DEVELOPING ENGLISH AND SPANISH LITERACY IN A ONE-WAY SPANISH IMMERSION PROGRAM

by

Lindsay Kay Hollingsworth

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

This quantitative, causal-comparative study examined the possible cause and effect relationship between educational programming, specifically one-way Spanish immersion and traditional English-only, and native English-speaking fifth graders' vocabulary and reading comprehension. Archival data was used to examine students' reading achievement as measured by the Iowa Assessment. Between-subjects multivariate analysis of variance (MANOVA) determined that no significant differences existed between the reading scores of students in the immersion and traditional program. Additionally, a one group pretest-posttest design was used to assess the growth of Spanish listening and speaking skills by students enrolled in the one-way Spanish immersion program using Language Assessment Skills Links Espanol (LAS Links Espanol). The results of dependent *t*-tests indicated that students made statistically significant gains in Spanish listening and speaking over time.

Keywords: One-way Spanish Immersion program, bilingual education, foreign language acquisition

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Table of Contents

ABSTRACT 3
Acknowledgements 4
List of Tables 8
List of Abbreviations 9
CHAPTER ONE: INTRODUCTION 10
Background 12
Problem Statement 15
Purpose of the Study 15
Significance of the Study 16
Research Questions 18
Hypotheses 19
Identification of Variables 23
Definitions 24
Research Summary 26
Assumptions and Limitations 27
CHAPTER TWO: REVIEW OF THE LITERATURE 31
Theoretical Framework 31
Foreign Language Instruction in the U.S. 32
Language Instruction in Early Elementary 35
Language Instruction in Foreign Countries 37
Immersion Programs 38
Language and Literacy 39
Reading Comprehension and Vocabulary 42
Spanish Listening and Speaking 43
Academic Achievement 43
Socio-Cultural Environment 46
Barriers to Immersion Programs 48
NES in Spanish Immersion Programs 49
Spanish Immersion Programs 50
Two-way Immersion 51

One-way Immersion 53
Summary 54
CHAPTER THREE: METHODOLOGY 55
Design 55
Research Questions and Hypotheses 58
Hypotheses 59
Participants 62
Setting 65
Instrumentation 68
Procedures 74
Data Analysis 75
CHAPTER FOUR: FINDINGS 81
Question 1: One-way MANOVA 81
Question 2: Dependent t-Test 87
Summary 92
CHAPTER FIVE: DISCUSSION 94
Review of Methodology 94
Summary of the Findings 96
Discussion of the Findings in the Context of Relevant Research 97
Theoretical Implications 99
Practical Implications 100
Study Limitations 102
Recommendations for Future Research 104
REFERENCES 106
APPENDIX 116
Appendix A: IRB Approval 116
Appendix B: Letter to Chief Administrator 117

List of Tables

Table 3.1 Description of Organization of Theoretical Framework, Research Questions, Design, Data Sources, and Potential Outcomes ……56

Table 3.2 Demographics of St. Rose and St. Maria Goretti for the 2012-2013 School Year ……..……...……61

Table 3.3 Vocabulary and Reading Comprehension Subtests of the Iowa Assessment.67

Table 3.4 Listening and Speaking Subtests of LAS-Links Espanol ……..…69

Table 4.1 Descriptive Statistics for the Dependent Variables for the Two Groups ...…78

Table 4.2 Correlation Matrix ……..…….80

Table 4.3 Descriptive Statistics for Listening Subtests of LAS Link Espanol over Time ……....83

Table 4.4 Descriptive Statistics for Speaking Subtests of LAS Link Espanol over Time ……....83

Table 4.5 Correlation Matrix ……..……...…..85

List of Abbreviations

Native English speakers (NES)

Language Assessment Skills Links Espanol (LAS Links Espanol)

First language (L1)

Multivariate analysis of variance (MANOVA)

Second language (L2)

Elementary and Secondary Act (ESEA)

Bilingual Education Act (BEA)

No Child Left Behind (NCLB)

Limited English proficient (LEP)

Two-way immersion (TWI)

Native Spanish speaking (NSS)

Analysis of variances (ANOVA)

CHAPTER ONE: INTRODUCTION

Foreign language instruction at the elementary level benefits students by providing them with a deep and rich understanding of the functions of language. According to Russian psychologist, Lev Vygotsky (1986), through study of a foreign language, a child is better able to understand his own language. Language learners use their native language as a mediator between the surrounding world and the new language. In the process of learning two languages and oscillating between them, students demonstrate deep metalinguistic awareness of the structure and function of language (Martin-Beltran, 2010). Foreign language instruction influences students by enhancing their first language and creating opportunities for them to become bilingual and biliterate.

As technological advances make global communication easier, it is becoming increasingly beneficial for individuals to develop literacy in more than one language (Jared, Cormier, Levy, & Wade-Woolley, 2011). Global leaders in education are examining ways to effectively educate children to be divergent thinkers with bilingual communication skills necessary to participate in a global economy. Many foreign countries including Finland and Korea are capitalizing on opportunities to develop the students' second language proficiency by incorporating the study of foreign language into the elementary curriculum (Darling-Hammond, 2010a; Stewart, 2012). Although the United States offers foreign language instruction in its schools, the focus of such programming is often to facilitate the acquisition of English for English language learners (de Jong & Howard, 2009; Krashen, 2004). In fact, very few bilingual programs in the country have competence in a second language as an explicit goal (Alanis & Rodriguez, 2008) and relatively little is known about the levels of foreign language attained by

majority speakers as a result of participation in an elementary immersion program (Potowski, 2007a).

Foreign language instruction at the elementary level in the U.S. most commonly occurs through foreign language immersion programs. Presently, the Directory of Foreign Language Immersion Programs lists 448 immersion programs in the U.S. (Center for Applied Linguistics, 2011). Multiple studies have examined two-way immersion programs, often with a focus on the native Spanish speakers' academic performance and language development (Cobb, Vega, & Kronauge, 2006; Potowski, 2007a; Serrano & Howard, 2007; Shneyderman & Abella, 2009). In the aforementioned studies, the bilingualism and biliteracy of native English speakers (NES) is of secondary importance or has not examined at all. Despite present educational practices in the U.S., NES are becoming more interested in acquiring a foreign language in school (Cobb, Vega, & Kronauge, 2006; Parkes, 2008; Pufahl & Rhodes, 2011). Further, 21st Century Skills standards for foreign language learning emphasize the importance of students' foreign language proficiency (Partnership for 21st Century Skills, 2011), establishing a sense of urgency for educational systems to develop quality foreign language programs to support students over time. The problem is that many elementary schools in the U.S. are not capitalizing on opportunities to introduce foreign language studies to elementary students during critical years for language acquisition; and further, research in elementary schools in the U.S. that examine the effectiveness of instructional methods aimed at bilingualism and biliteracy of NES is sparse.

This study examines the effects of participation in a one-way Spanish immersion program on NES students' language and literacy acquisition of English and Spanish.

This chapter presents a background of immersion programming, problem and purpose statements, significance of the study, research questions and hypotheses, identification of variables, relevant definitions, research summary, and assumptions and limitations regarding this study.

Background

Foreign language immersion programs originated in Canada, specifically in St. Lambert, Quebec, in 1965 (Genesee & Jared, 2008). This first immersion program educated English-speaking students in French. Students enrolled in the immersion program received initial literacy and academic instruction in French, prior to the introduction of English. The model increased in popularity in Canada and presently, more than 300,000 Canadian students are enrolled in immersion programs (Genesee & Jared, 2008). Canada's educational system boasts a robust immersion program graduating students who are bilingual in English and French.

The U.S. followed Canada's footsteps and piloted foreign language immersion programs in the late 1960s and 1970s. A great deal of energy went into the development of dual or two-way immersion programs (Potowski, 2007b). Two-way immersion programs balance NES with students who speak English as a second language and educate the students in two languages. At the same time, one-way programs were also being developed. The first Spanish immersion program for native speakers of English was established in Culver City, CA in 1971 (Potowski, 2007b). Both program designs, two-way and one-way immersion, share goals of developing students' bilingualism and biliteracy, encouraging academic achievement, and fostering cross-cultural relations (Potowski, 2007b).

For nearly half a century, the U.S. educational system has grappled with immersion programming, yet still fails to promote foreign language proficiency among native speakers of English (Howard, Sugarman, & Christian, 2003; Potowski, 2007b). In a review of Spanish immersion programming in the U.S., Howard, Sugarman, and Christian (2003) discovered a flawed foreign language system for NES students who attained limited ability to speak, read, or write in a foreign language. The authors called for further investigations into immersion programs and their ability to produce bilingual and biliterate citizens.

Two interrelated theories frame this study on immersion programs. First, the theory of additive bilingualism (Lambert, 1974) suggests that learning a second language does not interfere with first language learning. Thus, students can learn a second language without detriment to their native language. A second related theory developed by Cummins (1979, 1980, 1998, 2007) is the interdependence hypothesis. This theory suggests that languages share underlying manifestations, and that gains in one language lead to gains in the second language. These theories provide a level of confidence in bilingual programming, indicating that they function as enrichment models, providing students with unique opportunities to develop literacies in two languages.

This study seeks to explore foreign language immersion, specifically one-way Spanish immersion, and the linguistic benefits that it provides to NES. A review of the literature reveals a number of motivational factors for families and children choosing immersion programming. A large-scale quantitative study conducted by Parkes (2008) examined who chose immersion education for their children and why. For NES families, a primary goal was for their children to become bilingual and biliterate (Parkes, 2008).

NES families also wanted to enable their children to relate to people from different cultures and equip them with skills to be successful in a global society (Parkes, 2008). Similar perceptions were echoed by NES secondary students enrolled in an immersion program who shared that learning Spanish was helpful for college preparation and future job opportunities (Bearse & de Jong, 2008). NES students and families appreciate the utilitarian benefits of learning a foreign language.

Although there is a great deal of literature available on immersion programming, the context is often in a two-way Spanish immersion setting with a primary focus on Native-Spanish speakers acquisition of English (Cobb, Vega, & Kronauge, 2006; Potowski, 2007a; Serrano & Howard, 2007; Shneyderman & Abella, 2009). Little research has been conducted in the U.S. examining the language development of English-speaking children in Spanish one-way classrooms (Ballinger & Lyster, 2011; Cobb et al., 2006; de Jong & Howard, 2009; Howard, et al., 2003; Jared et al., 2011; Potowski, 2007a, 2007b). In fact, only one recent study specifically targeted the literacy skills of native-English speakers enrolled in a Spanish immersion programs. Reading (2008) compared the English reading scores of kindergarten and first grade NES students enrolled in a Spanish immersion program to the English reading scores of students enrolled in a French immersion program The results indicated that learning a language with a consistent orthography such as Spanish enhanced learning a language with an inconsistent orthography such as English.

This study has significance for proponents of immersion programming as well as policy-makers interested in the effects of one-way Spanish immersion programs on the NES students' literacy skills in English and Spanish. This study will examine students'

reading abilities in English and oral language proficiency in Spanish in order to determine the impact of immersion programming during elementary years.

Problem Statement

Students in the U.S. are lagging behind their international peers according to the 2009 Program for International Student Assessment (PISA), an international assessment that measures the performance of 15-year-old students in reading literacy, math literacy, and science literacy (National Center for Education Statistics, 2011). Unlike the narrow focus on reading and math characteristic of US schools today, global leaders, including Finland, Singapore, and South Korea, are providing their students with a comprehensive liberal arts curriculum, including foreign language study in order to prepare students to participate in a global economy (Cobb, Vega, & Kronauge, 2006; Darling-Hammond, 2010a; 2010b; Munson, 2011).

While the U.S. houses an increasingly large number of foreign language immersion programs, the emphasis is often on using a minority language such as Spanish to facilitate English language learners' acquisition of English (Potowski, 2007b). The problem is that little is known about achieved levels of bilingualism and biliteracy for NES students enrolled in one-way Spanish immersion programs at the elementary level.

Purpose of the Study

The purpose of this quantitative causal comparative study is to test the theories of additive bilingualism (Lambert, 1974) and interdependence hypothesis (Cummins, 1979, 1980, 1998, 2007) that compare educational programs (groups) on English reading performance of fifth graders at St. Maria Goretti Catholic Spanish Immersion (pseudonym) and St. Rose Catholic Elementary Schools (pseudonym). The independent

variable, group, will be generally defined as the program of instruction (Spanish immersion or traditional English-only). The dependent variables will be generally defined as the mean scores of the vocabulary and reading comprehension subtests of the Iowa Assessment (Riverside Publishing, 2010). Additionally, a one group pretest-posttest design will be used to examine the extent to which immersion students acquire Spanish listening and speaking skills using Language Assessment Skills Links Espanol (LAS Links Espanol) (CTB/McGraw-Hill LLC, 2012).

Significance of the Study

This study is significant because a growing body of research demonstrates that the predominant approach in U.S. schools for foreign language acquisition is flawed. The present practice of beginning foreign language study at the junior high and high school level is ineffective and fails to produce bilingual and biliterate students (Johnson, 2009; Palmer, 2008; Petitto, 2009; Ray, 2009). An analysis of national competitors reveals a shared emphasis on a holistic curriculum, with emphasis on foreign language study (Darling-Hammond, 2010b; Finkel, 2012; Munson, 2011). This is in direct contrast to the U.S., who has slipped in global academic competitiveness as measured by PISA 2009 (National Center for Education Statistics, 2011). The recent focus in U.S. schools on test preparation and basic knowledge of math and language arts has resulted in lower academic achievement by students (Darling-Hammond, 2010a; 2010b; Finkel, 2012; Munson, 2011). By emphasizing basic skills over content, U.S. schools are challenged to produce students who can compete with global counterparts.

The study seeks to add to the existing body of knowledge on the impact of foreign language immersion programs on native English-speaking students' language

proficiencies in both English and Spanish. The number of bilingual programs has been growing in the U.S. Prior to 1995 there were less than 100 programs; today there are more than 400 immersion programs in the U.S. (Center for Applied Linguistics, 2011). Research studies on enrichment models of bilingual education are not common because these programs have only begun to increase in popularity (Cobb, Vega, & Kronauge, 2006). This study will explore the phenomenon of NES enrolled in a one-way Spanish immersion program, and its effects on their literacy development in English and Spanish.

The study has theoretical significance in that it explores foreign language instruction and optimal age issues. Presently, the majority of foreign language instruction takes place in middle school and high school. This commonplace practice negates brain-based research that suggests foreign language instruction is best introduced to young children (Cummins, 1980; Vygotsky, 1978). This study will explore foreign language immersion programming for elementary students and the implications it has on language learning and academic achievement.

