteracy (Hornberger, 2003) it is evident that the

acquisition of biliteracy within and across the 50/50 TWI and 90/10 TWI models examined in this study represent various points along the road to achieving literacy in both languages. Hornberger (2003) posited when looking at the simultaneous exposure-sequential exposure continua of the media of biliteracy “the findings that a stronger first language leads to a stronger second language do not necessarily imply that the first language must be fully developed before the second language is introduced.” (p. 23). The notion that first language development does not need to be completed before second language exposure supports the findings in this study. When looking at overall biliteracy achievement, no significant differences occurred between program models. It also follows that when looking at data from the 50/50 TWI program, students did achieve biliteracy when receiving reading instruction in both languages simultaneously; therefore literacy in the first language did not need to precede literacy in the second language. Hornberger (2003) further stated that it is important that the first language not be abandoned before it is fully developed. This study showed that there are higher percentages of students achieving biliteracy at different points in each program model. A significant difference in overall biliteracy achievement by program model was not found and therefore a definitive conclusion of whether a simultaneous literacy program is more effective than a sequential literacy program could not be reached.

Although overall no significant differences were found between the biliteracy achievement of Latino English learners by program model, it is important to note that neither program yielded more than 50% of Latino English learner biliteracy by the end of the program. A slightly higher percentage of students in the 50/50 TWI model were

biliterate by the end of fifth grade compared to the 90/10 TWI model. However, both programs showed less than 50% of students equally proficient in Spanish and English. One of the goals of the TWI program is biliteracy achievement; therefore neither program in this study showed that the goal of biliteracy was met in regards to the Latino English learners who were enrolled in the program from 2004 to 2008. Most Latino English learners did not leave the program with equal levels of literacy in both English and Spanish.

The Literacy Squared[®] (Escamilla, 2010) project found that Spanish speaking English learners could achieve biliteracy when the two languages were introduced simultaneously. Further these researchers also found that cross-language connections were a key aspect to ensuring that the students continue to develop literacy in each language (Escamilla, 2010). The TWI programs in this study followed a more rigid model of language separation; therefore it would benefit both the 50/50 and 90/10 TWI programs to explore the relationship between the two languages in order to ensure that one language does not dominate. In this study, English literacy became dominate with students gaining higher proficiency levels in English than in Spanish.

The following sections explore in more detail the differences between literacy development in English and Spanish and the issues surrounding reasons for such small numbers of Latino English learners leaving these elementary TWI programs without grade level biliteracy skills.

Spanish Reading Achievement of Latino English learners in 50/50 and 90/10 TWI program (Research Question #1a)

The district Spanish Benchmark Book Test in fiction and non-fiction, first through fifth grades along with results from the STS third through fifth grades were analyzed to determine literacy achievement in Spanish over time in the 50/50 TWI model compared to the 90/10 TWI model.

Repeated measures ANOVA were run for the district Spanish Benchmark Book Tests for fiction and non-fiction first through fifth grades. Results showed that the main effect for program was significant ($p = .007$) with a higher percentage of students in the 90/10 TWI model on average achieving grade level literacy in Spanish than students in the 50/50 TWI model. When looking at all students regardless of program, the percentage of students on grade level in Spanish literacy declined steadily from grade to grade with most students being proficient in first grade ($M = 85.01$) and the least amount of students being proficient in fifth grade ($M = 30.24$). When comparing the percentage of students with grade level proficiency in Spanish literacy by program model, significant differences were found in first ($p = .03$), second ($p = .001$) and third grades ($p = .001$) with 95.8% of students in the 90/10 TWI model in first and second grades reaching grade level proficiency in Spanish literacy compared to 74.2% (first grade) and 38.7% (second grade) in the 50/50 TWI model. In third grade, 79.2% of students in the 90/10 TWI model were proficient in Spanish fiction compared to only 29% of students in the 50/50 TWI model.

Due to the program design in a 90/10 TWI model, it was not surprising to find a high percentage of students reaching grade level proficiency, particularly in the early grades where the focus of literacy instruction was Spanish. In the 50/50 TWI model, literacy instruction should be equally distributed in terms of instructional time in each language. Therefore the decline in third grade in Spanish literacy is a concern, particularly when results showed that in third grade over 80% of students were on grade level in English fiction/non-fiction. Clearly students in the 50/50 model reached higher literacy levels in English compared to Spanish. Three out of the four principals interviewed in this study were aware that Spanish literacy levels declined particularly from third to fifth grade. The principal at school A expressed concern over declining literacy levels in Spanish and explained that they had adjusted their program model as a result of declining literacy levels in Spanish.

