

Gardner-Webb University

Digital Commons @ Gardner-Webb University

Doctor of Education Dissertations

College of Education

Spring 2022

Do Spanish Immersion Programs Increase Student Proficiency on Reading End-Of-Grade Tests For Students of Color?

Lavette Alston-Braswell

Gardner-Webb University, lmcmillan@gardner-webb.edu

Follow this and additional works at: <https://digitalcommons.gardner-webb.edu/education-dissertations>



Part of the [Bilingual, Multilingual, and Multicultural Education Commons](#), and the [Educational Methods Commons](#)

Recommended Citation

Alston-Braswell, Lavette, "Do Spanish Immersion Programs Increase Student Proficiency on Reading End-Of-Grade Tests For Students of Color?" (2022). *Doctor of Education Dissertations*. 90.
<https://digitalcommons.gardner-webb.edu/education-dissertations/90>

This Dissertation is brought to you for free and open access by the College of Education at Digital Commons @ Gardner-Webb University. It has been accepted for inclusion in Doctor of Education Dissertations by an authorized administrator of Digital Commons @ Gardner-Webb University. For more information, please see [Copyright and Publishing Info](#).

DO SPANISH IMMERSION PROGRAMS INCREASE STUDENT PROFICIENCY
ON READING END-OF-GRADE TESTS FOR STUDENTS OF COLOR?

By
Lavette C. Alston-Braswell

A Dissertation Submitted to the
Gardner-Webb University College of Education
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

Gardner-Webb University
2022

Approval Page

This dissertation was submitted by Lavette C. Alston-Braswell under the direction of the persons listed below. It was submitted to the Gardner-Webb University School of Education and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Gardner-Webb University.

Kathi Gibson, EdD
Committee Chair

Date

Mitch Porter, EdD
Committee Member

Date

Melinda Vickers, EdD
Committee Member

Date

Prince Bull, PhD
Dean of the College of Education

Date

Acknowledgements

I would first like to give thanks to God for allowing me the grace to persevere through this process and for granting me the patience, wisdom, and knowledge to successfully complete this dissertation process.

Secondly, I acknowledge my greatest gift and inspiration, Madison Noelle McMillan. Everything I do, I do to make you proud. The world is yours and never forget that you are fearfully and wonderfully made, and you will do great things. Thank you for sharing your mom with this process and for being my cheerleader. You are my everything, and I will always love you the most!

To my momma and daddy, you have always been my biggest advocates and have supported me through life. I thank you because, without you, I would not have been able to complete this journey.

Curtis, thank you for your constant support and encouragement. Thank you for being my sounding board and for allowing me the time to work and taking care of life while I completed this task. You are my rock and for that, I am forever grateful. I love you and Viviana, and I am so glad you are in my life.

I would like to thank my committee chair, Dr. Gibson, for pushing me through this process. Throughout this process, you have challenged me to be better and not give up. Your guidance and wisdom gave me the determination to keep going until I got it right. I am grateful for your leadership and mentorship.

Thank you to my committee members who helped me and encouraged me through this process.

I also say thank you to my extended family and circle of friends who listened and

encouraged me to keep going and for walking with me each step of the way. Your support and understanding have not gone unnoticed.

As a lover and student of language, culture, and diversity, I dedicate this research to the students of color who work hard every day to beat the gap and to fulfill their dreams of being a better version of themselves. This is for my students who have captured my heart and pushed me to make education better for them.

Abstract

DO SPANISH IMMERSION PROGRAMS INCREASE STUDENT PROFICIENCY
ON READING END-OF-GRADE TESTS FOR STUDENTS OF COLOR? Alston-

Braswell, Lavette C., 2022: Dissertation, Gardner-Webb University.

This quantitative, longitudinal matched pairs study determined whether elementary Spanish immersion students performed better on reading end-of-grade exams in Grades 3-5 than their non-immersion traditional peers in the same grades. African American and Hispanic students from two Spanish immersion schools in a suburban North Carolina district were studied. Results found that there was no statistical significance between student ethnicity and choice of immersion or non-immersion program. Time over years was found to be statistically significant. Although there was no statistical significance between program type and ethnicity, immersion students outperformed their non-immersion peers in Grades 3-5. African American students scored higher on the end-of-grade tests, while Hispanic students showed more growth from year to year.

Keywords: Spanish immersion, end-of-grade tests, reading proficiency, minority students, dual language immersion

Table of Contents

	Page
Chapter 1: Introduction	1
Background of Study	8
Statement of the Problem.....	11
Purpose of the Study	14
Research Questions	16
Definition of Terms.....	16
Research Design.....	17
Assumptions.....	18
Limitations and Delimitations.....	19
Summary of Chapter	20
Chapter 2: Literature Review.....	22
Problem of Practice.....	22
Purpose of Study	22
Significance of the Study	23
History of Spanish Language Immersion	24
Spanish Immersion in North Carolina	33
Types of Spanish Immersion Programs	34
Literacy and Spanish Immersion	35
Successful Spanish Immersion Programs	41
How the Impact of Spanish Immersion is Assessed	54
Chapter 3: Methodology	61
Introduction.....	61
Participants.....	61
Research Questions	62
Research Design and Rationale	63
Procedures	68
Limitations	69
Chapter Summary	70
Chapter 4: Results	72
Introduction.....	72
District Demographics	72
Overview of Participants.....	73
Data Collection	75
Matching Procedure	76
Research Question 1	77
Research Question 2	80
Research Question 3	81
Summary	82
Chapter 5: Discussion	84
Introduction.....	84
Summary of the Study	85
Interpretation and Discussion of Quantitative Data.....	86
Conclusions.....	91
Implications for Educational Practice	95