This study has significance for federal lawmakers, administrators in the U.S. Department of Education, and politicians who recommend educational policy. It is vital that educational leaders ensure that schools provide a comprehensive, high-quality liberal arts education. Foreign language immersion programs are a viable option in that they are uniquely able to promote second language learning with rigorous content standards and high expectations (Alanis & Rodriguez, 2008; Johnson, 2009; Ray, 2009). Despite the opportunities created by immersion programs, the general public fails to recognize bilingual education as a viable alternative to traditional schooling. This is evidenced by the lack of available programming as well as a prevailing fear that foreign language

learning causes a detriment to students' first language (Alanis & Rodriguez, 2008; Cobb et al., 2006; Johnson, 2009; Petitto, 2009; Ray, 2009).

The study also has significance for private schools, specifically regarding recruitment and retention practices, as it offers an additional source to generate revenue. A review of the literature reveals that there are parents in the U.S. who appreciate and value opportunities for their child to learn a second language and culture (Bearse & de Jong, 2008; Cobb et al., 2006; Dorner, 2011; Gort, 2008; Howard et al., 2003; Martin-Beltran, 2010; Palmer, 2008; Parkes, 2008; Potowski, 2007a, 2007b; Scanlan & Zehrbach, 2010; Serrano & Howard, 2007). By offering an immersion program at a private school, new populations are targeted.

On a smaller scale, the study has significance in the community surrounding the sample school. The results will be disseminated to the local community as well as to stakeholders, including the school board. Because the immersion school is a part of a private school system, the results could assist efforts in recruiting and retaining students. The study also has significance for the parents who choose the immersion program for their children and others who are considering it. The results of this study will reveal the effects of immersion programming on students' language and literacy acquisition in both English and Spanish.

Research Questions

The research questions for this study are:

RQ1: Is there a significant difference in vocabulary and reading comprehension scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional English-only program?

RQ2: Is there a significant difference in pretest and posttest scores for NES students' listing and speaking abilities in Spanish on the Language Assessment Skills Links Espanol (LAS Links Espanol) before and after participating in a one-way Spanish immersion program?

Hypotheses

The following are the research hypotheses for the study:

H1: There is a statistically significant difference in the linear combination of subscales that comprise the vocabulary and reading comprehension scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H2: There is a statistically significant difference in vocabulary mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English only program.

H3: There is a statistically significant difference in explicit mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H4: There is a statistically significant difference in implicit mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H5: There is a statistically significant difference in key ideas mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H6: There is a statistically significant difference in author's craft mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H7: There is a statistically significant difference in listen with attention mean scores on the Language Assessment Skills Links Espanol (LAS Links Espanol) for fifth graders before and after participating in a one-way Spanish immersion program.

H8: There is a statistically significant difference in listen in the classroom mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H9: There is a statistically significant difference in listen and comprehend mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H10: There is a statistically significant difference in speak in words mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H11: There is a statistically significant difference in speak in sentences mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H12: There is a statistically significant difference in make conversation mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H13: There is a statistically significant difference in tell a story mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

Alternatively, the following are the null hypotheses:

H01: There is not a statistically significant difference in the linear combination of subscales that comprise the vocabulary and reading comprehension scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H02: There is not a statistically significant difference in the vocabulary subtest of the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H03: There is not a statistically significant difference in explicit mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H04: There is not a statistically significant difference in implicit mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H05: There is not a statistically significant difference in key ideas mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H06: There is not a statistically significant difference in author's craft mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H07: There is not a statistically significant difference in listen with attention mean scores on the Language Assessment Skills Links Espanol (LAS Links Espanol) for fifth graders before and after participating in a one-way Spanish immersion program.

H08: There is not a statistically significant difference in listen in the classroom mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H09: There is not a statistically significant difference in listen and comprehend mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H10: There is not a statistically significant difference in speak in words mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H011: There is not a statistically significant difference in speak in sentences mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H012: There is not a statistically significant difference in make conversation mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H013: There is not a statistically significant difference in tell a story mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

Identification of Variables

In the first design, the independent variable in this study is educational program with two levels: one-way Spanish immersion and traditional, English-only. The decision to include the two groups stemmed from recommendations by educational researchers to compare the reading performance of students enrolled in immersion programs to a control group (Grant et al., 2011; Greene, 1997; Laurent & Martinot; 2009; Proctor et al., 2009; Shneyderman & Abella, 2009).

The dependent variables, vocabulary knowledge and reading comprehension, with four levels: a) explicit; b) implicit; c) key ideas; and d) author's craft will be assessed using the Iowa Assessment (Riverside Publishing, 2013). The dependent variables and instruments were selected from recommendations made in past research. In a meta-analysis, Greene (1997) called for studies that examined standardized test scores in English for native English-speaking students enrolled in foreign immersion program. Other research called for examinations of the effect of immersion education on first language (L1) vocabulary (Bowers & Kennison, 2011; Grant et al., 2011; Jared et al., 2011; Proctor et. al., 2009) and reading comprehension (Grant et al., 2011; Krashen, 2004; Lindholm-Leary, 2005; Proctor et. al., 2009; Reading, 2008; Schneyderman & Abella, 2009).

The second design has an independent variable of time, with two levels: pretest and posttest data. The dependent variables are Spanish listening, with three levels: a) listen with attention; b) listen in the classroom; and c) listen and comprehend; and Spanish speaking with four levels a) speak in words; b) speak in sentences; c) make conversation; and d) tell a story for fifth-grade students enrolled in the one-way Spanish

immersion program using LAS Links Espanol. The choice to evaluate NES students Spanish oral language proficiency is supported by the research (Barnett, Yarosa, Thomas, Jung, & Blanco, 2007; Potowski, 2007a; Shneyderman & Abella, 2009; Thomas & Collier, 2002) as communicative competence in the Spanish language is an additive outcome of participation in a foreign language immersion program.

Definitions

The following key terms are directly related to the research and will be used throughout the discussion of the study.

Bilingual Education

This educational approach presents involves teaching academic content in two languages (Cobb et al., 2006).

Biliteracy

The mastery of the fundamentals of speaking, reading, and writing in two languages (Gort, 2006).

Dual Language Immersion

This educational approach teaches literacy and academic content in English and a partner language. The goals of dual language are for students to develop high levels of language proficiency and literacy in both languages, to demonstrate high academic achievement, and to appreciate diverse cultures (Center for Applied Linguistics, 2011).

First Language (L1)

A child's first language (L1) is the native language of an individual (Potowski, 2007b). For the purpose of this study, the native language of the participants is English.

Full Immersion

Full immersion is a program model in which instruction occurs in the partner language for 90% and in English for 10% for the first year or two. Synonymous to a 90/10 approach, this term is used more frequently by foreign language programs than by two-way programs (Center for Applied Linguistics, 2011).

Immersion

A program in which at least 50% of instruction is delivered in a partner language and the focus of instruction is on language proficiency and subject content (Center for Applied Linguistics, 2011).

Metalinguistic knowledge or ability

Metalinguistic knowledge or activities require an individual to engage in reflection and deliberate control over language. This knowledge emerges as children are introduced to formal reading (Laurent & Martinot, 2009).

Native English Speakers (NES)

Individuals whose native or L1 is English (Potowski, 2007b).

One-Way Immersion

One-way immersion programs are designed for native speakers of the country's dominant language. The students learn language and content through curriculum and instruction in a foreign language (Potowski, 2007b).

Second Language (L2)

A term used to describe the non-native language of an individual (Potowski, 2007b).

Two-Way Immersion

This distinctive form of dual language education balances numbers of NES and native speakers of the partner language so that both groups serve as the language model and language learner at different times (Center for Applied Linguistics, 2011).

90/10

90/10 is an immersion program model in which instruction occurs in the partner language for 90% and in English for 10% for the first year or two. Typically, the amount of English instruction gradually increases each year until each language is used for 50% of instruction (Center for Applied Linguistics, 2011).

Research Summary

The study will test theories of additive bilingualism (Lambert, 1974) and interdependence hypothesis (Cummins, 1978, 1979). Two research designs will be utilized in order to assess the English literacy and Spanish language learning for fifth grade NES students enrolled in a one-way Spanish immersion program. The first design, a non-experimental, causal comparative study will examine the possible cause and effect relationship of participation in a one-way Spanish immersion program on fifth grade NES students' vocabulary and reading comprehension in English as measured by the Iowa Assessment. A between groups multivariate analysis of variance (MANOVA) will be used to determine if significant differences in vocabulary and reading comprehension exist between groups as measured by the Iowa Assessment. A second design, a one group pretest-posttest design, will be used to examine the Spanish listening and speaking skills acquired by fifth grade NES students enrolled in the one-way Spanish immersion program using LAS Links Espanol. Dependent *t*-tests will be used to measure Spanish

listening and speaking skills by NES students before and after participation in an immersion program.

The research is empirically significant because little is known about the English reading and Spanish language proficiency of NES enrolled in a one-way Spanish immersion program in the U.S. (Gennessee & Jared, 2008; Potowski, 2007b). The study has theoretical significance in that it explores issues pertaining to foreign language instruction delivery models and optimal age issues.

Assumptions and Limitations

Assumptions

The research will be conducted with a sample population that is homogeneous in make-up. The school is a part of a strong Catholic school system with the majority of students belonging to the Catholic faith. The families that choose the school for their children share common characteristics: The majority of students are Caucasian and from middle class families. This is a population which typically performs well in school and is likely to be successful in an enrichment program such as Spanish immersion.

Numerous assumptions are made regarding instrumentation and data. An assumption is made that that archival data sets are clean and have been entered accurately and thoroughly. Additionally, it is assumed that test scores represent close approximations to students' actual abilities in English reading and Spanish listening and speaking skills; therefore increasing the validity of the findings. A final assumption is made that test administration protocols were followed with fidelity to ensure that the instruments were administered according to standardized procedures.

Limitations

This study makes use of two research designs that have inherent limitations that need to be addressed. The first design, an ex-post facto causal comparative non-experimental research design, attempts to determine possible cause-effect relationship among variables (Gall et al., 2007). It is an intrinsically weak design because manipulation of groups of participants or treatment is not possible (Gall et al., 2007). Rather, the treatment has already occurred and is studied in retrospect. Cautious causal inferences will be made in this study. The second design, a one group pretest-posttest design also has limitations. The absence of a control group is a weakness (Gall et al., 2007). However, for the purpose of this study, pretest and posttest data will be examined in order to determine if students' attain proficient levels of Spanish listening and speaking abilities as a result of participation in a Spanish immersion program.

The study has multiple threats to internal validity. A selection threat exists because random sampling is not possible. The participants in this study were enrolled by their parents in either a traditional Catholic school program or a Spanish-immersion Catholic program. For this reason, the data could be influenced by initial differences among participants rather than to a treatment effect (Campbell & Stanley, 1963). To address the selection threat, students will be matched using four variables—cohort year, gender, primary language, and third grade performance on the reading subtest of the Iowa Test of Basic Skills (ITBS), the previous version of the Iowa Assessment (Riverside Publishing, 2010). The choice of these variables is supported by the literature (Cobb et al., 2006; Laurent & Martinot, 2010; Proctor et al., 2011; Schneyderman & Abella, 2009; Schwartz, Share, Leikin, & Kozminsky, 2008.) Through a matching procedure, I can create predominately homogeneous groups and confirm treatment effects.

The relatively small sample size poses another threat to internal validity. The small size of the elementary school limits the number of participants. To address the small sample size, archival data will be used from two consecutive school years: 2011–2012, and 2012–2013 to increase the number of participants in the study. Both the Iowa Assessment and LAS Links Espanol were adopted in 2011 by the school and archival data exists. In order to increase the validity of the study, I will ensure that the data set is complete and clean.

A history threat is introduced by the use of archival data .The experimental treatment extended over a period of two years. This creates opportunities for other events to occur in addition to the experimental treatment (Gall et al., 2007). To address this threat, I will confirm that the classroom environments and curriculum remained similar during each school year.

Maturation is an additional threat to the study's internal validity. This study focuses on elementary aged students, specifically fifth graders. It is possible that the students made gains in cognitive development during the school year that allowed them to develop stronger literacy skills (Gall et al., 2007). Therefore, it is not clear whether the observed literacy gains are due to experimental treatment or cognitive growth.

Finally, a diffusion threat exists because of the access the experimental and control groups have to one another (Campbell & Stanley, 1963). Both groups of students attend the same school and share common areas. Additionally, they attend the same Mass as well as have the same special area teachers for subjects such as physical education, art, and music. Because formal reading instruction occurs at each respective building, it is assumed that the diffusion threat will not significantly impact reading scores.

In addition to existing internal threats to validity, the design is also affected by external threats. Population validity is threatened by the use of a specific population accessible to me (Gall et al., 2007). There is a limitation to the generalizability of the study. The sample size is small due to the small size of the Spanish immersion school. Additionally, the population served by the school is relatively homogeneous in nature with the majority of students being Caucasian, middle class, and Catholic. Therefore, the target population to whom the research findings are generalized is seemingly narrow and clearly defined. A second consideration of population validity is the extent to which external variables interact with treatment effects (Gall et al., 2007). For example, the instructional format of the experimental and control groups could interact with student learning. Other examples of intervening variables not controlled by matching procedures include personality and levels of anxiety (Gall et al., 2007).

CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

The purpose of this research is to examine the English reading and Spanish oral language proficiency for fifth grade, NES students enrolled in a one-way Spanish immersion program. The proposed study is grounded in previous research studies in the field. In this second chapter, I will establish the theoretical framework for a study on foreign language immersion programming, describe the related literature, and close with a summary of the findings.

Theoretical Framework

The case for bilingual education and dual language immersion programs stems from two primary theories of language acquisition. The first relevant theory is additive bilingualism. The theory, conceptualized by Wallace Lambert (1974), suggests that students' first and second languages can develop simultaneously. The theory of additive bilingualism emphasizes second language acquisition as an enrichment opportunity. Foreign language immersion programs provide students with a unique opportunity to learn a second language while concurrently strengthening their knowledge and understandings of their native language. A second relevant theory is the linguistic interdependence hypothesis proposed by Jim Cummins (1979, 1980, 1998, & 2007). This theory states that L1 knowledge can be positively transferred during the process of L2 acquisition. This is explained largely by the existence of a common underlying proficiency (CULP). Children who are learning one language acquire a set of skills and metacognitive knowledge that can be drawn upon when working in another language (Cummins, 1998). CULP establishes the foundation for language learning and makes

transfer of language proficiency possible. The theory suggests that any expansion of CULP in one language positively affects proficiency in the other language. Through the process of learning multiple languages, students expand their understandings of the structure and function of language (Cummins, 2007).

Foreign Language Instruction in the U.S.