Initially, fewer students in the 50/50 TWI model reached grade level proficiency in Spanish literacy by the end of the program. In fifth grade, 35.5% of students in the 50/50 TWI model were on grade level in Spanish literacy compared to only 25% of students in the 90/10 TWI model. Even though a higher percentage of students in the 90/10 TWI model were proficient in Spanish literacy at the beginning of the program, by the end of the program students in the 50/50 TWI model were outperforming students in the 90/10 TWI model.

Latino English learners in this study also took the STS in third, fourth and fifth grades. *t* tests for independent means were run for the STS raw scores based on program model. Results showed that at all grade levels students in the 50/50 TWI model

outperformed students in the 90/10 TWI model with significant differences resulting in fourth ($p = .01$) and fifth grades ($p = .008$). The number of students who took the STS varied. The researcher is unable to account for the reasons why the n changed from year to year; however, the results are still worth examining when comparing program models. Results clearly showed that of the students who did take the test at any given year, the 50/50 TWI model had a higher mean than students in the 90/10 TWI model. The fourth and fifth grade data which resulted in significant differences were consistent with the findings of the district Spanish Benchmark Benchmark Book test with students in the 50/50 TWI model outperforming the students in the 90/10 TWI model.

Early studies on the effectiveness of two-way immersion programs did not include standardized measures in Spanish because they were not administered at the time the studies were conducted. Christian et al. (1997) conducted a comparative study that included three schools. At the time of the study, two of the schools did not administer a standardized Spanish assessment. A third school did administer *La Prueba Riverside de Realización en Español* in reading and writing. Although the scores across grade levels ranged from the 53rd to 73rd percentile, the data was not disaggregated by language background; therefore it is unclear how the Latino English learners performed on the Spanish assessment. Later studies on the academic achievement of Latino English learners in two-way immersion programs have pointed to high test scores in Spanish as measured by the Aprenda[®], particularly among students in the 90/10 TWI model. Lindholm-Leary's (2001) study included 90/10 and 50/10 programs along with transitional bilingual programs to determine if program model was a determinant for

success. Lindholm-Leary (2001) found that students in the 90/10 two-way immersion programs gained higher levels of Spanish proficiency than students in the 50/50 program. In studying student achievement in 50/50 TWI programs, Cabazon et al. (1998) and DeJong (2002) also found that Spanish speakers in those programs were scoring at or above national norms on the Spanish Achievement in Bilingual Education 1991 (SABE) and the Aprenda[®] standardized tests.

Unlike the study conducted by Lindholm-Leary (2001) this study found students in the 50/50 TWI program reaching higher proficiency levels in Spanish compared to the students in the 90/10 TWI program by the end of program. Although the 50/50 TWI students reached higher levels in Spanish reading compared to the 90/10 TWI students, this study also found that students across programs were losing ground in Spanish reading as they progressed through the program, whereas Cabazon et al. (1998) and DeJong (2002) found that students in the 50/50 TWI programs reached grade level norms. This study found that by fifth grade most students were well below grade level in Spanish reading.

English Reading Achievement of Latino English learners in 50/50 and 90/10 TWI programs (Research Question #1b).

Two-way immersion studies that have been conducted in the past fifteen years (Thomas & Collier, 2002; Lindholm-Leary, 2001) have concluded that English learners achieve high levels of academic achievement in both English and Spanish. Most studies have focused on the academic achievement of Latino English learners compared to English-only students in the program or compared to students in mainstream English

classrooms. Some studies have compared the 90/10 TWI model and the 50/50 TWI model (Lindholm-Leary, 2001) and have concluded that students in either model outperform non-two-way immersion students.

The present study analyzed data from the district English Benchmark Book Test fiction and non-fiction, first through fifth grades along with results from the CST second through fifth grades to determine literacy achievement in English over time in both the 50/50 TWI model and the 90/10 TWI model.