	Recommendations for Further Study	96
	Summary of Findings.....	99
	References	101
Tables		
1	2016-2017 North Carolina and District X EOG Reading Scores	12
2	North Carolina EOG Reading Scores by Subgroup.....	12
3	District EOG Reading Scores by Subgroup.....	13
4	EOG Achievement Level Description	58
5	District X Demographic Profile	73
6	Description of Study Participants	74
7	Tests of Within- and Between-Subjects Effects	78
8	Descriptive Statistics.....	79
Figures		
1	U.S. Hispanic Population and Percentage Over Time	8
2	Percentage Distribution of Public School Students Enrolled in Prekindergarten Through 12 th Grade by Race/Ethnicity: Fall 2000, Fall 2015, and Fall 2027.....	10
3	2017-2018 Reading EOG School Comparison	14
4	2018-2019 Reading EOG School Comparison	14
5	North Carolina Testing Program Test Development Process Flow Chart.....	57
6	Reading Mean Scores	59
7	District Demographics	62
8	Estimated Marginal Means (Time)	80
9	Estimated Marginal Means (Ethnicity).....	81

Chapter 1: Introduction

In many countries throughout the world, students are required to learn a second language. In the European Union, which includes 27 countries in Europe, 50–90% of students learn a second language in either primary school or upper secondary school (Eurostat, 2018). When compared to other countries in the world, the United States (U.S.) ranks 26th in education (Best Countries for Education, 2021). Many countries ranked higher than the U.S. require that school students to learn a second language (Eurostat, 2018). Scholars insist that the lack of second language acquisition has negatively affected American students academically and in global society (American Academy of Arts and Sciences, 2017).

Throughout history, students in poverty have underperformed their peers who do not suffer from poverty (ASCD, 2013). Throughout the 1900s, immigration rapidly increased, but the income divide among minorities and White people have increased from .9 standard deviation to 1.25 standard deviation in a couple of decades (ASCD, 2013). Greater than 25% of the Hispanic student population lives below the poverty line (Reardon & Galindo, 2009). Economic and racial inequities have greatly contributed to the education achievement gap that is present in education (ASCD, 2013). The achievement gap is more prevalent in schools where there is a high African American and minority population than in schools where the majority population is White (Bohrnstedt et. al., 2015). While both African Americans and Hispanics have achievement gaps from their White peers, the Black-White gap widens as students progress through school, while the Hispanic-White gap narrow over time (Reardon & Galindo, 2009).

Spanish immersion education programs are alternative methods to educate students starting in kindergarten. Spanish immersion means that English- or Spanish-speaking students are taught the general curriculum in the target language. Spanish immersion is designed to help students develop communication and literacy skills in both languages (Broadway Elementary School, 2020). No prior language experience is needed. Students enrolled in language immersion are more successful on grade-level reading assessments (Steele et al., 2017). Rivas (2014) asserted that learning in an immersion environment is the best way for elementary children to learn a new language; further, students will learn the language effectively if they are required to speak it. If students are required to speak the second language, their fears and inhibitions will lessen. Where there are authentic opportunities for conversation, verbal language will come with practice (Rivas, 2014). Bilingual education dates back to ancient times, and many countries offer some form of the program in their education programs (Cummins, 1979). The difference between bilingual education programs and language courses is bilingual instruction teaches core content and not the concepts of the language itself (Cummins, 1979). Immersion is a form of bilingual education where students are immersed in the target language in order to gain proficiency in both the target language and the native language (Cummins, 1979). For terms of this study bilingual education and immersion programs can be used interchangeably. Cummins (1979) stated that research showed that immersion programs are effective programs of promoting bilingualism. There has not been data that show any long-term negative academic concerns in the students' native language for native English speakers or non-native English speakers (Cummins, 1979).

Conversely, there have been data that show that students excel academically in both languages when they are in immersion programs.

A major reform in education was preparing students to be 21st century learners. The Partnership for 21st Century Skills identified the necessary outcomes to rigorously implement the standards. Dual language immersion was a structure identified because its systems and strategies could help students be better prepared for the 21st century (Heinrichs, 2016). The purpose of the study was to explore the practices used in dual language programs in a California school district at multiple schools at different levels to determine if they could help support the 21st century skills that were being taught. This study was significant because it made it possible to determine if dual language programs had a positive impact on student achievement and prepared successful 21st century learners for postsecondary education (Heinrichs, 2016). The study links key 21st century themes that are critical for students to acquire and core competencies of dual language programs. Within these themes, multilingual communication was one of the competencies that connects dual language programs and its structures with 21st century education. Clear goals and consistent messaging are goals that help with the acquisition of a second language. This qualitative case study answered what systems used in an elementary through secondary dual language program were important in the creation of the 21st century skills (Heinrichs, 2016). It also determined how the systems were used by administrators and teachers in the school to encourage 21st century learning in an immersion program. Three dual language schools, elementary, middle, and high, in the same California district were used in this study. Qualitative methods used included review of school documentation from a variety of sources, interviews, and focus groups

of parents, teachers, principal, and graduates of the program (Heinrichs, 2016). The findings identified major themes that advanced 21st century skills to include structures and goals, leadership, and community development. Dual language was found to be a helpful program that culturally and linguistically prepares students to enhance their 21st century skills (Heinrichs, 2016).