Schools in the U.S. have a history of educating young children in both monolingual and bilingual settings. The Midwest region, specifically, has a rich history of bilingual schooling, a product of the area's linguistic diversity and tradition of local control. Immigrants to the Midwestern states established bilingual schools in order to support the large number of families and children who spoke native languages including German, Norwegian and Swedish (Ramsey, 2009). Bilingual schools in Midwestern states thrived in the 1840s through the 1880s.The goals of these schools were: a). to retain immigrants' cultural and linguistic traditions; b). to implement progressive educational techniques; and c). to promote a particular worldview among students (Ramsey, 2009). Additionally, English was incorporated into the curriculum so that students could learn the mainstream language.

The practice of bilingual education came to a halt with the onset of World War 1, when anti-immigrant sentiments arose (Varghese & Park, 2010) and fidelity to the English language was perceived a requisite of patriotism to the U.S. (Ramsey, 2009). For years, bilingual programs were nonexistent in U.S. schools.

Bilingual policies were not reinstated again until 1968 with the enactment of Title VII of the Elementary and Secondary Education Act (ESEA), otherwise known as the Bilingual Education Act (BEA). This federal educational language policy governed how

federal money was administered to language education programs with in the U.S. (Johnson, 2009). In its conception, the goals of bilingual education were vague and the act was revised four times. In 1994, the policy shifted to valuing bilingualism as a resource and promoting bilingual education (Johnson, 2009).

In 2002, Title VII of ESEA, or BEA, was replaced by Title III, No Child Left Behind (NCLB). The act emphasizes the need for limited English Proficient (LEP) students to learn English as quickly as possible, effectively undermining previous recognition of bilingualism as a valued resource (Johnson, 2009; Ray, 2009). The present absence of national language policy encouraging multilingualism and limited guidelines existing for foreign language instruction pose great threats to bilingual education in the U.S. (Cummins, 1998; Howard, 2003; Johnson, 2009; Ray, 2009).

In addition to developing knowledge and understandings across a range of curricular areas, students in U.S. schools are expected to develop a proficient and fluent use of the English language (Petitto, 2009; Ramsey, 2009). Today's academic standards require that students develop a broad vocabulary as well as read fluently and independently from complex texts (Common Core State Standards Initiative, 2012). Elementary curriculums are broad reaching, yet teach multiple disciplines are taught through the medium of a single language: English.

Presently, foreign language instruction is introduced to students in middle grades or high school. Students are required to study a foreign language for a minimum of two years in order to graduate from high school and gain entrance to college. Researchers refer to this as the "hold-back" approach where language instruction is delayed until students have mastered English, the mainstream language (Petitto, 2009). The philosophy

of foreign language resistance is rooted in a pervasive fear that learning or maintaining a second language might disrupt acquisition of the majority language (Petitto, 2009; Ray 2009). Despite the widely-recognized phenomenon of older students struggling to learn a second language, the practice of delaying foreign language instruction continues (Palmer, 2008; Petitto, 2009). A dichotomy exists in our society in that English language learners are expected to achieve proficient levels of English; meanwhile, English speaking children are only encouraged to learn the basics of a foreign language (Palmer, 2008). Children in the U.S. are not held to the same standards regarding language learning. English language proficiency, therefore, is viewed as a tool for acculturation and membership into U.S. society; whereas, foreign language proficiency is a novelty.

The expectation that citizens of the U.S. speak English has a long history. U.S. forefather Ben Franklin criticized Germans' preference for their native German in place of English, the standard language of the country. However, Franklin was known to possess high levels of French proficiency and used the language to interact with elite members in France (Potwoski, 2007b). This example illustrates "language elitism," a long-existing belief in U.S. society that bilingualism is acceptable for the educated elite but unacceptable for members of ethnic minority groups (Ray, 2009). Language elitism is evidenced today in the greater U.S. society's criticism of "Black English" and second-class citizen status towards individuals who speak a language other than English. Present "English-only" legislation in states such as Arizona and California mandate the instruction in schools be delivered in English (Ray, 2009).

The conflicting worldviews of foreign languages in the U.S. as either a disadvantage (for minority students) or a novelty (for highly educated students) are woefully misguided. A review of the literature reveals multiple rationales for including

foreign language study in the PK–12 curriculum. With modern globalization and increased diversity, it is becoming imperative that students are afforded opportunities to become bilingual so that they may interact with diverse language speakers in their own communities as well as negotiate business transactions and diplomatic relations in the world at large (Darling-Hammond, 2010a; Ray, 2009; Varghese & Park, 2010). Thus, bilingualism and bilingual education are well positioned to serve students in "an inevitable move toward becoming an interconnected multilingual world" (Varghese & Park, 2010, p. 74). Furthermore, research in cognitive psychology reveals that mastery of two languages requires a high level of abstract cognitive processing, a critical component of 21st century skills (P21, 2011; Proctor et al., 2009; Ray, 2009; Stewart, 2005). This cognitive flexibility and adaptability demonstrated by bilingual individuals presents social advantages in business, diplomacy, and social service arenas (Varghese & Park, 2010).

Language Instruction in Early Elementary

Research in cognitive psychology and applied linguistics supports introducing foreign languages to young children (Cummins, 2007; Stewart, 2005; 2007; Petitto, 2009; Vygotsky, 2011). Children have great aptitude for second language learning due to the cognitive flexibility they possess (Stewart, 2005; 2007; Vygotsky, 2011). Additionally, studies of bilingual children reveal that learning two or more languages positively impacts language development and future reading ability (Petitto, 2009).

Russian psychologist Lev Vygotsky (1896-1934) posited that foreign languages are best introduced to children at a young age. He argued that the process of language learning at an early age is less complicated because children are more flexible in their

thinking and assimilate new vocabulary with ease (Vygotsky, 2011). This cognitive flexibility allows children to switch from one language to another with ease (Stewart, 2007; Petitto, 2009).

Recent studies of behavior and brain imaging reveal that the age of bilingual language exposure directly impacts children's mastery of two languages. A processing advantage exists for words learned early in childhood versus words learned later in life (Bowers & Kennison, 2011). The memory links and conceptual representations formed in the brain are stronger when words are learned early in childhood, specifically before age four (Bowers & Kennison, 2011). Researchers argue that the age at which language is introduced influences language processing in bilingual individuals. For this reason, the results of students' foreign language proficiency are more impressive at an early age than they are later in life (Petitto, 2009).Young children are receptive to language learning and capable of developing native-like pronunciation when language learning begins before adolescence (Stewart, 2005). Petitto (2009) found that exposure to a second language at an early age positively impacts a child's development in language and reading. In order to fully realize the benefits, second language instruction must be early, extensive, and systematic.

Despite the existing research in support of introducing foreign language to young children (Cummins, 2007; Stewart, 2005; 2007; Petitto, 2009; Vygotsky, 2011), the educational system in the U.S. does not emphasize foreign language learning (Palmer, 2008; Petitto, 2009). By failing to introduce foreign language until adolescence, as is commonly practiced, critical opportunities for language learning are missed. Subsequently, we continue to support an inherently weak structure for foreign language

learning in prekindergarten through twelfth grades (Howard et al., 2003; Palmer, 2008; Petitto, 2009). The present design of foreign language programs that teach a language in isolation and for a brief amount of time fails to produce students with proficient abilities to speak, read, or write in the language of study (Howard et al., 2003). With this being said, there is a need in our country for foreign language instruction that targets young children and is integrated into the curriculum.

Language Instruction in Foreign Countries

The greater U.S. society's resistance to language study is not shared throughout the world. Many countries include foreign language study in the curriculum. In fact, it is commonplace for students in other world educational systems to be required to learn two or more languages (Darling-Hammond, 2010a; Maillat & Serra, 2009; Ray, 2009). Students are trained to be bilingual, have positive attitudes toward cultural and linguistic diversity, and perform well on standardized test scores (Christian, Pufahl, & Rhodes, 2005; Darling-Hammond, 2010b; Maillat & Serra, 2009; Stewart, 2005).

European countries, for example, celebrate multilingualism and recognize it as a defining characteristic of the European identity (Maillat & Serra, 2009,). A study of bilingual educational programs in Switzerland revealed that dual language instruction resulted in better language development and awareness among bilingually prepared students (Maillat & Serra, 2009). Other educational world leaders such as Finland, Singapore, and South Korea devote significant time at each grade level teaching a foreign language in addition to the curricular mainstream (Darling-Hammond, 2010a). These same countries were among the highest achieving nations according to PISA 2009 (National Center for Education Statistics, 2011). In contrast to the U.S.' staunch belief in

promoting a single language among its citizens, foreign countries effectively educate their citizens to be biliterate, while simultaneously promoting educational excellence..

Immersion Programs

Foreign language immersion programs have the potential to address the shortcomings of present day foreign language instruction. Dual language enrichment programs are capable of meeting rigorous content standards through instruction in two languages (Alanis & Rodriguez, 2008). In an immersion program, language and academic content are taught simultaneously. The U.S. is recognizing the potential of bilingual education and the number of foreign language immersion programs has been growing. Prior to 1995 there were less than 100 programs (Cobb et al., 2006). Today, there are 400 immersion programs in the U.S. (Center for Applied Linguistics, 2011).

The literature cites three common goals for immersion programs (Alanis & Rodriguez, 2008; Ballinger & Lyster, 2011; Bearse & de Jong, 2008; de Jong & Howard, 2009; Gort, 2008; Howard et al., 2003; Palmer, 2008; Parkes, 2008; Scanlan & Zehrbach, 2010):

1. To promote high levels of oral language proficiency and literacy in English and target language, in this case Spanish.
2. To achieve proficiency in all academic subjects, meeting or exceeding standards.
3. To develop an understanding and appreciation of other cultures.

These goals have great relevance in an educational landscape that increasingly emphasizes accountability. This study will specifically address the first two goals: the

promotion of high levels of language, literacy, and general academic achievement. Further discussion of these two goals is provided in this chapter.

Language and Literacy

A fundamental goal of immersion programs is to develop students' bilingualism and biliteracy (Grant et al., 2011; Reading, 2008). By emphasizing bilingualism for all students, immersion programs affirm and cultivate linguistic diversity. Immersion programs afford students with an opportunity to develop rich understandings of language, as illustrated by multiple studies (Cummins, 1991, 1998; Genesee, & Jared, 2008; Gort, 2008; Howard et al., 2003; Jared et al., 2011; Krashen, 2004; Lindholm-Leary, 2005; Reading, 2008; Stewart, 2005).

Cummins (2007) addresses an additional dimension of language learning in his discussion of cross-lingual transfer, a phenomenon that occurs when students oscillate between first and second languages, attending to similarities and differences between their languages. Cummins posits that through cross-lingual transfer, high levels of bilingualism and biliteracy are achieved (2007). By engaging in two languages simultaneously, students develop a robust knowledge of the structure and function of language (Cummins, 1998, 2007; Gort, 2008; Stewart, 2005). Additionally, studies reveal students' ability to transfer conceptual elements, metacognitive strategies, linguistic elements, and phonological awareness from their native language to their target language (Cummins, 2007; Gort, 2008; Martin-Beltran, 2010; Stewart, 2005). For participants, a unique byproduct of dual language participation is the development of a functional competence in a L2 in addition to maintaining proficiency in their L1 (Maillat & Serra, 2009; Petitto, 2009; Potowski, 2007b). The introduction of the second language facilitates

students' language learning. Consequently, knowledge acquired in one language positively transfers to the second language (Bae, 2007; Jared et al., 2011).

Martin-Beltran (2010) observed such transfer by fifth grade students in a California bilingual program. She found that student interactions created opportunities of language learning when students were able to dialogue with each other in their two languages. Students' metalinguistic awareness was heightened through the process of drawing on their multiple languages as resources. This example illustrates the value of training students to speak and understand two or more languages.

Biliteracy is as much of an aim as bilingualism in immersion programs. The process of becoming biliterate is complex, requiring readers to rely on cultural and linguistic connections to construct meaning from text. When students are learning to put together words and phrases in a second language, they are cognizant of language patterns and structures and make comparisons between their first and second language (Stewart, 2005). Essentially, students engage in analysis and synthesis of language functions as they engage in a study of two languages simultaneously.

Several studies of bilingual education programs revealed that fifth grade students who have attended a language immersion program since kindergarten became proficient in both languages (Alanis & Rodriguez, 2008; Cobb et al., 2006; Cummins, 1998; Howard, Christian, & Genesee, 2004; Laurent & Martinot, 2009; Lindholm-Leary, 2005; Thomas & Collier, 2002;). Although there is an initial lag in students' English reading skills due to a focus on a foreign language, students enrolled in bilingual programs catch up in most domains of English reading and language arts within a few years of introduction. Additionally, by grade five, studies revealed there were no differences in

English performance between immersion students and comparison groups from traditional, English-only classes. In fact, NES enrolled in foreign language immersion programs excelled in their native English, performing higher on test scores than their peers enrolled in English-only programs (Alanis & Rodriguez, 2008; Thomas & Collier, 2002).

Research has found that children who have participated in a bilingual school program display a more highly developed phonological awareness (Laurent & Martinot, 2009; Reading, 2008) as well as decoding and word identification skills (Schwartz et al., 2008). Findings from Reading (2008) have tremendous implications for English literacy development among students enrolled in a Spanish immersion program. In this study, the literacy gains of 108 kindergarten students enrolled at an immersion school were examined. Of the 108 students, 54 were enrolled in an English-only kindergarten class, 21 were enrolled in a French immersion program, and 33 were enrolled in a Spanish immersion program. The majority of students was classified as middle class and was not at risk for reading failure. All students were proficient in English and most came from English speaking homes. The results of the study reveal that the English literacy skills of the children enrolled in the Spanish program were stronger than the students enrolled in the French program. The author concluded that English literacy skills are enhanced by learning a second language with a consistent orthography, such as Spanish. Reading (2008) surmises that the regular letter-sound correspondences of the Spanish language facilitated students' mastery of phonemic awareness and phonics. In learning a language with greater fidelity to phonetic code first, students demonstrated greater mastery of phonological awareness in English, a language in which letter-sound relationships are

less consistent. This finding is consistent with the literatures that reveals some reading skills, including phonological awareness, decoding, and word identification, are transferred from one language to another (Laurent & Martinot, 2009).

This study seeks to identify possible cause and effect relationships between program participation (Spanish immersion and traditional, English-only) and literacy skills in English, specifically in the areas of vocabulary and reading comprehension. A second design will examine the Spanish listening and speaking abilities of students enrolled in the Spanish immersion program.

Reading Comprehension and Vocabulary

Reading comprehension and vocabulary knowledge are highly correlated, given that vocabulary predicts reading comprehension ability (Brooks & Karathanos, 2009; Grant et al., 2011; Laurent & Martinot, 2009; Proctor et al., 2009). Children with elaborate vocabularies have higher comprehension skills than children lacking extensive vocabularies (Grant et al., 2011).