Repeated measures ANOVA were run for the district English Benchmark Book Test for fiction and non-fiction first through fifth grades for both program models. Results showed that the main effect for program was significant ($p = .001$) with students in the 50/50 TWI model having higher aggregated proficiency in English fiction ($M = 91.00$) and non-fiction ($M = 90.30$) than students in the 90/10 TWI model (fiction: $M = 44.20$; non-fiction: $M = 40.80$.) The within-subjects effect for the five grade levels was significant ($p = .001$) with the mean aggregated score for first grade ($M = 52.08$) significantly lower than the scores for second grade ($p = .008$), third grade ($p = .002$) and fifth grade ($p = .006$). The interaction of grade and program was also significant ($p = .001$). Students in the 50/50 TWI model had English proficiency levels above 80% in both fiction and non-fiction, whereas in the 90/10 TWI model the highest percentage of students was in third grade with 66.7% of students proficient in English fiction and 70.8% of students proficient in English non-fiction. At the end of program 90.3% of students in the 50/50 TWI model were proficient in English fiction and 96.8% of students were proficient in English non-fiction. In the 90/10 TWI model 58.3% of students were

proficient in English fiction and non-fiction by the end of the program in fifth grade. Whereas most students in the 50/50 TWI model reached grade level proficiency in English, a little over 50% of students in the 90/10 TWI model reached grade level proficiency in English by the end of the program.

Students in this study also took the CST English language arts test in second, third, fourth and fifth grades. Results from the CST data found that a higher percentage of students in the 50/50 TWI were proficient or advanced in all four years with the largest differences being in second grade ($p = .001$) and fourth grade ($p = .001$). Close to 50% of students in the 50/50 TWI model were proficient or advanced in fifth grade compared to 16.7% of students in the 90/10 TWI model. These findings were consistent with the results of the district English Benchmark Book Test.

Results of this study were consistent with Lindholm-Leary (2001) who found that English learners were acquiring English literacy in a two-way immersion setting. However, the results of this study were more consistent with the findings of Christian et al. (1997) that compared academic performance of students in 90/10, 50/50 and 80/20 TWI models. Christian et al. (1997) found that students in the 50/50 TWI model outperformed students in the 90/10 TWI model. Lindholm-Leary (2001) found that there were no significant differences between 90/10 TWI and 50/50 TWI models. When looking at English achievement, Cabazon et al. (1998) found students in the Amigos 50/50 TWI program reached high levels on the California Achievement Test 1985 (CAT). However, DeJong (2002) found that Spanish speakers in the Framingham, Massachusetts 50/50 program scored below the national norms on the Stanford

Achievement test. Lopez & Tashakkori (2006) and Carlisle and Beeman (2000) also studied the English achievement of Latino English learners in first grade. Although these studies were limited in their scope, students were achieving academically in a bilingual setting.

The present study differs from the studies cited in that data was analyzed from both standardized and performance based assessments. Students in the 50/50 TWI model reached grade level reading proficiency in English, whereas the students in the 90/10 program did not reach grade level reading proficiency in English by the end of the program. Overall the data from this study revealed that students reached higher levels of reading proficiency in English compared to Spanish and that students in the 50/50 TWI program outperformed the students in the 90/10 TWI program by end of program.

Continua of Biliteracy

The results of this study were further examined under the lens of Hornberger's (2003) Continua of Biliteracy through the following continua: simultaneous-successive exposure continuum of the media of biliteracy; the monolingual-bilingual, and micro-macro continuum of the context of biliteracy. As was noted in the section regarding the biliteracy results of this study, analysis showed that the acquisition of reading in English and Spanish was fluid and defined as existing along a continuum with various levels of biliteracy being achieved at different points in the 50/50 and 90/10 TWI programs. Results showed that whether literacy was taught simultaneously or sequentially was inconsequential in the attainment of biliteracy when the results were combined to create a proxy measure for biliteracy. However, when examined separately students in the 50/50

TWI program outperformed students in the 90/10 TWI program at certain points between first and fifth grades and vice versa with the 90/10 TWI program.

Monolingual-Bilingual/Micro-Macro Continua of the Context of Biliteracy.