Thomas and Collier (1997, 2002) provided important information on how effective bilingual education is. Thomas and Collier (2004) wanted to show that language immersion programs enhance student outcomes and may help close the achievement gap in the second language. The purpose of their research was to analyze the great variety of “education services provided for linguistically and culturally diverse students in U.S. public schools and the resulting academic achievement of these students” (Thomas & Collier, 2004, p. 4). Mixed method data were used. They collected over 2 million student records and years of qualitative data for interviews with school system stakeholders. From 1982 through 1996, hundreds of thousands of language minority students were examined in school districts throughout the U.S. by Thomas and Collier (1997). The study highlighted two key outcomes. First, quality, long-term enrichment bilingual programs gave language minority students the best opportunity to be successful in reading from kindergarten onward. Second, students do better in full-time immersion programs than transitional and maintenance programs. Bilingual programs lead high student achievement and close the gap better than other programs (Thomas & Collier, 2004). One-way bilingual classes reach grade-level achievement by the seventh or eighth grade; two-way groups surpass their on-grade-level peers by the fifth or sixth grade and score higher than students whose first language is English. Thomas and Collier (2002)

also found that long-term immersion programs help students reach higher achievements in the target language. Spanish immersion students begin to outperform their other language immersion peers over time, up to 7 years. Thomas and Collier's (2002) research determined that the longer Spanish immersion students are in the program, the better the language immersion students perform compared to non-immersion students, causing an achievement gap.

Additionally, data revealed that African American students enrolled in Spanish immersion programs significantly perform better than their non-immersion peers in reading in all tested grades. When they reach the fourth grade, they score better than non-immersion students in the grade ahead (Thomas & Collier, 2012). According to Thomas and Collier's (2012) North Carolina study, when English learners and African American students of poverty participate in Spanish immersion programs, they score high on end-of-grade (EOG) reading tests in all grades compared to their non-immersion peers. The study also showed that students with exceptionalities also benefit from immersion programs.

Uzzell and Ayscue (2021) conducted a study regarding whether language immersion programs helped to integrate schools that, due to race and poverty, were segregated. The purpose of the study was to determine if immersion programs would help to ease the segregation in schools that are not very diverse. This was significant because racial integration was a goal that should have been attained with the passing of *Brown v. Board of Education*. This was a qualitative case study that took place in elementary school. The participants included school staff, classroom observations, and school board meeting minutes. The findings revealed that language immersion could help integrate

school by creating an equitable learning environment for language minority students; it promotes language diversity and cultures and provides an environment where all students can be academically successful.

Lindholm-Leary and Block (2010) conducted a study with Hispanic students from low socioeconomic schools to determine if language immersion programs contributed positively to their academic success. The study was conducted because there was an achievement gap between Hispanic and White students. These gaps contributed to the Hispanic high school drop-out rate and low college admission rates. With the surge of the Hispanic population, this study was significant because it revealed if language immersion programs helped improve the academic progress of Hispanic students in minority segregated or schools in poverty. The purpose of the study was to investigate Hispanic students in immersion programs who were enrolled in majority Hispanic schools or schools that were poverty stricken. Two California studies were used in this study. The California Standards Test of reading and math and the Aprenda, a standard assessment for reading and math, were used to track student achievement. The findings showed that that dual language students outperformed traditional non-immersion students on the fourth- and fifth-grade exams, proving that Hispanic students in dual language immersion programs located in schools of poverty that lack diversity achieve at higher rates in reading and math.

A study conducted by Roberts (2019) showed that language immersion programs had a positive effect on EOG reading proficiency. It was important because English language learners (ELLs) were performing lower than peers in reading proficiency. The effects of immersion programs on third-grade reading proficiency as measured by the

EOG reading test proficiency scores and survey data from English language coordinators were examined (Roberts, 2019). The study compared ELLs in traditional classrooms versus ELLs in immersion programs (Roberts, 2019). A collaborative case study analysis using qualitative and quantitative data was used to determine if there was a difference between reading acquisition of third-grade ELLs in different types of Spanish immersion programs and non-immersion programs as measured by third-grade EOG reading exam scores and what the perceptions were of North Carolina English learner coordinators on strategies for increasing the proficiency of ELLs (Roberts, 2019). The quantitative results of test scores showed that full immersion programs, where students learned the core content in Spanish, had better success increasing third-grade student reading proficiency; and full immersion programs showed the greatest increases when compared to two-way immersion programs, where students learned content in English and Spanish (Roberts, 2019). The qualitative and quantitative results from the English language coordinators contrasted. The results showed that teachers felt that students gained more proficiency in a two-way immersion program rather than a full immersion program and that English learners benefitted more from a traditional education program while simultaneously being served through English as a Second Language remedial programs (Roberts, 2019).

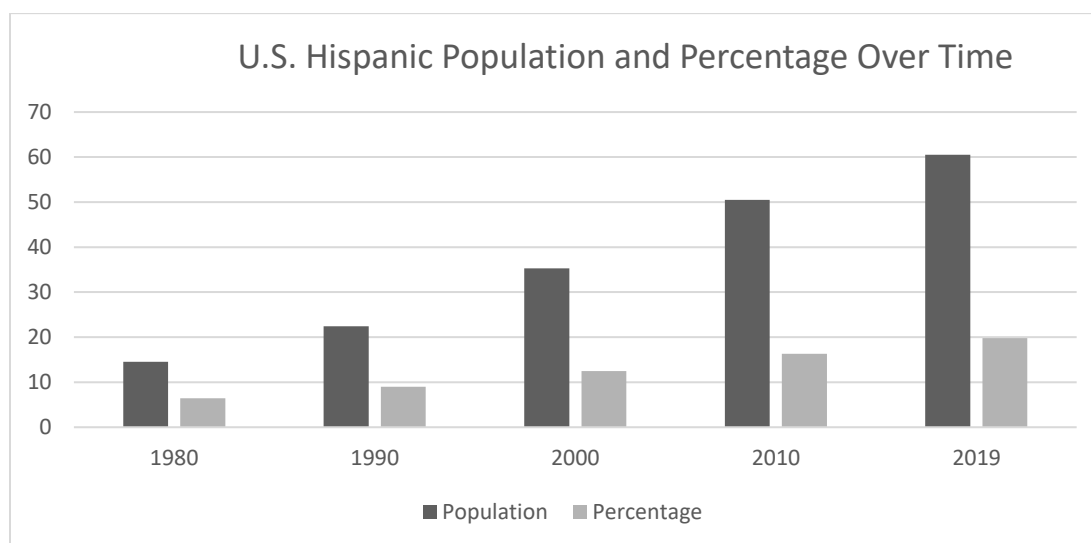
This research study compared the reading achievement of African American and Hispanic Spanish immersion students to the reading achievement of African American and Hispanic non-immersion students in Grades 3, 4, and 5 as measured by the North Carolina EOG tests in reading. This study disclosed how African American and Hispanic students in language immersion programs perform academically over time in reading in comparison to their African American and Hispanic non-immersion peers.