Present research is recognizing the great role of academic vocabulary knowledge on comprehension of text (Common Core State Standards Initiative, 2012; Proctor et al., 2009). Vocabulary development in the second language is critical because it is a primary factor in reading comprehension (Brooks & Karathanos, 2009). Best practice in effective vocabulary instruction presents students with multiple opportunities to encounter and work with words through oral, reading, and writing modalities (Proctor et al., 2009). According to Proctor et al. (2009), an understudied phenomenon is vocabulary depth among both adolescent learners and dual language speakers. This study seeks to address

this gap and contribute to the existing body of knowledge on vocabulary development among bilingually schooled children.

In assessing reading comprehension, the literature recommends examining contributing variables including, vocabulary, syntax, and the construction of mental schemas in order to consider multiple indicators of specific skills (Genesee & Jared; 2008; Grant et al., 2011; Proctor et. al., 2009 Schneyderman & Abella, 2009). The design of the Iowa Assessment accounts for these variables through subtests of: a) explicit; b) implicit; c) key ideas; and d) author's craft. (Riverside Publishing, 2013).

Spanish Listening and Speaking

In a study of a Spanish immersion program, it is important to examine the Spanish oral language proficiency of participating students. For the purpose of this study, Spanish listening and speaking skills will be examined for the NES to which Spanish is the target language of instruction. The choice to evaluate students' Spanish language proficiency over time is supported in a study by Barnett et al. (2007), which found statistically significant gains in students' receptive language in the target language over time. Other studies call for more research in Spanish language development among immersion students (Thomas & Collier, 2002; Potowski, 2007a; Schneyderman & Abella, 2009).

Academic Achievement

A second goal of Spanish immersion programs is the cultivation of academic excellence. A review of relevant research suggests well-designed immersion programs result in high student achievement (Alanis & Rodriguez, 2008; Cobb, Vega & Kronauge, 2006; Cummins, 1991, 1998; Howard et al., 2004; Howard & Sugarman, 2007; Krashen, 2004; Lindholm-Leary, 2005; Martin-Beltran, 2010; McCoullough & Reyes, 2010;

Stewart, 2005; Taylor & Lafayette, 2010; Thomas & Collier, 2002). In fact, numerous studies reveal that students enrolled in bilingual programs develop academic skills equal to or superior to the skills of comparison groups enrolled in traditional classrooms (Lindholm-Leary & Borsato, 2001; Stewart, 2005; Thomas & Collier, 2002).

Efforts to introduce foreign languages into the elementary curriculum are supported by NCLB legislation, which acknowledges foreign language study as core content (Stewart, 2005). Foreign language immersion programs can further meet the mandates specified in NCLB by closing the achievement gap. Students who develop high levels of bilingualism as a result of participation in bilingual programming benefit from enhanced cognitive abilities, high academic achievement across the curriculum, and higher achievement test scores (Alanis & Rodriguez, 2008; Cobb, Vega, & Kronauge, 2006; Cummins, 1991, 1998; Howard et al., 2004; Howard & Sugarman, 2007; Krashen, 2004; Lindholm-Leary, 2005; Martin-Beltran, 2010; McCoullough & Reyes, 2010; Stewart, 2005; Taylor & Lafayette, 2010; Thomas & Collier, 2002).

Several studies demonstrate the long term effects of participation in dual language programs on academic achievement. In a landmark study by Thomas and Collier (2002) the academic achievement of both native Spanish speaking (NSS) and NES students participating in foreign language immersion programs were explored. Data was collected for 210,000 students in five school districts across the U.S. The students participated in a variety of immersion programs including 90/10 two-way bilingual immersion (or dual language), 50/50 two-way bilingual immersion, 90/10 one way developmental bilingual education, 50/50 one-way developmental bilingual education, 90/10 transitional bilingual education, and 50/50 transitional bilingual education. For the purpose of this paper, data

is included for NES students participating in a 90/10 model, similar to the population and program being examined. This specific population of learners maintained their English, added a second language, and achieved well above the 50th percentile in all subject areas on norm-referenced tests in English. In comparison with their monolingually schooled peers, the NES bilingually trained students outperformed them on all measures (Thomas & Collier, 2002).

Research emphasizes the importance of continuing enrollment in immersion programs. The minimum length of time it takes to reach grade-level performance in the L2 is four years (Bowers & Kennison, 2011; Laurent & Martinot, 2010; Thomas & Collier, 2002; Petitto, 2009; Proctor et al., 2009). When students participate in immersion programs with fidelity, the programs effectively produce high-performing students capable of meeting high academic expectations.

This phenomenon was explored by Lindholm-Leary and Borsato (2001) in study of high school students previously enrolled in an immersion program during their elementary years. The study concluded that students who participated in a dual language program achieved high levels of academic competence at the secondary level and fostered ambitions to go to college. Perhaps the most compelling argument in favor of bilingual programming comes from interviews with students themselves. Most students believe that learning through two languages trained them to think better and helped them do better in school (Lindholm-Leary, 2005). This sentiment is echoed by parents in a different study who stated they chose bilingual programs for their children because of the cognitive and academic benefits it has for learners (Parkes, 2008). An examination of literature on foreign language immersion programs' impact on academic achievement is

intriguing. Proponents for immersion programs argue that dual language schooling is equally effective to traditional elementary schooling and likely more effective in the long term (Alanis & Rodriguez, 2008; Cobb et al., 2006). Other studies confirm the success of dual language programs with measures of high academic achievement (Cummins, 1991, 1998; Grant, Gottardo, & Geva, 2011; Howard et al, 2004; Howard & Sugarman, 2007; Krashen, 2004; Lindholm-Leary, 2005; Maillat & Serra, 2009; Martin-Beltran, 2010; McCoullough & Reyes, 2010; Ray, 2009; Schwartz et al., 2008; Stewart, 2005; Thomas & Collier, 2002). Students who are continuously enrolled in quality immersion programs experience academic success during primary years and can expect the same level of performance throughout their educational careers. This study will examine fifth grade, NES students' academic achievement on standardized assessments, specifically examining their performance in vocabulary and reading comprehension measures in English and their listening and speaking skills in Spanish.

Socio-Cultural Environment

In order to realize goals of bilingualism and biliteracy and high academic achievement, quality dual language programs are essential. Essential components of immersion programs include a strong theoretical framework, high quality professionals, a commitment to ongoing professional development, and engaging classroom environments (Alanis & Rodriguez, 2008; Ballinger & Lyster, 2011; Brooks & Karathanos, 2009; Christian, Pufahl, & Rhodes, 2005; Cummins, 1998, 2007; deJong & Howard, 2009; Gort, 2008; Howard, Sugarman, & Christian, 2003; Martin-Beltran, 2010; Palmer, 2008; Proctor et al., 2011).

Social constructivist Lev Vygotsky (1978, 1986) introduced two theories that have great implications for foreign language immersion classrooms: the sociocultural theory and zone of proximal development. Vygotsky's sociocultural theory posits that social interaction has a fundamental role in the development of language and cognition (Vygotsky, 1986). Thus, a high level of student engagement is a necessary quality of immersion classrooms. Vygotsky's zone of proximal development is used to describe activities that an individual can complete successfully with levels of support (Vygotsky, 1978). In order to reach ambitious goals of proficiency in two languages and high academic achievement, critical elements of challenging curriculum, peer collaboration, high levels of engagement, and appropriate supports must be available to learners..

Quality programs begin with quality professionals. Successful immersion models are led by principals who are well versed on immersion programs and tailor their model to meet the needs of their community (Ray, 2009; Scanlan & Zehrbach, 2010). Building leaders develop goals and philosophies for the immersion programs and communicate these to the greater community (Alanis & Rodriguez, 2008). Furthermore, supportive principals hire excellent bilingual teachers and allow them freedom to implement creative strategies. They support the teachers through a commitment to on-going professional development. Through effective leadership, quality immersion programs are maintained (Alanis & Rodriguez, 2008; Ray, 2009; Scanlan & Zehrbach, 2010).

Hiring quality bilingual teachers is necessary in immersion programs. According to Scanlan and Zehrbach (2010), acquiring quality bilingual teachers is necessary, yet challenging because the pool of prospects is shallow. Teachers of dual language classrooms need to understand theories of immersion and bilingualism (Alanis &

Rodriguez, 2008; Bae, 2007). In designing their classrooms, they establish environments that promote language, social, and academic development (Alanis & Rodriguez, 2008; Ballinger & Lyster, 2011; Gort, 2008). Effective bilingual teachers recognize immersion programs as additive models and balance language learning with academic goals. Moreover, they foster high expectations for their learners and employ culturally sensitive pedagogy (Alanis & Rodriguez, 2008).

Language development is promoted through instructional spaces where students can play with language and co-construct language expertise through engagement with others (Martin-Beltran, 2010). Alanis and Rodriguez (2008) identifies three exemplary pedagogical practices: a) instruction that is meaningful, b) active-learning opportunities, and c) collaborative and cooperative interactions among the students. Specific strategies such as hands-on learning in math and science, literature-based reading, and thematic units facilitate students' engagement with language and content (Alanis & Rodriguez, 2008; Martin-Beltran, 2010). Additionally, students need ample opportunities to dialogue with one another and the teacher, and to experience reading and writing across the curriculum (Bae, 2007; Cummins, 1998; Martin-Beltran, 2010; Thomas & Collier, 2002).

Barriers to Immersion Programs

Despite potential outcomes of foreign language immersion programs including bilingualism, biliteracy, and academic achievement, immersion programs are not widely implemented across U.S. schools. In addition to the aforementioned lack of policy support by lawmakers, other barriers hinder the implementation of immersion programming. As a society, the U.S. has not typically emphasized language learning. Additionally, financial resources are limited; there is a lack of available bilingual teachers

and limited curricular materials in target languages other than English (Howard et al., 2003; Scanlan & Zehrbach, 2010). An additional obstacle is mandatory standardized achievement testing in English (Howard, Sugarman, & Christian, 2003). In an era of academic accountability, policymakers, administrators, and families fear that second language learning will impede students' mastery of core academic subjects such as reading and mathematics (Shneyderman & Abella, 2009). This study seeks to address this fear by utilizing data gleaned from standardized tests in English.

NES in Spanish Immersion Programs

This study will examine the effects of participation in a one-way Spanish immersion school on NES students' vocabulary and reading comprehension in English, and listening and speaking skills in Spanish. A review of the literature reveals that little is known about effects of immersion programming on NES students (Cobb et al., 2006; Potowski, 2007a; Serrano & Howard, 2007; Shneyderman & Abella, 2009). An investigation into an elementary foreign language immersion program, specifically Spanish immersion, has empirical significance on foreign language instruction and optimal age issues (Cummins, 1980).

Opportunities to learn a foreign language during elementary school years are of interest to NES parents. NES parents recognize the utilitarian advantages introduced through participation in immersion programs (Howard et al., 2003; Parkes, 2008). As our nation and world become increasingly interdependent, linguistic competence in multiple languages have practical significance.

Previous studies reveal an alignment between outcomes of immersion programming and the goals of the families they serve. Parkes (2008) conducted a large-

scale study to determine who chose immersion programming for their children and why. The results of the study indicate that NSS parents chose immersion programming to a) encourage their child to be bilingual/biliterate, b) be comfortable relating to different people and different cultures, and c) be successful in a global society (Parkes, 2008). In a study of secondary students who experienced immersion programming during their elementary years, NES students stated that learning Spanish was helpful for college preparation and future job opportunities (Bearse & de Jong, 2008). NES students and families who choose immersion programming value opportunities to learn a second language and to prepare their children to participate in the greater world.

Spanish Immersion Programs

Spanish immersion programs have great potential in our current educational climate. The efficiency with which they teach content and language is significant (Cobb et al., 2006). Specifically, research of Spanish immersion programs reveals that students acquire high levels of oral language proficiency and literacy in both Spanish and English while simultaneously excelling in other content areas (Alanis & Rodriguez, 2008; Lindholm-Leary, 2005; Scanlan & Zehrbach, 2010; Taylor & Lafayette, 2010). In order to contribute to this body of knowledge, the study will evaluate English vocabulary and reading comprehension scores as well as Spanish listening and speaking abilities by fifth graders enrolled in a Spanish-immersion program.

Foreign language instruction through immersion programs are growing increasingly more common in our country today. In 2011, 448 immersion programs existed, up from three in 1971 (Center for Applied Linguistics, 2011). Of these programs, 45% emphasize the target language of Spanish. The greatest numbers of immersion

programs are classified as two-way immersion (TWI), a program design that brings equal numbers of majority and minority language speakers to study jointly the target language (i.e., Spanish) as well as the dominant language (English). A second model, one-way immersion, provides instruction to majority speaking students in a target language (i.e., Spanish). The perceived benefits and challenges of each design are described here.

Two-way Immersion

TWI programs are often the focal point of media coverage and are heavily researched in the literature. The Center for Applied Linguistics (2011) describes essential features of TWI, including balanced numbers of NES and native speakers of the target language. In theory, the framework utilizes an optimal design for language learning where all students are both language models and language learners.

Despite the perceived benefits of TWI, desired outcomes are not always achieved. One concern about TWI is the cultural distance that can exist between students. The practice of combining students from different cultures and language backgrounds does not guarantee that the groups will interact (Potowski, 2007b). The teacher therefore is introduced with the challenge of facilitating collaboration between groups. A recent study by Ballinger & Lyster (2011) examined the dynamics of a classroom when Spanish L1 students were introduced to the classroom environment. The results of the study found that the presence of Spanish L1 speakers was not linked to enhanced opportunities for Spanish input or output for Spanish L2 speakers. The study did not provide evidence that TWI designs, with equal numbers of majority and minority language speakers, enhanced language and literacy opportunities within the classroom.

The deliberate and equal pairing of NES and NSS introduces complicated issues of culture and race relations. At times, NSS students and families perceive themselves as "token" members of a contrived school population (Dorner, 2011). Dorner studied one TWI program at Jefferson Elementary in Englewood, Illinois. She shares the following anecdote, "In the words of one Spanish-dominant speaker at a PTA meeting, 'Our LEP children are not at Jefferson to offer racial balance,' nor did they live in Engleville to provide a bilingual education for English-dominant children" (p. 604). In the attempt to create TWI environments with equal representation from both English and Spanish speaking populations, Spanish speaking participants can be made to feel as though they are second class citizens, included in the program for the benefit of the NES students.