The monolingual-bilingual and micro-macro continuums are interrelated when examining the results of this study. All of the continua are situated between a power paradigm where those traditionally with less power fell on the left side of the continuum and those traditionally with more power fell on the right side of the continuum. The fact that small numbers of students in both program models reached grade level literacy in Spanish indicated that although on a micro level students were being exposed to literacy in Spanish, on a macro-level pressure was exerted to make sure the students performed in English. Hornberger (2003) explained that within the context of biliteracy on the macro-micro continuum one language can dominate or marginalize the other language. The present study showed English, our nation's dominant language, to have yielded higher proficiency levels and that after initial acquisition of Spanish literacy, levels of Spanish reading plummeted. One reason for these results was the relationship between macro-level entities, such as the district and state mandates that put pressure on schools to produce expected test scores in English. The pressure to perform on state tests was so great that micro-level entities at the program level were consumed with meeting macro-level demands. Also at a micro-level, the school site, all four principals addressed the issue of placing more importance on the English tests and the pressure from the district to raise test scores. Although the goal of biliteracy is evident and each program devotes a percentage of instruction to Spanish literacy, it is clear from the data analyzed

and the interviews with the principals that English was held at a higher status. In other words, English achievement superseded full biliteracy attainment by the end of program in fifth grade.

Successive-Simultaneous Continua of the Media of Biliteracy.

Results from this study showed that both successive and simultaneous literacy programs such as the 90/10 and 50/50 TWI programs developed biliteracy to a certain degree. No significant differences were found by program model, pointing to the fact that introducing and developing literacy simultaneously or successively produced similar results. However, when looking at the data separately, by language, students in the 50/50 TWI program reached higher levels of literacy in both Spanish and English. Clearly biliteracy instruction from the onset of the program did not hinder the development of literacy in one language or the other; however it is clear that Spanish literacy is thwarted in the pursuit of English literacy. Further studies of the four school sites in this study are needed to determine exactly why Spanish literacy seems to stay stagnant as English literacy continues to develop.

The next section reflects on Cummins' linguistic interdependence theory and threshold hypothesis in light of the results of this study.

Cummins' Linguistic Interdependence Theory

Cummins' (1981) linguistic interdependence theory stated that there is a relationship between the first and second language. The present study shows that instruction in a students' first language did not hinder literacy development in the second language and that development of literacy in two languages can be effective when

implemented either simultaneously or sequentially. In a sequential literacy program the belief is that first language development should precede second language development; thus that which is learned in the first language can be transferred to the second language. This study shows that even in a simultaneous literacy program, transfer between languages will also occur and perhaps may be more effective because the transfer of skills to English occurs in close proximity to instruction of the skill in the primary language.

Cummins (1981) Threshold Hypothesis is also supported in the present study to a certain degree. The fact that most students reached a third grade level of literacy in Spanish and with that were able to continue to gain higher levels of literacy in English shows the importance of the literacy development in both languages. However the fact that Spanish literacy fell behind English literacy suggests that there may be a minimum level of primary language literacy necessary for the continued development of second language literacy. This study is too small to make any definitive claims regarding the Threshold Hypothesis. However it is important to note that most students in this study were not equally biliterate by fifth grade and that a majority of students were well below grade level in Spanish literacy. However because all students received primary language instruction, it is important to note that the development of the primary language may have contributed to the development of English literacy.

Valdes (1997) expressed concern over the quality of Spanish literacy instruction for English learners in a two-way immersion setting. Due to the fact that students are mixed with language majority students, the concern is whether different strategies are

used to teach literacy to accommodate students who are learning Spanish as a second language and are therefore at a lower proficiency level than native Spanish speakers. Valdes (1997) suggested that this may apply in a two-way immersion program. More than 10 years have passed since Valdes brought to light issues within a two-way program that might negatively affect the development of Spanish literacy in Latino English learners. This study adds to this concern, as results showed that the Spanish literacy levels of the Latino English learners declined over time. Valdes (1997) was most concerned with the language majority students in TWI programs being the focus of Spanish literacy instruction to the detriment of primary language literacy development in language minority students. The present study differed because most students were enrolled in schools where there was a high percentage of students who were language minority students. In fact only one out of the four schools had a significant English-only population within the TWI program. This raises the question if Latino English learners were the majority population in the TWI programs in this study, then why did their development of Spanish literacy fall behind English literacy? One possible explanation of these results lies in the comments provided by the principals of each school and the English-only ideology that is still pervasive throughout the public school system.