Background of Study

Minority students have underperformed their peers who do not suffer from poverty (ASCD, 2013). The achievement gap among students of color and White students has persisted in schools. Students of color continue to score below their peers. Programs that encourage and motivate students are necessary to help to decrease the disparity of scores between minority students and White students. The Hispanic population has dramatically increased over time. According to the Census Bureau, the Hispanic population was 14.6 million people in 1980 and 60.5 million people in 2019, an increase of 45.9 million people (USA Facts, 2021). Figure 1 shows the rise in the Hispanic population since 1980. Hispanics formed 6% of the population in 1980 and almost 20% of the population in 2019.

Figure 1

U.S. Hispanic Population and Percentage Over Time



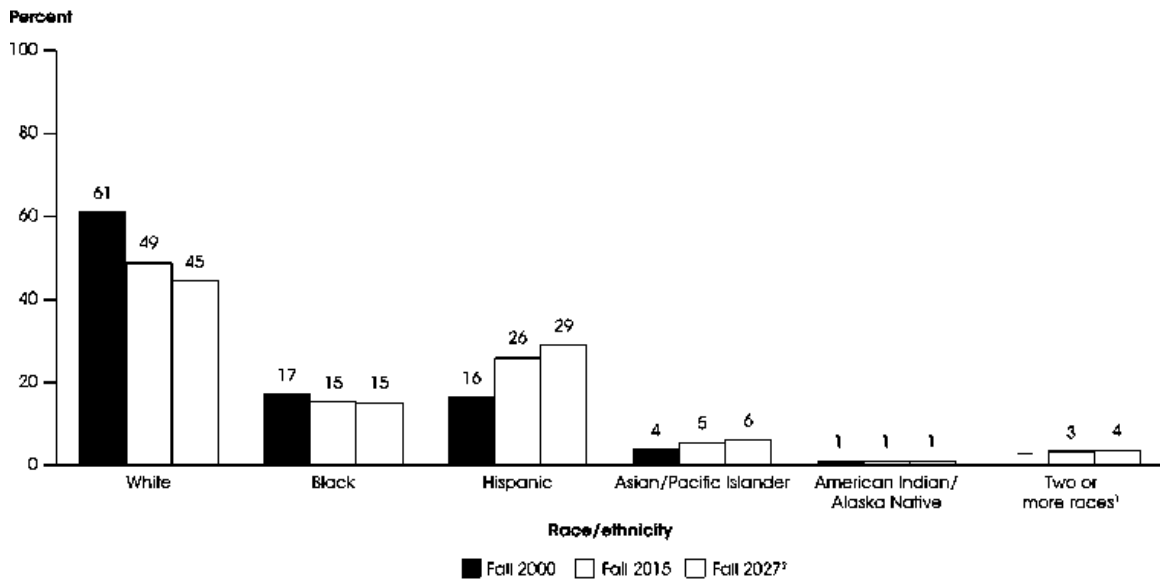
According to Lyons (2020), Spanish is the second highest spoken language in the U.S., with 43 million people who speak Spanish at home. Only Mexico has more Spanish speakers than the U.S., which has more than 50 million Hispanics. Contributions to the

rapid growth include an influx of immigration and high fertility rates (Hobbs & Stoops, 2002; Humes et al., 2011).

Figure 2 highlights the percentage distribution of public school students in Grades PK-12 now and in the future. Between fall 2000 and fall 2015, the percentage of Hispanic students increased in all regions of the U.S., with the largest increase being in the South (National Center for Education Statistics [NCES], 2019). In fall 2020, Hispanic students made up 16% of the school population; in 2027, this figure will be 29%, outnumbering that for African American students and making Hispanic students the second largest student population served. Whereas the percentage of White and African American students enrolled in public school is decreasing, the percentage of Hispanic students continues to rise (NCES, 2019).

Figure 2

Percentage Distribution of Public School Students Enrolled in Prekindergarten Through 12th Grade by Race/Ethnicity: Fall 2000, Fall 2015, and Fall 2027



Note. From “Status and Trends in the Education of Racial and Ethnic Groups” by National Center for Education Statistics (2019; https://nces.ed.gov/programs/raceindicators/indicator_rbb.asp#1).

North Carolina has approximately 262,100 students, nearly 17%, who speak a language other than English at home. A total of 7% of the student population has been identified as being English learners. After English, Spanish is the top language spoken (16.4%) in North Carolina homes (Public Schools of North Carolina, 2020).

Acknowledging the continuously changing demographics in the state of North Carolina approximately 25 years ago, elementary schools were required to create programs to teach foreign languages beginning in kindergarten by the Governor’s office. This initiative, Foreign Language in the Elementary School, began to open in schools throughout the state of North Carolina, paving the way for dual language programs in

schools (Thomas & Collier, 2012).