A primary outcome of TWI programming is for students to feel as though they are bicultural, experiencing a sense of belonging to more than one cultural group. In a study of secondary students who participated in TWI throughout their educational careers, the authors found that Latino students valued the program for opportunities to maintain their heritage language and become bicultural (Bearse & de Jong, 2008). However, Anglo students admitted to learning about culture, but did not identify themselves as bicultural as a result of TWI program participation (Bearse & de Jong, 2008). For NES students, biculturalism was not direct outcome of program participation. This is largely attributed to the great Anglo presence in the outside world.

Recent studies illustrate the short-comings of TWI programs which challenges the "gold standard" image it boasts in foreign language immersion programs in U.S. schools. The deliberate and purposeful inclusion of equal numbers of students from Anglo and Hispanic backgrounds can lead to resentment on the part of Hispanic families who feel

they are included only for opportunities to create a bilingual environment for majority students. Additionally, NES students report that while they learn about culture, they do not recognize themselves as bicultural, a primary outcome of TWI. Recognizing some inherent limitations in TWI, I argue that other programs of immersion, specifically one-way immersion, are to be examined for their potential benefits.

One-way Immersion

One-way immersion programs were first developed in Canada in the 1960s and are the most common form of immersion programming in that country (Potowski, 2007b). Following Canada's model, the U.S. established a number of one-way immersion programs. Generally speaking, there is a lack of positive support for one-way immersion in the U.S. Past studies, such as one by Swain & Lapkin (1981), criticized one-way immersion programs in that students practiced incorrect use of the second language grammar, resulting in fractured language acquisition. Despite such claims, there are continued calls to learn about differences in program models and how they impact student outcomes (Ballinger & Lyster, 2011; Cobb et al., 2006; de Jong & Howard, 2009; Howard et al., 2003; Jared, Cormier, Levy, & Wade-Woolley, 2011; Potowski, 2007a, 2007b).

Potowski (2007a) argues that one-way immersion programs are functionally pragmatic and do not require a high population of language minority students for successful operation. Further, Potowski recognizes that lack of research on the language development of English-speaking children enrolled in one-way Spanish immersion programs in the U.S. (2007a). The literature supports a study of one-way immersion programs in order to better understand the opportunities that they present for children.

Summary

This study further elaborates on previous studies on immersion programming. By examining the English and Spanish language and literacy attainments of fifth grade NES enrolled in a one-way Spanish immersion program within a Catholic elementary school, the study has potential to reveal findings specific to a unique population of learners. Researchers have called for more longitudinal research that tracks the development of bilingualism, biliteracy, and academic achievement over time (Howard et al., 2003; Potowski, 2007a). The use of archival data over the course of three years achieves this outcome. In addition to evaluating English reading, the literature supports an evaluation of students' foreign language learning (Cobb et a, 2006; Krashen, 2004; Met & Lorenz, 1997). The choice to include an evaluation of students' Spanish language abilities is supported by the literature. In sum, a study that seeks to examine the literacy achievement in both Spanish and English for NES students attending a bilingual school is recommended by a number of scholars in the field.

CHAPTER THREE: METHODOLOGY

Introduction

The purpose of this study was to evaluate the English and Spanish literacy attainments of fifth grade, NES students enrolled in a one-way Spanish immersion program. The methodology chapter describes the relevant designs, research questions, hypotheses, participants, setting, instrumentation, procedures, and data analysis. Each of these factors plays a significant role in the research methodology.

Design

The first research design selected for this study was an ex-post facto, causal-comparative research design, a non-experimental investigation in which researchers identify possible cause-and-effect relationships by forming groups in which the independent variable is present or absent (Gall et al., 2007). For the purpose of this study, the one independent variable, "program" was analyzed with two levels – Spanish immersion and traditional program. The dependent variables were vocabulary and reading comprehension with four levels: a) explicit; b) implicit; c) key ideas; and d) author's craft on the Iowa Assessment (Riverside Publishing, 2013). The study compared the levels of reading achievement between groups to determine if participation in a Spanish immersion program affected achieved levels of English literacy.

According to the literature, causal-comparative research designs work well in educational field studies. The process of using groups to measure the independent variable is consistent with how practitioners and educational stakeholders view and organize the world (Gall et al., 2007); Further, they provide an economical method for identifying possible causes or effects of a phenomenon. Additionally, the statistical data

resulting from causal-comparative designs are relatively easy to comprehend and interpret. Finally, they are appropriate for exploratory studies in which little research has been conducted (Gall et al., 2007).

The second design, a one-group pretest-posttest design, was used to determine if students enrolled in the Spanish immersion program made significant gains in Spanish listening, with three levels: a) listen with attention; b) listen in the classroom; and c) listen and comprehend; and Spanish speaking with four levels: a) speak in words; b) speak in sentences; c) make conversation; and d) tell a story on the LAS Links Espanol (CTB/McGraw Hill, 2012). The independent variable, time, included two levels: pretest and posttest data.

One-group pretest-posttest designs are appropriate when the researcher attempts to change a characteristic that is either stable or resistant to change (Gall et al., 2007). Participation in an experimental program to learn to speak a foreign language qualifies as changing a characteristic (language) that is resistant to change. This design works well for research on foreign language learning because the likelihood of extraneous factors influencing students' language acquisition is small (Gall et al., 2007). By and large, the participants participate in an outside world that utilizes English as its primary means of communication. In this particular context, Spanish language study is isolated to the immersion program.

In this second design, immersion students' scores on LAS Links Espanol (CTB/McGraw-Hill, 2012) from the fall of fifth grade were used as the pretest data. These scores were compared to scores attained at the end of fifth grade in order to

determine if students acquired Spanish oral language proficiency as a result of the experimental treatment, participation in a Spanish immersion program.

The following table illustrates possible outcomes for each of the research questions. The table includes all variables and the supporting theories.

Table 3.1

Description of Organization of Theoretical Framework, Research Questions, Design, Data Sources, and Potential Outcomes.

Research Question	Theoretical Framework	Data Sources	Potential Outcomes	Contributions
RQ 1	Additive Bilingualism Theory	Iowa Assessment	Higher Iowa Assessment scores of the control group over the experimental group	Does not support Additive Bilingualism Theory
	Additive Bilingualism Theory	Iowa Assessment	Higher Iowa Assessment scores of the experimental group over the control group	Supports Additive Bilingualism Theory
RQ2	Linguistic Interdependence Hypothesis	LAS Links Espanol	Increased LAS Links Espanol scores in posttest	Supports Linguistic Interdependence Hypothesis
	Linguistic Interdependence Hypothesis	LAS Links Espanol	Non-significant increase in LAS Links Espanol scores in posttest	Does not support Linguistic Interdependence Theory

Research Questions and Hypotheses

Research Questions

The research questions for this study were:

RQ1: Is there a significant difference in vocabulary and reading comprehension scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional English-only program?

RQ2: Is there a significant difference in pretest and posttest scores for NES students' listing and speaking abilities in Spanish on the Language Assessment Skills

Links Espanol (LAS Links Espanol) before and after participating in a one-way Spanish immersion program?

Hypotheses

The following were the research hypotheses for the study:

H1: There is a statistically significant difference in the linear combination of subscales that comprise the vocabulary and reading comprehension scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H2: There is a statistically significant difference in vocabulary mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H3: There is a statistically significant difference in explicit mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H4: There is a statistically significant difference in implicit mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H5: There is a statistically significant difference in key ideas mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H6: There is a statistically significant difference in author's craft mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H7: There is a statistically significant difference in listen with attention mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H8: There is a statistically significant difference in listen in the classroom mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H9: There is a statistically significant difference in listen and comprehend mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H10: There is a statistically significant difference in speak in words mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H11: There is a statistically significant difference in speak in sentences mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H12: There is a statistically significant difference in make conversation mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H13: There is a statistically significant difference in tell a story mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

Alternatively, the following were the null hypotheses:

H01: There is not a statistically significant difference in the linear combination of subscales that comprise the vocabulary and reading comprehension scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H02: There is not a statistically significant difference in the vocabulary subtest of the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H03: There is not a statistically significant difference in explicit mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H04: There is not a statistically significant difference in implicit mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H05: There is not a statistically significant difference in key ideas mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H06: There is not a statistically significant difference in author's craft mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H07: There is not a statistically significant difference in listen with attention mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H08: There is not a statistically significant difference in listen in the classroom mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H09: There is not a statistically significant difference in listen and comprehend mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H10: There is not a statistically significant difference in speak in words mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H011: There is not a statistically significant difference in speak in sentences mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H012: There is not a statistically significant difference in make conversation mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H013: There is not a statistically significant difference in tell a story mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

Participants

Participants included fifth grade students attending a Catholic elementary school campus in Iowa with two educational programs: a traditional, English-only program (St. Rose) and a Spanish immersion program (St. Maria Goretti) during the 2011–2012 and 2012–2013 school years. The school has a predominantly homogeneous population with

the majority of students classified as Caucasian, English-speaking, and middle class. The students are enrolled in one of two programs housed on the campus: a Spanish immersion program or a traditional, English-only program. Table 3.2 illustrates the demographic data for students enrolled in St. Rose and St. Maria Goretti for the 2012–2013 school year.

Table 3.2

Demographics of St. Rose and St. Maria Goretti for the 2012-2013 School Year

	St. Rose	St. Maria Goretti
Total Enrollment	121	150
Race/Ethnicity	105 Caucasian	130 Caucasian
	7 Indian	1 Indian
	5 Hispanic	15 Hispanic
	3 African American	3 African American
	1 Asian	1 Asian
Gender	65 boys/56 girls	65 boys/85 girls
Free and Reduced Lunch	22%	14%
Native Spanish Speakers	5 students	9 students

An examination of fifth grade students' performance in English vocabulary and reading comprehension, and Spanish listening and speaking is functionally pragmatic. Fifth grade is the final year of participation in the program housed at this PK-5 elementary school; therefore, it is a logical grade in which to assess students' broad language abilities in English and Spanish. According to the research, students who receive at least five or six years of dual language instruction achieve parity in their L2 while maintaining their L1 (Cobb et al., 2006; Cummins, 1998; Howard et al., 2003; Thomas & Collier, 2002). A study of fifth graders' language and literacy achievement in English and Spanish is supported by the literature and provides summative data on the program's effectiveness.

This study utilized a non-random, convenience sample of a population readily accessible to me (Gall et al., 2007). A multi-level matching procedure was used to control for differences between groups, a suggestion made from a meta-analysis of immersion programming (Greene, 1997) and recent studies (Cobb et al., 2006; Laurent & Martinot, 2010; Proctor et al., 2011; Schneyderman & Abella, 2009; Schwartz et al.). The sample size of 32 participants in each group met the minimum of 32 participants recommended by Cohen (1988) in order for the study to have a significance level of .05, power of .80, and a moderate effect size. Due to the small class sizes at the school, it was necessary that I examine two cohorts of students in order to meet the minimum number of participants recommended by the literature. The Iowa Assessment and LAS Links Espanol were adopted by the school in 2011, thus limiting my study to the 2011–2012 and 2012–2013 cohorts. Students from the immersion program were matched with comparable students from the control program on a student-by-student basis on four variables—cohort year, gender, ethnicity, and third grade performance on the reading subtest of the Iowa Assessment (Riverside Publishing, 2010). The choice of these variables is supported by the literature (Cobb et al., 2006; Laurent & Martinot, 2009; Proctor et al., 2011; Schneyderman & Abella, 2009; Schwartz et al., 2008.)

Setting

The research took place at St. Rose/St. Maria Goretti Catholic Spanish Immersion School (pseudonym), a Catholic elementary school serving students in pre-kindergarten through grade five. It is located in a Midwestern city with a population of 60,000 residents (U.S. Census Bureau, 2013). The target school is one of four elementary schools in the district (Research School, 2011). The school is unique in that it offers two

programs for students: a one-way Spanish immersion program (St. Maria Goretti) and a traditional program (St. Rose). Students in both programs share space, special area teachers, and participate in daily opening meetings and Catholic Mass together.

The school has a total enrollment of 270 students. It serves a relatively homogeneous population with 87% of students describing their race and ethnicity as Caucasian. Additionally, the school serves a small population of Latino students (7%) as well as students identifying themselves as Indian (3%), African American (2%), and Asian (less than 1%). The majority of families are members of the middle and upper-middle classes. St. Rose has 22% of students receiving free and reduced lunch while St. Maria Goretti has 14%. The predominant religious affiliation is Catholic with some students from other Christian denominations. English is the primary language spoken by all students at the site. There are five NSS enrolled at St. Rose and nine NSS enrolled at St. Maria Goretti for the 2012-2013 school year. Anecdotally, the principal shared that NSS families who believe they may return to Mexico in the future generally enroll their children in St. Maria Goretti, the Spanish immersion program. The NSS families who enroll their children at St. Rose are typically employed with professional level jobs and desire permanent residency in the U.S.

St. Maria Goretti, the Spanish immersion program recruits teachers who are bilingual in English and Spanish. A majority of the teachers are native NSS from countries of Spain, Colombia, Argentina, and Mexico. When recruiting teachers, the principal looks for candidates that are: a) Catholic, b) experienced teachers, and c) have a permanent position in their native country, indicating that they are highly qualified educators. The Spanish immersion program incorporates the same standards and

curriculum as the traditional program, and offers the additive option of studying the Spanish language and culture.

To ensure treatment fidelity, I interviewed the building principal in order to determine that the Spanish immersion program follows the guidelines of one-way immersion programs. I have also observed the classrooms to confirm that instructional standards and curriculum are the same between the two educational programs, with the exception of the language of instruction in the immersion program.

St. Maria Goretti is designed as a one-way Spanish immersion program. One-way immersion programs operate under the philosophy that languages are best learned as a medium of content rather than the focus of instruction (Center for Applied Linguistics, 2011). At Saint Maria Goretti, students in kindergarten and first grade are educated in a 90/10 immersion model. This design requires that 90% of instruction is delivered in the target language, Spanish, and 10% of instruction is delivered in the mainstream language, English. Because of the Catholic identity of the school, religion classes are taught in English in kindergarten and first grade; all other content areas are taught in Spanish.

Gradually, the amount of instructional time in Spanish and English are equal. English reading and language arts are introduced in second grade. Students read and write in both Spanish and English from second grade through fifth grade. The program changes to a 50/50 immersion model as students reach fourth and fifth grade. In these grades, academic subjects are taught in equal portions of Spanish and English. The fifth-grade students have two teachers. Their English teacher teaches them religion, social studies, and English reading/language arts. The Spanish teacher teaches them science, math, and

Spanish reading/language arts. In math class, target vocabulary is introduced to students in both languages.

It is important to note that new students may only enroll in St. Maria Goretti from the ages of 4 to 6, during their four-year-old kindergarten or kindergarten year. Because of the emphasis on initial, early Spanish learning, the program does not allow new students to enter the program in later years. Therefore, in this study of fifth-graders' achievement in English reading and Spanish language proficiency, I can confirm that students' have been enrolled in the program for 6 or 7 years.