Language Ideology

All four principals concurred that the English assessment data, whether from state or district level assessments, were the focus of their data analysis. This could account for the fact that Spanish literacy achievement fell behind English achievement after third grade. The principals clearly expressed that high stakes testing in English and that

accountability on the district and state levels only included English assessments. The fact that Spanish assessments were not configured in the API or AYP significantly influenced the time spent on analyzing test data in Spanish. Although the principals would say that they should be looking at both, they concluded that the English test data was analyzed more thoroughly and instructional decisions were made based on the English standardized test only.

Although after the passage of Proposition 227, more two-way immersion programs have been established and slowly more English learners have an opportunity to become biliterate, the emphasis on testing through NCLB and the monolingual ideology that plays a dominate role in the education of English learners are perhaps undermining the goal of biliteracy in two-way immersion programs. Macedo et al. (2003) identified a “covert assimilationist policy” that has worked to promote English as the official language. The results of this study pointed to a “covert monolingual agenda” that in a similar fashion is promoting English as the important language to acquire even in a two-way immersion setting and has relegated Spanish to a secondary status not worthy of careful data analysis that can inform instruction. As NCLB may become a thing of the past under the Obama administration, it is important to note that with or without NCLB, in the United States of America a strong English-only ideology prevails that may in a subtle way undermine the goal of biliteracy for Latino English learners in a two-way immersion setting. Through the waiver process under Proposition 227, Latino English learners can participate in a bilingual program that in its design supports biliteracy and

the full acquisition of two languages; however we must be mindful to avoid allowing English literacy attainment to override Spanish literacy maintenance.

Until we value bilingualism as a society, two-way immersion programs need to be careful to not allow English literacy to dominate in the analysis of data. If the students are tested in both languages, then we would be remiss to ignore the results of the Spanish assessments and focus attention on the English assessments. Pressures of academic performance in English especially for English learners is evident, but the two-way immersion community, including principals, teachers and parents, needs to ensure that students are maintaining equal levels of English and Spanish literacy especially by the end of the program.

Limitations

A limitation to this study was the relatively small sample size $n = 55$. The original sample size for this study was 67 students who were identified English learners in first grade. However, as the data were being organized it became clear that complete data was available from first through fifth grade for 55 students. The 12 students not included in this analysis had missing data at certain grade levels. These students may have been enrolled in the program after first grade or may have left the program at some point between first and fifth grade. Therefore the sample size for this study consisted of 55 Latino English learners who participated in one of the four TWI programs first through fifth grade. The small sample size makes it difficult to generalize outside the scope of this study.

District Benchmark Book Test data were analyzed to determine biliteracy at grade level. Since the assessment is used in this district-only, the findings may also be difficult to generalize. Although all four schools are recognized as two-way immersion models, none of the schools had a true 50/50 split between language minority and language majority population. Although I do not consider this circumstance to be unique to this district, it is important to understand whether the composition of the student population is truly split and if this is a defining factor in a two-way immersion program.

Recommendations for Future Research

This study showed that Latino English learners enrolled in 50/50 TWI models and 90/10 TWI models had similar levels of achievement in both English and Spanish, with the 50/50 TWI students slightly outperforming the 90/10 TWI students. Whether the students were being taught literacy simultaneously or sequentially did not yield a significant difference overall in the biliteracy achievement of students by program model. However, both models showed a low percentage of students leaving the program at the end of fifth grade at grade level literacy in English and Spanish, with Spanish literacy reaching a cap at about a third grade level. The following are recommendations for further studies:

1. More studies are needed that focus on the differences in literacy attainment by program model, and a closer consideration is needed in terms of the use of instructional strategies to further determine differences in the instructional strategies used in sequential versus simultaneous literacy instruction.

2. Studies need to be conducted that focus on the relationship between the target language and English. How does language transfer play a role in simultaneous and sequential literacy programs?
3. Studies need to be conducted that focus on the status of the target language in two-way immersion programs. By design, both languages should have equal status; however it is clear from this study that English still dominates the discourse as well as the level of literacy achievement among English learner students.
4. Leadership studies on the role of administrators in a two-way immersion context. It was apparent from the four interviews conducted that the individual beliefs of the principals regarding the participation of Latino English learners in a TWI program greatly influenced decisions at the school site level.