Statement of the Problem

The U.S. continues to struggle to close the achievement gap among minority students, specifically African American and Hispanic students, and White students. Oftentimes, minority students are also economically disadvantaged, and many of our nation's schools are separated by race and socioeconomic status, which perpetuates the achievement gap (Ladson-Billings, 2006). Schools that are in areas that are less fortunate and have large majorities of students of color, receive fewer resources and receive subpar personnel. These inequities can contribute to the achievement gap that continues to affect the country. In areas of poverty, it is difficult to attract and retain qualified staff; and due to cultural barriers, a lack of community and parental involvement do not create an atmosphere of high expectations and motivation (Ladson-Billings, 2006). Thomas and Collier (2004) believed that Spanish immersion programs can have a positive effect on minority student achievement and could close the achievement gap. August and Shanahan (2006) stated that immersion programs do successfully improve the academic achievement for minority students. Holobow et al. (1987) did a study on working and middle class students and found that the underprivileged students were as successful in the program as their privileged peers.

In North Carolina, there are over 200 language immersion programs available (North Carolina Department of Public Instruction [NCDPI], 2020). Thomas and Collier's (2012) research showed that North Carolina immersion students score statistically significantly higher in reading and math in comparison to their non-immersion peers in elementary and middle school. A dive into the data of recent North Carolina reading

scores showed that African American and Hispanic students do not score as well as their White peers. While 2016-2017 reading EOG data were not separated by subgroups, District X students were 57% proficient compared to the state of North Carolina percentage of 58% (NCDPI, 2020). Table 1 shows the breakdown of the proficiency levels. In North Carolina, 2017-2018 EOG reading scores for African American students were 40%, 44% for Hispanics, and 71% for White students (NCDPI, 2020). Table 2 shows the scores by subgroup.

Table 1

2016-2017 North Carolina and District X EOG Reading Scores

	Level 1	Level 2	Level 3	Level 4	Level 5
District X	21%	22%	14%	35%	9%
North Carolina	22%	21%	12%	35%	11%

Table 2

North Carolina EOG Reading Scores by Subgroup

Subgroup	2017-2018	2018-2019
African American	40%	40%
Hispanic	44%	44%
White	71%	70%

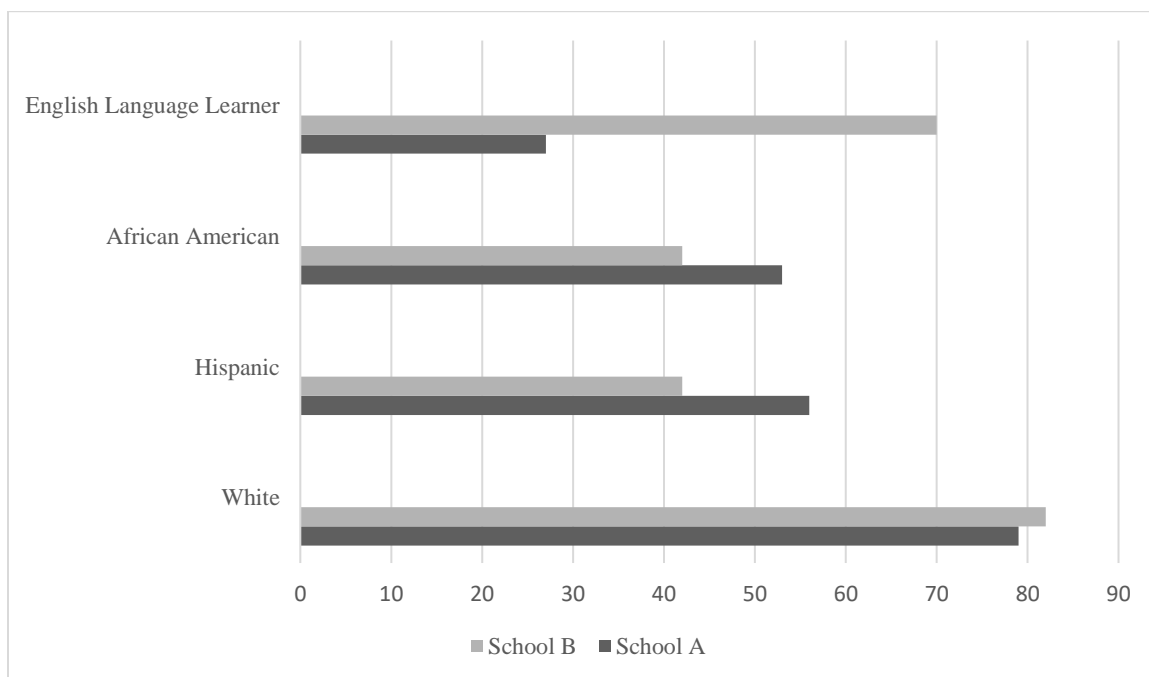
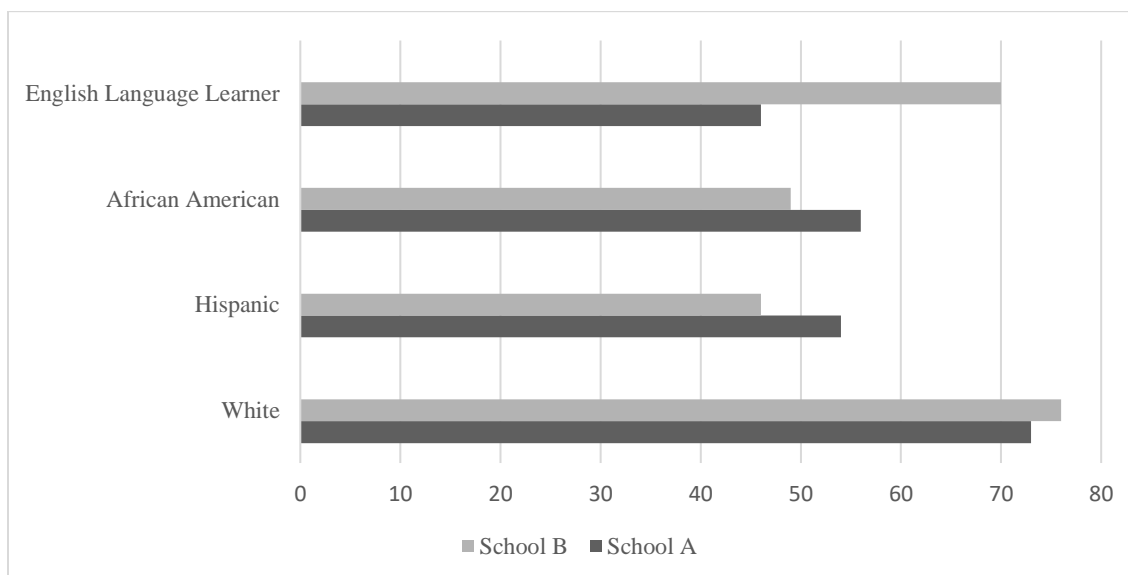
The district of focus in this study had similar scores; the EOG reading scores show that African American and Hispanic students fell behind their White peers on the assessment. EOG reading scores dropped between the 2017-2018 and 2018-2019 school years. In 2018-2019, African American students were 24 percentage points below White students. Table 3 outlines the percentages of each subgroup for the EOG reading tests.