Students enrolled in the traditional program, St. Rose, engage in studies of core academic programs as well as religion. Students in all grade levels learn in a self-contained classroom. Differentiated instruction is provided to students in order to meet their academic needs and to scaffold their development and growth (Research School, 2012). The school's Catholic orientation emphasizes the four pillars of Catholic education: service, community, worship, and message. The character education program in the school emphasizes Christian values. Additionally, the school has a strong partnership with a neighboring Catholic university. It is a Professional Development School (PDS) that allows for education majors to spend a semester in the building delivering instruction in one-on-one, small group, and whole class settings.

Instrumentation

One instrument was used in order to assess the literacy skills of students in English, and a second instrument was used to determine the Spanish proficiency levels attained by students enrolled in the one-way Spanish immersion program.

Iowa Assessment

The first instrument for this research is the Iowa Assessment (Riverside Publishing, 2013). Iowa Assessment is a group administered achievement test battery (Riverside Publishing, 2013). This test is designed to provide a comprehensive assessment of student achievement in the following content areas: reading, writing, mathematics, science, and social studies. The current version, Iowa Assessment, Form E is the revised and retitled assessment, formerly known as the Iowa Test of Basic Skills.. The current assessment is aligned with Common Core standards. This norm-referenced assessment compares student achievement with nationwide norming sample gathered in 2011. It was developed by the University of Iowa, College of Education and is funded by Title 1 and IDEA (Riverside Publishing, 2013). For the purpose of this study, Iowa Assessment was used to assess students' total reading score, including subtests in vocabulary and reading comprehension.

Fifth grade students take Iowa Assessment, Form E, Test Level 11. The vocabulary subtest at this level consists of 37 items and is administered in a 15- minute time limit (Riverside Publishing, 2013). Each question presents a vocabulary word in the context of a short phrase or sentence. Students are asked to select a word from a list of choices that has the same meaning as the target word. The vocabulary subtest measures students' breadth of vocabulary and provides an indicator of overall verbal ability (Riverside Publishing, 2013). Raw scores were used to evaluate student performance. Raw scores for the vocabulary section range from range from 1 to 37.

The Level 11 reading comprehension subtest is administered in two separate testing sessions of 25 and 30 minutes. In all, the students answer 39 test questions. The

reading comprehension subtest includes reading passages of varying length and difficulty (Riverside Publishing, 2013). A variety of genres are incorporated, including narratives, poems, and expository texts. Test items assess four levels of understanding: a) explicit; b) implicit; c) key ideas; and d) author's craft (Riverside Publishing, 2013). Raw scores were used to evaluate student performance for the composite as well as the subscales. Reading comprehension raw scores range from 1–39. A breakdown of each test is provided in Table 3.3.

Table 3.3

Vocabulary and Reading Comprehension Subtests of the Iowa Assessment

Test	Subsection	Format	# of Items	Administration	Time	Score Points
Vocabulary		MC	37	Group	15 min.	37
Comprehension	Explicit	MC	13	Group	25 & 30 min.	39
	Implicit	MC	10	Group		
	Key Ideas	MC	8	Group		
	Author's Craft	MC	8	Group		

Note. MC = multiple-choice items

The decision to use test data generalized from Iowa Assessment was made for several reasons. The district adopted the Iowa Assessment as a part of No Child NCLB mandates and archival data for this assessment is available. The literature supports the use of standardized test data for educational research (Gall et al., 2007; Greene, 1997). Standardized tests are useful for collecting data about presumed cause-and-effect relationships (Gall et al., 2007). By analyzing Iowa Assessment data for the experimental and control groups, I am able to make inferences about possible cause-and-effect relationships. The Iowa Assessment obtained a national probability sample using a Catholic school sample in addition to the public school sample (Englehard & Lane, 2007); making it a valid data source for this study in the context of a Catholic school.

There is significant research regarding quality control measures for the Iowa Assessment. The test levels are vertically scaled, providing schools with an opportunity to trace student achievement growth on a continuous scale from kindergarten through grade eight (Riverside Publishing, 2013). The Iowa Assessment was developed at the

University of Iowa, and is a product of over seventy years of ongoing research (Riverside Publishing, 2013). The internal consistency of the composite reading tests is .90 (Englehard & Lane, 2007). Equivalent forms reliability coefficients range from .811 to .942 for total scores in levels nine through 14 (Englehard & Lane, 2007).

Language Assessment Skills Links Espanol (LAS Links Español)

LAS Links Espanol (CTB/McGraw-Hill LLC, 2012) was used to determine the extent of students' Spanish language proficiency. Four domains are assessed using this instrument: listening, speaking, reading, and writing (CTB/McGraw-Hill LLC, 2012).For the purpose of this study, the listening and speaking tests will be were examined to determine the extent of students Spanish oral language proficiency. The listening test includes three subscales: a) listen with attention; b) listen in the classroom; c) listen and comprehend; the speaking test includes four subscales: a) speak in words; b) speak in sentences; c) make conversation; and d) tell a story. A breakdown of each test is provided in Table 3.4.

Table 3.4

Listening and Speaking Subtests of LAS-Links Espanol

Test	Subsection	Format	# of Items	Administration	Time	Score Points
Listening	Listen with attention	MC	10	Group	15 min.	20
	Listen in the classroom	MC	6	Group		
	Listen and comprehend	MC	4	Group		
Speaking	Speak in words	DCR	10	Individual	10 min.	41
	Speak in sentences	CR	15	Individual		
	Make conversation	CR	12	Individual		
	Tell a story	CR	4	Individual		

Note. DCR = Dichotomous constructed-response items; MC = Multiple-choice items; CR = Constructed-response items

Students' scores from the end of fifth grade were compared with their scores from the fall of fifth grade to measure the progress made in one academic year. The instrument works well to track and monitor progress over time (CTB/McGraw-Hill LLC, 2012). LAS Links Espanol measures both social and academic language skills, as prescribed by the Common Core State Standards (CTB/McGraw-Hill LLC, 2012). Additionally, it is aligned to TESOL and state English proficiency standards (CTB/McGraw-Hill LLC, 2012).Thus, LAS Links Espanol is an appropriate assessment of Spanish listening and speaking abilities.

LAS Links Espanol has a reliability coefficient of .907 (Shu & Schwartz, 2010); the 4-5 grade level span was found to have a reliability coefficient of .93 (Colorado Department of Education, 2012).

Procedures

Obtaining permission from the Liberty University Institutional Review Board (IRB) is an important step in the dissertation process to ensure that human subjects are treated in an ethical manger. The IRB ensures that risks are minimized and participants' privacy is well-protected. Once the dissertation chair and committee granted permission, I completed an exempt application. This application is appropriate for the study because research was conducted in an established educational setting and utilizes normal educational practices (Liberty University, 2011). Additionally, due to the nature of the study and its use of archival data, a waiver of informed consent was submitted to the IRB.

Once I received IRB approval (see Appendix A), I sought the permission of the superintendent to use archival data from the, 2011–2012, and 2012–2013 school years through a formal letter (see Appendix B). With permission, I accessed the archival data by requesting the scores from the building secretary with identifying information removed. The following data was requested for fifth grade students enrolled in St. Rose and St. Maria Goretti during the 2011–2012, and 2012–2013 school years:

- Iowa Assessment scores for vocabulary and reading comprehension, including subtests of: a) explicit; b) implicit; c) key ideas; and d) author's craft (Riverside Publishing, 2010).

- Demographic data for each student including cohort year, gender, ethnicity, and third grade reading performance on Iowa Test of Basic Skills (Riverside Publishing, 2010).
- LAS-Links end-of-year listening scores, including three subscales: a) listen with attention; b) listen in the classroom; c) listen and comprehend; and speaking scores including four subscales: a) speak in words; b) speak in sentences; c) make conversation; and d) tell a story. This data will be collected from the fall of fifth grade (pretest) and spring of fifth grade (posttest) for students enrolled at St. Maria Goretti.

Archival data was used determine: a) if a possible cause and effect relationship exists between educational programming (Spanish immersion and traditional, English only) and fifth graders' performance on vocabulary and reading comprehension; and b) if fifth grade students enrolled in the Spanish immersion program acquired Spanish listening and speaking abilities.

Data Analysis

A one-way, between-subjects multivariate analysis of variance (MANOVA) was used to evaluate the following research hypotheses for the first design:

H01: There is not a statistically significant difference in the linear combination of subscales that comprise the vocabulary and reading comprehension scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H02: There is not a statistically significant difference in vocabulary mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H03: There is not a statistically significant difference in explicit mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H04: There is not a statistically significant difference in implicit mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H05: There is not a statistically significant difference in key ideas mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

H06: There is not a statistically significant difference in author's craft mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

A MANOVA is an appropriate test when the researcher wants to test the significance of group differences between two or more groups when there are correlated dependent variables (Tabachnick & Fidell, 2007). The MANOVA evaluates differences among centroids, or composite means, for a set of dependent variables when there are two or more levels of an independent variable. Multiple correlated dependent variables are analyzed within a present level for Type 1 error. Following the MANOVA, I performed planned contrasts in order to determine assess whether there are differences among groups for certain dependent variables (Tabachnick & Fidell, 2007).

This study utilized a simple form of MANOVA with equal numbers of mean scores in each sample (Cohen, 1988). Each group included 32 participants consistent with Cohen's (1988) minimum recommendation to ensure a medium effect size (0.05). The number is slightly less than Tabachnick & Fidell's (2007) recommendation of 10-20 times the number of dependent variables (Tabachnick & Fidell, 2007). Alpha was set at $p<0.05$ in order to determine if null hypotheses 1-6 can be rejected. The effect size was calculated using the Pillai's Trace statistic and interpreted using Cohen's (1988) conventions.

Descriptive statistics were determined for both experimental and control groups, the mean and standard deviation on the dependent variables: vocabulary and reading comprehension with four levels: a) explicit; b) implicit; c) key ideas; and d) author's craft. A correlation matrix was created in order to see how each measured variable correlates with all other variables on different scales (Gall et al., 2007; Tabachnick & Fidell, 2007).

Assumption testing was conducted prior to the MANOVA analysis procedure. To evaluate the data points for extreme outliers, scatterplots were used (Green & Salkind, 2011). Normality was assessed using the Shapiro-Wilk test since $N < 50$ for each group (Tabachnick & Fidell, 2007). Mahalanobis Distance was used to test for multivariate outliers and ensure normality (Tabachnick & Fidell, 2007). Correlation matrices and scatterplots were used to evaluate assumptions for linearity, singularity, and multicollinearity. Homogeneity of variance and covariance among dependent variables were assessed using Box's M and Levene's test (Green & Salkind, 2011; Tabachnick & Fidell, 2007).

The second design includes the following research hypotheses that were assessed using dependent *t*-tests:

H07: There is not a statistically significant difference in listen with attention mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H08: There is not a statistically significant difference in listen in the classroom mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H09: There is not a statistically significant difference in listen and comprehend mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H10: There is not a statistically significant difference in speak in words mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H011: There is not a statistically significant difference in speak in sentences mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H012: There is not a statistically significant difference in make conversation mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

H013: There is not a statistically significant difference in tell a story mean scores on the LAS Links Espanol for fifth graders before and after participating in a one-way Spanish immersion program.

Dependent *t*-tests were used to determine if students made statistically significant gains in Spanish reading, as compared to their performance in the fall. The primary question was whether the mean difference between the scores on the two occasions (pretest and posttest) was significantly different from zero (Gall et al., 2007; Green & Salkind, 2011). Because exposure to Spanish language for students is isolated to the educational program, it is likely that a difference in scores represents a true difference and cannot be attributed to time or maturation (Howell, 2011).

Dependent *t*-tests work well for quantitative research because this test avoids problems of variability by collecting pretest and posttest data from the same group of participants (Howell, 2011). The use of the same participants allows the researcher to control for extraneous variables.

The following assumptions are required for *t*-tests: normality and no extreme outliers (Green & Salkind, 2011; Howell, 2011; Tabachnick & Fidell, 2007). A histogram was used to assess normality. A boxplot was used to determine if there are any outliers.

To begin the procedure, descriptive analyses was conducted in order to determine the mean and standard deviation on the dependent variables: listening with three levels: a). listen with attention, b). listen in the classroom, c). listen and comprehend; and speaking with four levels: a). speak in words, b). speak in sentences, c). make conversation, and d). tell a story.

The alpha was set at $p< 0.05$ to prevent incorrect rejection of the null hypothesis. SPSS was used to compute the effect size using Cohen's *d* (Green & Salkind, 2011). The *d* statistic evaluates the degree that the mean of the difference scores deviates from 0 in standard deviation units (Cohen, 1988; Green & Salkind, 2011). A *d* value of .2 indicates

a small effect size, a value of .5 indicates a medium effect size, and an effect size of .8 reveals a large effect (Cohen, 1988: Green & Salkind, 2011).

CHAPTER FOUR: FINDINGS

The purpose of this study was to determine if fifth grade students enrolled in a Spanish immersion program have developed proficiency in English vocabulary and reading comprehension, as well as Spanish oral language abilities, specifically listening and speaking. In this chapter, the results of the research study are presented.

This chapter is divided into sections according to the two research analyses. The first section describes the descriptive statistics and results of the one-way MANOVA used to determine if significant differences existed between the experimental and control groups for the mean vocabulary and reading comprehension scores from the Iowa Assessment. The second section describes the descriptive statistics and results of the dependent *t*-tests comparing students' posttest scores of the LAS-LINKS listening and speaking tests to pretest scores.

Question 1: One-way MANOVA

Descriptive Statistics

The first question was, "Is there a significant difference in vocabulary and reading comprehension scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional English-only program?" This question had six corresponding null hypotheses. A one-way MANOVA was used to determine if a statistically significant difference existed between the experimental group and control group on vocabulary and reading comprehension scores as assessed by the Iowa Assessment. The independent variable, program, included two levels: experimental (Spanish immersion) and control (English-only). The linear combination of vocabulary and the subscales of the reading comprehension test were the

dependent variables. The dependent variables included a) vocabulary; b) explicit; c) implicit; d) key ideas; and e) author's craft. The total number of participants in the study was 64, including 32 matched pairs of students from St. Maria Goretti Spanish Immersion program and St. Rose. The means and standard deviations for each subscale are listed in Table 4.1.