Practitioner Recommendations

At the school site level, the following recommendations are suggested:

1. There needs to be a systematic way of measuring and analyzing data in both English and Spanish to ensure students are achieving biliteracy throughout the program. If the students are taking a number of tests in both languages, then the data from all assessments need to be analyzed. The goal of biliteracy attainment needs to be discussed among administrators, teachers, and parents throughout the school year and at each grade level.
2. Most principals expressed a need for adequate biliteracy tools. In one school, teachers were creating assessments to determine literacy and academic levels in

Spanish. Many materials are available in English and some in Spanish, but none measure biliteracy.

3. Administrators at the TWI sites need to understand the influence of macro levels of English hegemony and monolingual ideology be it in the form of NCLB or a policy such as Proposition 227. Administrators need to be clear that to be a leader in these programs means to ensure that all students are leaving biliterate regardless of outside pressures.

On a district level, the following recommendations are made:

1. Administrators need to be carefully selected when assigned to a school that has a two-way immersion program.
2. The district needs to provide the resources and support necessary to successfully implement a TWI program. Many of the principals felt that there was no communication among the four schools and expressed a desire for the district to take the lead in bringing the four elementary programs together for decision making.

Policy Recommendations

It was clear from the interviews with the principals that the pressures of ensuring that students were performing in English override the goals of a two-way immersion program. The CST was the only measure of academic performance that counted. Therefore administrators were caught up in the pressures of making sure students, particularly the English learners who were a major subgroup at each of the schools in this study, reached expected performance levels on the CST. Since there was no pressure and

no accountability attached to the STS, principals were not as focused on the results of the Spanish assessments. As one principal stated in reference to the STS, “That’s it. We take it.”

Under Proposition 227, English learners may participate in a two-way immersion program through a waiver option. Therefore it is in the best interest of the state to devise a system where state assessments in both English and Spanish carry equal weight. A few years ago AB 2445 reached the governor’s desk for approval only to be vetoed by the governor. AB 2445 would have established a State Seal of Biliteracy. The State Seal of Biliteracy was to be awarded jointly by the school district Superintendent and the Governor. The purpose of the State Seal of Biliteracy was to encourage students to develop biliteracy skills and to encourage the development of TWI programs along with heritage language programs in grades kindergarten through twelfth grade. The fact that the Governor vetoed the bill indicated that public acknowledgement of biliteracy was not valued. Several school districts have taken the lead and implemented their own Seal of Biliteracy; however having such a decree become law on a state level could be a start to begin to dismantle the monolingual ideology that permeates our educational system in California.

General Conclusions

Overall this study found that there were no significant differences between the biliteracy achievement of Latino English learners in a 50/50 TWI model compared to a 90/10 TWI model. The study is significant because although students achieved a certain level of biliteracy, neither program model produced high percentages of grade level

biliterate Latino English learners by the end of the program. The two-way immersion model is considered an additive bilingual model, where students are encouraged to develop high levels of bilingualism/biliteracy in both the target language and English. However in this study it is evident that literacy in English surpassed literacy in Spanish regardless of program model.

Proponents of Proposition 227 asserted that English learners need to be taught only in English and that primary language instruction hindered the acquisition of English. This study refuted that claim. Latino English learners in both the 50/50 and the 90/10 TWI models achieved at or close to grade level proficiency in English by the end of the program. Therefore it is clear that primary language instruction did not hinder English literacy attainment. Leaders in the two-way immersion community have a responsibility to guide the instruction of their programs in order to reach the goal of grade level biliteracy by the completion of the program, and they need to be mindful of preventing macro-level pressures to supersede the goals of the program. If two-way immersion programs become the prevalent bilingual education model where both language minority and language majority students have the opportunity to develop bilingualism and biliteracy, then it is in the best interest of all students that the goal of biliteracy is embraced, fostered and promoted.

APPENDIX

INTERVIEW QUESTIONS FOR PRINCIPALS

The Biliteracy Achievement of Latino English Learners in Two-Way Immersion Elementary Programs

Interview Questions:

1. What data is used to determine biliteracy achievement of English learners in your Two-Way Immersion Program?

2. How is the data used to determine the biliteracy achievement of English learners in your Two-Way Immersion Program?
 - Is the data used to make adjustments to program?
 - Is the data used to determine success in the program?

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