Table 3*District EOG Reading Scores by Subgroup*

Subgroup	2017-2018	2018-2019
African American	46	45
Hispanic	57	55
White	72	69

In District X, the North Carolina district that is highlighted in this study, one of the two language immersion schools, School A, showed that the students for which English is not their first language performed lower on the EOG reading tests. In 2017-2018, ELLs scored 27%, African Americans scored 56%, Hispanics scored 56%, and White students scored 79%. In 2018-2019, School A's ELLs scored 70%, African Americans performed at 56%, Hispanics at 54%, and White students at 73% proficient on the EOG reading test.

On the other hand, in 2017-2018, ELLs in School B scored 70%, African Americans scored 53%, Hispanics scored 56%, and White students scored 79%. In 2018-2019, in reading, School B's ELLs score was 70%, African American students scored 56%, Hispanic students scored 54%, and White students scored the highest at 79%. Figures 3 and 4 show the comparison of the district's two Spanish immersion schools that were in the study for the years 2017-2018 and 2018-2019. The performance data for 2016-2017 were not disaggregated by ethnicity.

Figure 3*2017-2018 Reading EOG School Comparison***Figure 4***2018-2019 Reading EOG School Comparison***Purpose of the Study**

It is apparent from the data displays that in District X, Hispanic students

underperformed in reading compared to African American and White students. Regardless of whether the students have English as a second language or Spanish as a second language, the deficits in reading for minority students are pronounced. NCES projected the number of White students will decrease and the number of African American and Hispanic students will increase in the not-too-distant future (Husser & Bailey, 2020). Political and educational decision makers must be proactive and disallow further decline of children of color's reading scores.

Data exist to substantiate the academic value of language immersion programs in certain schools in this country; however, the question for this research study was how impactful are language immersion classes for students of color in two schools in central North Carolina? To answer this important question, it was reasonable to test whether or not language immersion was helping to mitigate the educational deficiency of minority students in the schools in this study. A comparison of the academic proficiency of students in a language immersion program versus those students in a non-immersion program was not only warranted but proved helpful in eradicating educational deprivation in eastern North Carolina.

In North Carolina, from the third through the eighth grades, students take EOG tests to determine their proficiency in reading. These tests are designed to determine if students are proficient on grade level standards (NCDPI, 2020). This study compared EOG reading results of African American and Hispanic Spanish immersion students in select grades to the results of their non-immersion African American and Hispanic peers taught in traditional English-only classrooms.

Research Questions

The following research questions guided this study:

1. Does a K-5 Spanish-immersion educational continuum for African American and Hispanic students produce a significantly higher level of proficiency in reading versus K-5 students taught in traditional classroom settings?
2. Which ethnic group showed the most significant overall academic gains in 5 years, as evidenced by the North Carolina EOG reading test between 2016 and 2019?
3. Do the data from this study provide support for the continuation of language immersion in District X?

Definition of Terms

Bilingual Education

Bilingual instruction teaches core content in a target language that is not the dominant language (Cummins, 1979).

ELL

The Education Commission of the U.S. (2014) defined ELLs as persons aged 3 to 21 whose native language is not English and are registered or preparing to register in an education program. Their difficulties in the English language cause them to not have access to full American society or prevent them from meeting requirements on state assessments.

EOG

Assessments given in North Carolina in Grades Kindergarten through 8 to determine proficiency in reading or math (NCDPI, 2020).

Spanish Immersion

Immersion is a form of bilingual education where students are immersed in the target language in order to gain proficiency in both the target language and the native language (Cummins, 1979).

L1

A student's primary language (Oller, 2002).

L2

The target language that is not a student's primary language (Oller, 2002).

Longitudinal Quasi Experimental Design

Participants are studied over an extended period of time with matched groups using the same interventions (Drummond & Murphy-Reyes, 2018).

Target Language

The minority language other than one's primary language that is being acquired (Merriam-Webster, n.d.).