Table 4.1

Descriptive Statistics for the Dependent Variables for the Two Groups

Dependent Variables	Experimental Group (*n=32)*		Control Group *(n=32)*	
	M	*SD*	*M*	*SD*
Vocabulary	28.13	6.07	27.59	5.38
Explicit	9.56	2.18	9.50	2.20
Implicit	8.09	1.65	7.88	2.04
Key Ideas	5.50	1.39	5.63	1.56
Author's Craft	6.19	1.82	5.53	1.87

Assumption testing was conducted on the data sets to ensure that the following assumptions were tenable: normality, no extreme outliers, homogeneity of variance-covariance, linearity, and mulitcollinearity/singularity. The Shapiro-Wilk test was used to assess normality. For all subscales, the alpha was less than .05, indicating the assumption of normality was violated. Visual inspections of histograms and boxplots revealed that the data is negatively skewed, which could be a result of the limited range of options for responses. According to Tabachanick and Fidell (2007), data sets with overall $N = 40$ ($n = 10$) can be robust to nonnormality. In this research, $N = 64$ ($n = 32$); therefore, I infer that univariate F is robust despite minor violations of normality.

The Mahalanobis statistic was calculated to determine if there were multivariate outliers. Mahalanobis statistics were compared against the critical value of 15.09. This value was generated using a chi square table with the number of variables (5) as the degrees of freedom and alpha of $p = .001$. This test revealed one multivariate outlier with a greater score (16.99) than the critical value. The MANOVA is robust to outliers if

values are not extreme and the number of cases is greater than the number of dependent variables (Tabachanick & Fidell, 2007); therefore, the outlier was not removed.

The assumption of homogeneity of variance-covariance was assessed using Box's *M*, which produced $M = 12.06$, $F(15, 15477) = .732$; $p = .75$. Because $p > .05$, the assumption is tenable (Tabachanick & Fidell, 2007). Levene's test for equality of variance was found tenable for the analyses, $F(1,62) = .40$, $p = .53$. A matrix of scatterplots was used to assess the assumption of linearity. Nine out of ten plots showed no evidence of non-linearity; one plot showed a possible non-linear pattern. The assumption of linearity was valid. To assess the assumption of multicollinearity/singularity, Pearson's *r* correlations were conducted. The Pearson's *r* correlation shows the strength of the relationship between groups on each of the five subscales (Vocabulary, Explicit, Implicit, Key Ideas, and Author's Craft). All correlations between the dependent variables were below less than .8, indicating the assumption is valid (Tabachanick & Fidell, 2007). The relationship among the dependent variables supported the use of a one-way MANOVA rather than individual analysis of variances (ANOVA) because the MANOVA takes into consideration the correlation among the dependent variables while controlling for the overall alpha level (Tabachnick & Fidell, 2007). Results for the correlation matrix are displayed in Table 4.2.

Table 4.2.

Correlation Matrix

	VOC	EXP	IMP	KI	AC
Vocabulary	1	.57**	.64**	.67**	.58**
Explicit	.57**	1	.64**	.61**	.49**
Implicit	.64**	.64**	1	.59**	.61**
Key Ideas	.67**	.61**	.59**	1	.44**
Author's Craft	.58**	.49**	.61**	.44**	1

Note. **Correlation is significant at the 0.01 level.

Inferential Statistics

Hypothesis 1

Significant differences were not found among the educational programs on the dependent variables, Pillai's Trace = .69, $F(5, 58) = .61$. $p = 0.1$, indicating that I fail to reject the null hypothesis that there is not a statistically significant difference in the linear combination of subscales that comprise the vocabulary and reading comprehension scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program. Observed power = .07, which indicates a 7% chance that failing to reject the null hypothesis was correct. This suggests a high likelihood of a Type 2 error.

Analysis of variances (ANOVA) on the dependent variables was conducted as follow-up test to the MANOVA. Using the Bonferroni method, each ANOVA was tested at the .01 level. The data analysis for each of the five dependent variables is presented in this chapter. Because the MANOVA was not significant, follow up ANOVAs were not required, however, I conducted them as planned contrasts (Tabachnick & Fidell, 2007).

Hypothesis 2

The ANOVA on the vocabulary scores was not significant, $F(1, 62) = .14$, $p < .01$, $\eta^2 = .71$. I fail to reject the null hypothesis and conclude that there is no statistically significant difference in vocabulary mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

Hypothesis 3

The ANOVA on explicit scores was not significant, $F(1, 62) = .01$, $p < .01$, $\eta^2 = .91$. I fail to reject the null hypothesis and conclude that there is no statistically significant difference in explicit mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

Hypothesis 4

The ANOVA on implicit mean scores was not significant, $F(1, 62) = .22$, $p < .01$, $\eta^2 = .64$. I fail to reject the null hypothesis and conclude that there is no statistically significant difference in implicit mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

Hypothesis 5

The ANOVA on key ideas mean scores was not significant, $F(1, 62) = .11$, $p < .01$, $\eta^2 = .74$. I fail to reject the null hypothesis and conclude that there is no statistically significant difference in key ideas mean scores on the Iowa Assessment for fifth graders

who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

Hypothesis 6

The ANOVA on author's craft mean scores was not significant, $F(1, 62) = 2.03$, $p = .03$, $\eta^2 = .16$. I fail to reject the null hypothesis and conclude that there is no statistically significant differences in author's craft mean scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional, English-only program.

Question 2: Dependent t-Test

The second question was, "Is there a significant difference in pretest and posttest scores for NES students' listening and speaking abilities in Spanish on the LAS Links Espanol before and after participating in a one-way Spanish immersion program?" This question framed eight research hypotheses. Dependent *t*-tests were performed to determine if statistically significant differences existed between students' posttest and pretest scores in Spanish listening and speaking as measured by LAS Links Espanol. Time (pretest and posttest) was used as the independent variable and when evaluating students' mean scores on the listening and speaking subtests. The means and standard deviations for listening are reported in Table 4.3 and the means and standard deviations for speaking are reported in Table 4.4.

Table 4.3

Descriptive Statistics for Listening Subtests of LAS Link Espanol over Time

Dependent Variables	Pretest (*n=34)*		Posttest (*n=34)*	
	M	*SD*	*M*	*SD*
Listen with Attention	7.18	1.23	8.21	2.07
Listen in the Classroom	4.38	1.35	4.91	1.19
Listen and Comprehend	2.97	1.03	2.88	0.98

Table 4.4

Descriptive Statistics for Speaking Subtests of LAS Link Espanol over Time

Dependent Variables	Pretest (*n=32)*		Posttest (*n=32)*	
	M	*SD*	*M*	*SD*
Speak in Words	6.81	1.23	8.44	1.01
Speak in Sentences	10.84	3.01	14.41	0.98
Speak in Conversation	7.50	3.31	11.31	0.90
Tell a Story	2.56	1.05	3.88	0.34

Assumption testing was performed to determine if the following assumptions were tenable: normality and no extreme outliers. Normality was assessed using histograms and boxplots were examined for extreme outliers. The histograms indicated normal data. Boxplots revealed a few extreme outliers on the posttest data. The outliers were first checked to ensure they were not the result of recording errors (Gall et al., 2007). According to the literature, *t*-tests are robust to violations of normality and outliers

when sample sizes have a minimum of 32 cases (Tabachnik & Fidell, 2007). This study included 34 participants in the examination of students' ability to listen in Spanish, and 32 participants in the examination of students' ability to speak in Spanish. Therefore, the outliers were not removed.

Pearson's *r* correlations were conducted to determine if a correlation among dependent variables existed. The Pearson's *r* correlation shows the strength of the relationship between groups on each of the 7 subscales (listen with attention, listen in the classroom, listen and understand, speak in words, speak in sentences, make conversation, and tell a story). All correlations between the dependent variables were less than .8, indicating positive correlations among dependent variables (Tabachanick & Fidell, 2007). Although the positive correlations could support a within group MANOVA, the small sample size would result in a lack of power (Tabachnik & Fidell, 2007). Therefore, dependent *t*-tests were selected for data analysis. It is important to note that this could increase the risk for Type 1 error so results should be interpreted cautiously. Results for the correlation matrix are displayed in Table 4.5

Table 4.5

Correlation Matrix

	LWA	LIC	LAU	SIW	SIS	MC	TS
Listen with Attention	1	.42**	.26**	.29**	.60**	.59**	.55**
Listen in the Classroom	.42**	1	.41**	.67**	.26**	.43**	.50**
Listen and Understand	.26**	.41**	1	.26**	.03**	.07**	.21**
Speak in Words	.29**	.67**	.26**	1	.18**	.48**	.36**
Speak in Sentences	.60**	.26**	.03**	.18**	1	.58**	.42**
Make Conversation	.59**	.43**	.07**	.50**	.58**	1	.57**
Tell a Story	.55**	.50**	.21**	.36**	.42**	.57**	1

Note. **Correlation is significant at the 0.01 level.

Inferential Statistics

Results for Hypothesis 7

Results of the analysis for the subtest, listen with attention, indicated that posttest scores (M = 8.21, SD = 2.07) were significantly greater than the pretest scores (M = 7.18, SD = 1.23), $t(33) = 2.79$, $p < .01$. The standardized effect size index, d, was .48, indicating a medium effect size. The 95% confidence interval for the mean difference between the two ratings was 1.78 to 2.78.

Results for Hypothesis 8

Results of the analysis for the subtest, listen in the classroom indicated that the posttest scores (M = 4.91, SD = 1.19) were significantly greater than pretest scores (M = 4.38, SD = 1.35), $t(33) = 2.50$, $p < .02$. The standardized effect size index, d, was .44,

indicating a medium effect size. The 95% confidence interval for the mean difference between the two ratings was 0.96 and 0.98.

Results for Hypothesis 9

Results of the subtest, listen and comprehend, indicated that there was not a statistically significant difference between posttest scores (M = 2.88, SD = 0.98) and pretest scores (M = 2.97, SD = 1.03), $t(33) = 0.49$, $p = .63$. Therefore, the research failed to reject the null hypothesis. The standardized effect size index, d, was .09, indicating low practical significance.

Results for Hypothesis 10

Results of the subtest, speak in words, indicated that posttest scores (M = 8.44, SD = 1.01) were significantly greater than pretest scores (M = 6.81, SD = 1.23), $t(31) = 7.59$, $p < .01$. The standardized effect size index, d, was1.36, indicating high practical significance. The 95% confidence interval for the mean difference between the two ratings was 1.19 and 2.06.

Results for Hypothesis 11

Results of the subtest, speak in sentences, indicated that posttest scores (M = 14.41, SD = 0.98) were significantly greater than pretest scores (M = 10.84, SD = 3.01), $t(31) = 7.37$, $p < .01$. The standardized effect size index, d, was 1.32, indicating high practical significance. The 95% confidence interval for the mean difference between the two ratings was 2.58 and 4.55.

Results for Hypothesis 12

Results of the subtest, have a conversation, indicated that posttest scores (M = 11.31, SD = 0.90) were significantly greater than pretest scores (M = 7.50, SD = 3.31),

$t(31) = 7.02$, $p < .01$. The standardized effect size index, *d*, was 1.26, indicating high practical significance. The 95% confidence interval for the mean difference between the two ratings was 2.70 and 4.92.

Results for Hypothesis 13

Results of the subtest, tell a story, indicated that posttest scores ($M = 3.88$, $SD = 0.34$) were significantly greater than pretest scores ($M = 2.56$, $SD = 1.05$), $t(31) = 7.21$, $p < .01$. The standardized effect size index, *d*, was 1.29, indicating high practical significance. The 95% confidence interval for the mean difference between the two ratings was 0.94 and 1.68.

Summary

The results of the data analysis for this study are organized by research questions. For Research Question One, the results displayed no statistically significant differences between the experimental and control groups on vocabulary and reading comprehension measures. Based on the results, the research failed to reject the null hypotheses for Research Question One: Is there a significant difference in vocabulary and reading comprehension scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional English-only program?

For Research Question Two, the results displayed significant differences between pretest and posttest mean scores on Spanish listening and speaking abilities for fifth grade students enrolled in the Spanish immersion program, with the exception of the listen and comprehend subscale. Based on the results, the research is able to reject the null hypotheses for Research Question Two: Is there a significant difference in pretest and

CHAPTER FIVE: DISCUSSION

This chapter will review the findings from the combination ex post facto, causal comparative design and one group pretest/posttest design. It will provide a summary of the results of from the MANOVA and dependent *t*-test analyses. This quantitative research study will be discussed within the context of other relevant research in the field. Limitations of the study are outlined, and theoretical and practical implications are discussed. The chapter concludes with recommendations for future research and a final summary.

The purpose of this study was to determine if there was a statistically significant difference in the vocabulary and reading comprehension levels of fifth grade students enrolled in a Spanish immersion program as compared to fifth graders enrolled in a traditional, English-only program. Additionally, Spanish oral language proficiency was examined for students in the immersion program. Thus, this study investigated two research questions: 1) Is there a significant difference in vocabulary and reading comprehension scores on the Iowa Assessment for fifth graders who participated in a Spanish immersion program as opposed to fifth graders enrolled in a traditional English-only program? and 2) Is there a significant difference in pretest and posttest scores for NES students' listing and speaking abilities in LAS Links Espanol before and after participating in a one-way Spanish immersion program?

Review of Methodology

A convenience sample of fifth grade students (N=64) enrolled in Catholic parochial school in eastern Iowa was examined for this study. The school houses two educational programs: a Spanish immersion program and traditional, English-only. The

choice of educational program is determined by students and their families; therefore, this research is non-experimental in nature because the researcher was not able to manipulate groups. The study examined fifth grade students enrolled in the school during the 2011–2012 and 2012–2013 academic years.

For the first design, archival data from the Iowa Assessment was used to examine vocabulary and reading comprehension mean scores between groups of students enrolled in the Spanish immersion and traditional program. Students in each program were matched using four variables—cohort year, gender, primary language, and third grade performance on the reading subtest of the Iowa Test of Basic Skills, the previous form of the Iowa Assessment. One way MANOVA was used to investigate the difference in means of the 5 dependent variables: a) vocabulary; b) explicit, c) implicit, d) key ideas, and e) author's craft. Prior to the data analyses, data was tested to ensure that it satisfied assumptions of sample size, normality, no extreme outliers, linearity, homogeneity of variance-covariance, singularity, and multicollinearity.

Archival data from LAS Links Espanol was used to examine the Spanish oral language proficiency for students enrolled in the immersion program. Posttest mean scores collected in the spring of fifth grade for Spanish listening and speaking were compared to pretest scores collected in the fall of fifth grade. Dependent *t*-tests were used to determine if statistically significant differences existed on Spanish listening and speaking subscales before and after treatment. Prior to the data analyses, data was tested to ensure that it satisfied assumptions of normality and no extreme outliers.