Research Design

This was a longitudinal quasi-experimental study. According to Drummond and Murphy-Reyes (2018), longitudinal studies analyze a group of participants over time. This type of study was classified as quasi-experimental because the participants were strategically selected, not randomized (Drummond & Murphy-Reyes, 2018). In longitudinal studies, the independent variable is measured prior to and after the time period. Some advantages to longitudinal studies are that there are no age differences over the period of the study and individual changes can be observed over time (Dunn, 2015). Each of the matched pairs was observed using the same intervention, the EOG reading

exam, over a 3-year period. Since the groups were not randomized, there could have been threats to the internal and external validity, therefore controls had to be incorporated into the study (Drummond & Murphy-Reyes, 2018). A multi-level matching procedure was used to match students from a Spanish immersion elementary school with a control group beginning in third grade. In order to select the pairs, I first measured the variables to select similar pairs of immersion and non-immersion students (Hanover.edu, n.d.). This type of study was chosen because longitudinal data measure students over time and provide more stable data. EOG test data from third-, fourth-, and fifth-grade Spanish immersion students were analyzed and compared with their peers in non-immersion English-only classes in the same grades. Data from 2016–2017, 2017–2018, and 2018–2019 were used in this study.

Assumptions

It was assumed that Hispanic students performed better in language immersion programs because the content was presented in Spanish, and therefore, their comprehension was better. It was also assumed that students enrolled in Spanish immersion would have higher proficiency than their traditional peers because of parental involvement and higher motivation to excel due to participating in the language immersion program. Parents of Spanish immersion students would have to seek out and apply for the program and provide transportation, whereas traditional non-immersion parents would not have to do such extra work. Another assumption would be that Hispanic students would have a higher proficiency when compared to African American students because Hispanic students will have alternate opportunities outside of the classroom to interact with the language, whether it be at home or in the community.

Limitations and Delimitations

The language immersion program examined in this longitudinal study was a choice program: The district did not require it, and therefore, self-selection may have influenced student outcomes. With this knowledge, when comparing traditional and immersion students, if the latter performed better than the former in other programs, it would have been difficult to determine whether this was due to the effects of the program itself or due to differences between the students and their families who chose to apply for the language immersion program.

Another limitation between the groups was the differences in socioeconomic status. There was a chance that there would be a large difference between students whose first language was Spanish and students whose first language was English enrolled in the program.

Although Spanish immersion was one of the several choice programs offered in this district and families from across the district could apply to participate in it, there was a selection process and not all applicants were enrolled. Additionally, many students were not able to participate in the Spanish immersion program because their families did not live near the two language immersion schools. Bus transportation was not provided to Spanish immersion students who did not live in the school district, so their families had to provide transportation. This was a barrier for some families. For this reason, not all students who were eligible to participate were able to do so. Due to the fact that there was a small number of students who were enrolled in immersion and qualified to participate, the study had a small number of students who were analyzed. With such a small test group, the significance of some of the areas would be skewed. If more students

participated, the statistical significance would be skewed. Students who started Spanish immersion in kindergarten were included in the current study. Students who started the program after kindergarten were excluded. The study confined itself to one school district in North Carolina. The program may not have represented all Spanish language immersion programs operating in this country.

Summary of Chapter

Countries that implement second language programs have better success academically than the U.S. The data show that over the past 5 years, minority students scored lower than their White peers. This trend holds true in the country, the state of North Carolina, and District X, the suburban school district being studied in this research. The purpose of this study was to determine if the district is warranted to continue offering immersion programs as a means to improve the academic achievement of minority students. This study further sought to explore whether evidential data supported expansion and continuation of language immersion programs in District X.

Chapter 1 of this study provided an overview of Spanish immersion programs and the positive effects they can have on improving student proficiency. It also highlighted the achievement gaps between students of color, specifically African Americans, Hispanics, and ELLs in the U.S. and North Carolina. Chapter 2 reviews the current research that exists regarding language immersion programs in the U.S. and North Carolina to include history, the types of language immersion programs, assessments, and an overview of successful Spanish immersion programs in the U.S. A detailed description of the methodology that was used to conduct this study is provided in Chapter 3. Chapter 4 presents the quantitative findings, and Chapter 5 provides an analysis of the findings, a

summary of the study, and future implications.

Chapter 2: Literature Review

Problem of Practice

As mentioned in Chapter 1, the U.S. ranks lower than some European countries in education. Many require second language acquisition for their students. The lack of second language acquisition has negatively affected American students academically and in global society (American Academy of Arts and Sciences, 2017). The data show that students of color continue to score lower on EOG reading tests when compared to their White counterparts. Economic and racial inequities have contributed to the education achievement gap that is current in modern day education (ASCD, 2013). The achievement gap is more prevalent in schools where there is a high African American and minority population than in schools where the majority population is White (Bohrnstedt et al., 2015). This study sought to determine how impactful Spanish immersion programs are for improving the reading skills of African American students and Hispanic students, as evidenced by EOG exams in the third, fourth, and fifth grades. Additionally, this study was conducted to determine whether Spanish immersion programs were viable options to continue in District X.

Purpose of the Study

The educational systems in the U.S. are responsible for educating all school-age children, whose proficiency in English may vary widely. Additionally, native English speakers are seeking to become more globally competitive by acquiring a second language in school. The number of Spanish immersion programs continues to increase, fulfilling the desire of many students to become bilingual. The basis for conducting this study on Spanish language immersion programs was to investigate the effects of these

programs on reading achievement of subgroups, specifically students of color—African Americans and Hispanics—in North Carolina in Grades 3, 4, and 5. Spanish immersion education programs are alternative methods for educating students starting in kindergarten. Research has shown that students who enroll in Spanish immersion perform better on grade-level reading assessments (Steele et al., 2017). This study sought to defend or argue against the above conclusion as it applied to students in a specific school system in North Carolina.

Significance of Study

This study was critical because it helped to determine if school systems, especially the North Carolina school system being examined, should continue to promote Spanish language immersion programs as an option for improving and accelerating minority students' reading progress. It provided more data for use in Spanish immersion research in the U.S. and served as an example of comparative research in the language immersion education field. This study is also significant because it studied the relationship of language immersion programs and minority students. There is a lack of research on how students of color perform when enrolled in Spanish immersion programs. This study will help to discover ways African American and Hispanic students interact with learning and could help to close the achievement gap.