Summary of the Findings

One-way MANOVA was used to investigate research hypotheses 1–6. Results indicated that there was not a statistically significant difference between groups on vocabulary and reading comprehension measures. Students in the immersion program did not display significantly different levels of vocabulary and reading comprehension as compared to students enrolled in a traditional program. Therefore, the research fails to reject the null hypotheses that students who study a foreign language will perform differently their monolingually schooled peers on measures of English reading. Because the two groups performed similarly on reading measures, the research provides evidence that foreign language instruction does not impede broad reading ability in English. The students enrolled in the language immersion program scored similarly to their peers in a traditional English-only program. Since reading ability is not adversely affected by the study of a foreign language, there is evidence for offering the foreign language immersion program.

Dependent *t*-tests were used to investigate research hypotheses 7–13. Students in the immersion program displayed significantly significant gains in Spanish listening and speaking on posttest data as compared to pretest data for 6 of the 7 subscales. (Hypothesis 9, listen and comprehend failed to produce statistically significant results.) Therefore, the research provides evidence that students enrolled in the Spanish immersion program acquire Spanish oral language proficiency as an outcome of participation in a Spanish immersion program.

In summary, the results of this research indicate that fifth grade students enrolled in a Spanish immersion program perform similarly to their peers in measures of English

reading and achieve proficiency in Spanish oral language proficiency as a result of program participation. Based on the results of this research, the immersion program may be a viable program of instruction for elementary students.

Discussion of the Findings in the Context of Relevant Research

The purpose of this causal comparative study was to test two theories commonly associated with bilingual education: a) additive bilingualism (Lambert, 1974) and b) interdependence hypothesis (Cummins, 1979, 1980, 1998, 2007). Additive bilingualism asserts that learning a second language does not interfere with the learning of a first language and that both languages can be developed (Lambert, 1974). The findings from this study support additive bilingualism in that fifth grade students enrolled in a Spanish immersion program performed similarly to their peers schooled in a traditional, English-only program. Thus, according to this research, participation in a Spanish immersion program did not affect students' ability to read in their native language, English.

Cummins' interdependence hypothesis (1979) posits that first language learning can be positively transferred during the process of second language acquisition. The findings from this study support the interdependence hypothesis. Native English speaking fifth grade students made statistically significant gains in Spanish listening and speaking abilities as a result of participation in a one-way Spanish immersion programming. In sum, students enrolled in the immersion programs developed proficiency in a second language, an enrichment opportunity not afforded to students in traditional, English only programs.

A review of the literature in cognitive psychology and applied linguistics revealed evidence that foreign language learning at an early age strengthens students'

metacognitive knowledge of the structure and functions of language (Cummins, 2007; Petitto, 2009; Stewart, 2005; 2007; Vygotsky, 2011). This study provides further evidence that elementary aged children are able to develop functional competence in a second language. Fifth grade students enrolled in a Spanish immersion program for six years demonstrated proficient uses of Spanish oral language. This research supports the existing literature regarding the great aptitude young children have for learning a second language while meanwhile strengthening their literacy skills in their first language.

Unlike schools in the U.S. that do not promote second language competence, educational systems in many foreign countries are acting upon the research and educating their students in two or three languages at the elementary level (Christian et al., 2005; Darling-Hammond, 2010a, 2010b; Maillat & Serra, 2009; Stewart, 2005; 2012). Interestingly, students enrolled in educational programs that value foreign language learning such as Finland, South Korea, and Singapore performed higher than students in other countries according to the 2009 PISA in measures of reading comprehension (National Center for Education Statistics, 2011). The results of this study mirror the findings from the National Center for Education Statistics (2011) in that students who learn a second language through their elementary curriculum develop language proficiency in both their native and second languages. Thus, it is vital that the U.S. explore the potential outcomes that foreign language immersion programs introduce to our elementary students.

This study contributed to the body of knowledge of one-way immersion programs. A review of the existing literature on immersion programs in the U.S. revealed an absence of studies on one-way immersion programs, where elementary content is

taught through a combination of foreign and native languages (Ballinger & Lyster, 2011; Cobb et al., 2006; de Jong & Howard, 2009; Howard et al., 2003; Jared et al., 2011; Potowski, 2007a, 2007b). The majority of studies of bilingual education in the U.S. focus on two-way programs, where equal numbers of NES and NSS students study content through two languages, English and Spanish. In this design, students are able to serve as both language learners and language experts. Despite the popularity of two-way programs, studies illustrate the pitfalls of them including their emphasis on English language acquisition for ELLs and the perception of Latino families as second class citizens in the school culture (Ballinger & Lyster, 2011; Dorner, 2011; Potowski, 2007b).

This study examined a one-way Spanish immersion program housed in a Catholic school district in eastern Iowa. The school serves a relatively homogenous population due to factors including: a) geographic location and low minority population in the city; b) tuition expense; and c) Catholic religious affiliation. A two-way program would not be feasible in this location due to the low population of native Spanish speakers. Therefore, a one-way immersion program was established in order to offer students with an enrichment opportunity to learn Spanish as an outcome of participation in the program. Fifth grade students demonstrated competence in broad English reading measures as well as statistically significant gains in Spanish oral language. Thus, this study supports one-way immersion programs as viable programs of instruction.

Theoretical Implications

The results of this study provide support for Lambert's (1974) theory of additive bilingualism, which asserts that second language learning provides students with an enrichment opportunity to develop second language competency. The students enrolled in

the Spanish immersion program were successful in learning a second language while concurrently strengthening their knowledge and understandings of their native language. This is evidenced by the statistically significant gains in Spanish listening and speaking measures by fifth graders enrolled in the immersion program. Additionally, because the students in the immersion program performed similarly to their monlingually schooled peers on English reading measures (i.e., their mean scores on the subtests were equal or greater than students in the English-only program), there is evidence that learning a second language did not hinder their performance in their first language.

The results also support Cummins (1979, 1980) linguistic interdependence hypothesis which states that students draw on their first language to facilitate their learning of a second language. Students in the immersion program performed equal to students enrolled in a traditional, English-only program. In light of Cummins' theory, the students drew from their foundational knowledge of English to facilitate their Spanish language acquisition. This is evidenced by the statistically significant gains in Spanish oral language proficiency achieved by fifth grade students in the immersion program.

Practical Implications

The results of this study offer practical implications in the area of foreign language immersion programs at the elementary level. The results of the examination of educational programs on fifth grade students' vocabulary and reading comprehension abilities did not reveal significant differences. In other words, matched pairs of students in both groups performed similarly on vocabulary and reading comprehension measures. In this study, the students enrolled in the Spanish immersion program performed equally to students in the traditional English only program. Therefore, there is evidence that

participation in a Spanish immersion program did not accelerate students' broad reading ability in English, nor did it hinder it. This finding addresses the pervasive public concern that foreign language learning impedes students' mastery of their first language, English.

The second design, which examined the Spanish oral language proficiency of fifth grade students enrolled in the program, resulted in statistically significant gains in Spanish listening and speaking abilities. This evidence suggests that foreign language immersion programs at the elementary level are able to support students' mastery of a second language. As our world becomes increasingly interdependent, functional speaking ability in more than one language will be a valued asset in the workforce (Darling-Hammond, 2010a; Stewart, 2012).

Despite the research, fewer than 20% of elementary schools in the U.S. incorporate foreign language learning into the curriculum (Stewart, 2012). A decline in foreign language instruction in U.S. schools has been attributed to NCLB legislation and its emphasis on basic skills (Stewart, 2012). Policymakers and educational administrators who are looking to redesign elementary curriculum to meet 21st century skills and Common Core standards should consider incorporating foreign language instruction into the mainstream curriculum. This study as well as others conducted in the U.S. and internationally demonstrate the merits of foreign language learning. An emphasis on foreign language learning at the elementary level has the potential to provide students with a strong understanding of languages, to encourage their ability to communicate with peers internationally, and to afford them with an education of a similar quality to students in the world's leading educational institutions.

As general support for public school dwindles, private, parochial, and charter schools are well positioned to recruit new students and families. By offering a unique educational program such as a foreign language immersion, private schools can meet the needs of students and families who desire this education for their children. In the case of the research school, a member of a Catholic parochial district, the Spanish immersion program has grown so much in recent years that its enrollment now surpasses the enrollment of the traditional program offered on the same campus.

Finally, for the local stakeholders directly engaged with the research site, including administrators, teachers, students, and parents in this immersion program, the results of this study provide statistical evidence in support of the program for elementary students. The evidence gleaned from this study revealed that fifth grade students in the Spanish immersion program performed at an equal level to the students in the traditional program in English reading measures and developed Spanish oral language competency as a byproduct of participation. Future students and families considering the research school can have a measure of confidence that the school provides a sound educational program with an enrichment opportunity to develop proficiency in Spanish.

Study Limitations

The two research designs utilized in this study, an ex post facto causal comparative quantitative research design and a one-group pretest posttest design, are generally accepted as weak designs. Because both are non-experimental in nature, the researcher is unable to manipulate participants. Additionally, the study utilized archival student data to the effects of educational programming on students' English reading and Spanish speaking abilities, examining student outcomes after instruction had taken place.

Design one of this study utilized standardized test score data in order to determine possible cause and effect relationships between educational programs (Spanish immersion and traditional, English only) and English reading performance for fifth grade students. Standardized test data provide an efficient and economical means of evaluating students' academic performance. With that being said, a limitation to standardized tests is the fact that they provide a single snapshot of student performance from one place in time. Causal inferences from standardized test scores should be made cautiously.

This study examined students' test scores from the 2011–2012 and 2012–2013 academic school year. Both the Iowa Assessment and LAS Links Espanol were adopted in 2011, the initial year of the assessments. For this reason, only limited data sources were available. This is a limitation to the study. A larger *N* would ensure greater power for the data analysis. Design one had low power (.07) which suggests a 93% chance for a type 2 error, failing to reject the null hypothesis when it should be rejected. This is a cause for concern. Similarly, the data sets violated the assumption of normality and included one outlier. These violations to assumption tests could lead to inaccurate conclusions. The research is further limited by the possibility of a selection threat to validity. It was not possible to draw from a random sample because of the small size of the school. In an effort to create equal groups of students, students in the immersion and traditional program were matched on four variables—cohort year, gender, ethnicity, and third grade reading comprehension score on ITBS, a previous version of the Iowa Assessment.

Design two utilized data from the LAS Links Espanol assessment. To assess speaking skills, test administrators assess students in a one-on-one setting and rate

students' responses on a scale. At this site, the speaking assessment was administered by two bilingual adults: a native Spanish speaker and a native English speaker. There are likely to be interrater reliability issues introduced by the use of two administrators. Similarly, a carry-over effect could exist for students who took the assessment in the fall and then again in the spring.

There are limitations in the generalizability of this study. It examined a population of students in enrolled in a Catholic elementary school in a small city in eastern Iowa. The population served by the school is relatively homogenous in nature with a large majority of students and families from middle to upper-middle homes, Caucasian, and native English speakers. A similar study in a different context with a different population could yield entirely different results.

Recommendations for Future Research

Future studies into the effects of foreign language immersion programs on elementary students' bilingualism, biliteracy, and general academic achievement have great relevance in our current educational landscape. It is important that we understand student performance outcomes for existing immersion programs, both one way and two way immersion models, in order to close the feedback loop on these programs as viable approaches to educating our youngest children. A review of the available research in cognitive psychology and applied linguistics supports foreign language learning for young children. Our global counterparts act on this research on a large scale by incorporating foreign language study into the general education curriculum. Therefore, examinations of existing programs are imperative so that we can fully understand the effects of programming on student performance measures. A large scale, longitudinal

study of students' performance in English and Spanish reading and language over time, similar to Thomas and Collier (2002) study could provide statistical evidence of immersion programs' effectiveness.

Future studies could be designed to address the limitations of the two research designs included in this study. Studies that utilize true experimental design could provide a greater measure of confidence in the outcomes of immersion programming. In this way, the researcher can manipulate treatment and randomly assign participants to groups. Future studies could also include a greater number of participants in order to yield greater power and ultimately, confidence in the results. Research into the language and literacy outcomes of students in immersion programs could utilize other forms of reading assessment including the newly introduced Smarter Balanced assessment (Smarter Balanced Assessment Consortium, 2012) which aligns directly to Common Core Standards.

There is an additional need for qualitative studies that explore best practices in immersion programming as well as challenges and opportunities presented by this unique programmatic design. This study did not explore the third outcome of immersion programming: the development of cross-cultural competencies. Research that explores bilingually prepared students' viewpoints about people for diverse cultures would contribute to the body of knowledge of outcomes of immersion programming.

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APPENDIX

Appendix A: IRB Approval

May 6, 2013

Lindsay K. Hollingsworth
IRB Exemption 1601.050613: Developing English and Spanish Literacy in a One-way Spanish Immersion Program

Dear Lindsay,
The [redacted] Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and that no further IRB oversight is required.

Your study falls under exemption category 46.101 (b)(4), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:

> (4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Please note that this exemption only applies to your current research application, and that any changes to your protocol must be reported to the Liberty IRB for verification of continued exemption status. You may report these changes by submitting a change in protocol form or a new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption, or need assistance in determining whether possible changes to your protocol would change your exemption status, please email us at irb@liberty.edu.

Please retain this letter for your records. Also, if you are conducting research as part of the requirements for a master's thesis or doctoral dissertation, this approval letter should be included as an appendix to your completed thesis or dissertation.

Sincerely,
[redacted]

Professor, IRB Chair

Appendix B: Letter to Chief Administrator

April 11, 2013

Ms. [redacted]
Chief Administrator
[redacted] Catholic Schools
[redacted]

Dear Ms. [redacted]

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The title of my research project is "Developing English and Spanish Literacy in a One-Way Spanish Immersion Program" and the purpose of my research is: a). to compare educational programs (Spanish immersion and traditional, English only) on English reading performance of fifth grade students and b). to examine levels of Spanish language proficiency acquired by students enrolled in the Spanish immersion program.

I am writing to request your permission to access and utilize student test data from St. Rose and St. Maria Goretti Catholic Schools for the following school years: 2010-2011; 2011-2012; and 2012-2013. The data will be used: a). to determine possible cause-effect relationships between educational program and fifth grade students' English reading skills and b). to assess the Spanish language proficiency of students enrolled in the Spanish immersion program. I would like to use archival test data from the Iowa Assessment (Riverside Publishing, 2013) and Language Assessment Skills Links Español (CTB/McGraw Hill, 2010) tests.

I became acquainted with St. Rose and St. Maria Goretti during the time that I was an instructor at [redacted] University from 2007-2012. I worked directly with the site as an instructor in the Professional Development School there and also in the Summer Reading Camp. I have spoken informally to [redacted] about my study.

Thank you for considering my request. If you choose to grant permission, please provide a signed statement on approved letterhead indicating your approval.

Sincerely,

Lindsay K. Hollingsworth
Doctoral Candidate, Liberty University