Chapter 2 presents key research on language immersion as well as a review of related literature. This chapter introduces the history of language immersion in the U.S. and provides an overview of four periods (permissive, restrictive, opportunistic, and dismissive) in history and how they influenced second language acquisition. Next, the chapter examines the literature on the types of immersion programs, literacy instruction,

and Spanish language acquisition and presents a historical perspective on the success of language immersion programs.

History of Spanish Language Immersion

The historical framework of the U.S. must be considered in order to understand the origin of language immersion in the U.S. Baker (2006) stated that immigration and political movements should be connected to the history of the U.S. Examples of these movements are civil rights and equality of educational opportunities. Language ideology has shifted with the historical events of this country. Paulston (1992) observed that in order to understand the consequences of bilingual education, there has to be knowledge of the socio-historical, cultural, and economic-political factors that influenced bilingual education. The permissive, restrictive, opportunist, and dismissive periods make up the history of immersion education in the U.S.

Permissive Period: 1700s–1800s

During the 18th and 19th centuries, linguistic tolerance and linguistic diversity were accepted and encouraged through religion, newspapers, and schools (Baker, 2006). This was called the permissive period because the government allowed public and private schools to be created by public voter approval, and total parent approval was emphasized (History Free Essays, 2019). During this period, states required parents to educate their children about religion and the laws of the commonwealth (History Free Essays, 2019). There was a variety of immigrants who did not speak English, primarily from European countries, and bilingual schools began to be opened with a goal of assimilating immigrant populations rather than achieving bilingualism (History Free Essays, 2019). According to Ovando (2003), although official documents were translated and published official

documents in minority languages in some states, the U.S. Congress consistently refused to do so. Language diversity was shaped by changing localized political, social, and economic forces rather than systematic ideas about language itself. There was some bilingual education in schools, and some states passed laws authorizing bilingual education (Vega, 2014). Allowing immigrants to attend public schools was permitted because it was believed that diverse populations could find common ground as well as learn to respect each other and cooperate, forming an American culture (Kober & Renter, 2020). It was also believed that immigrant groups could keep their cultural identity while living a normal day-to-day life. Although it was permissive, bilingualism was not promoted. The goal was linguistic assimilation without coercion (Ovando, 2003).

Restrictive Period: 1880s–1960s

During the restrictive period, the government repressed immigrants due to the fear of competition (History Free Essays, 2019). In the 1800s, there was a wage shortage on the West Coast believed to be due to Chinese immigration following the Opium War and crop failure of 1852 in China (History.com Staff, 2021). In the 1852 court case of *People v. Hall*, Chinese immigrants, like other minority groups in the U.S., were not permitted to testify in court to seek justice for the discrimination they faced at work and in their camps (History.com Staff, 2021). A Chinese worker witnessed a murder by a White man and was unable to testify because they were considered to be inferior and had no right to testify against Americans (Immigration and Ethnic History Society, 2019). In 1882, federal legislation called the Chinese Exclusion Act was passed, which suspended Chinese immigration for 10 years and made Chinese people ineligible for naturalization (History.com Staff, 2021). The Geary Act of 1892 further enforced and extended the

Exclusion Act for an additional 10 years and required Chinese immigrants to carry papers, certificates of residence, which were special documentation from the Internal Revenue Service, or be sentenced to hard labor unless vouched for by a “credible White” person (History.com Staff, 2021). In 1902, Chinese immigration became illegal and remained illegal until 1942, when Chinese immigrants and their families were able to receive citizenship (History.com Editors, 2020). The Chinese Exclusion Act spurred similar immigration policies against other immigrant groups. For example, the Immigration Act of 1924 allowed immigrants who were college-educated and/or had special skills to enter the U.S., while denying entry to Mexicans, Middle Easterners, Hindus, and disproportionately to Eastern and Southern Europeans and the Japanese (History.com Editors, 2020).

The rights of Native Americans were also limited by policies restricting them to their reservations. The Indian Removal Act of 1830 forced Native Americans to give up their land in the west and move towards Mississippi, as the White population grew and settled in the west (Little, 2018). By the 1880s, the goal of the Bureau of Indian Affairs was to anglicize Native Americans; Native American students were sent to boarding schools like the Carlisle Indian School, where they were forced to assimilate. Many were killed or died of diseases and were buried in mass graves (Little, 2018). “Kill the Indian, save the man” exemplified the ideals that characterized this period (Little, 2018). While these policies failed in erasing the children’s native languages, the policies set up an English-only system for generations to come due to the sense of shame that was created (Nieto, 2009). The government attempted to build a national identity rather than allow separate sectors of foreign ideologies; therefore, the Naturalization Act of 1906 was

introduced. Signed by President Theodore Roosevelt, the act required all immigrants to speak English to be eligible to start their process of naturalization. The act created the Bureau of Immigration and Naturalization, and its objective was to create a stronger federal government by providing uniform immigration policies and forms throughout the U.S. (Omeka, 2021).

Submersion, the sink or swim method, was widely used to educate language-minority students in the U.S. It was believed that language-minority students were responsible for making adjustments necessary to assimilate into American society. The adjustments consisted of linguistic, cultural, and cognitive changes. During the beginning of the 20th century, the homogeneity initiative became a pattern (Ovando, 2003). Thirty-four states were dictating instruction completely in English in all primary schools in the 1920s. Although the primary focus during that time was monolingualism, the 1923 Supreme Court case *Meyer v. Nebraska* (Skelton, n.d.) declared that Nebraska's 1919 local prohibition against teaching foreign languages in elementary schools was unconstitutional based on the Fourteenth Amendment (Baker, 2006), which states that all people born in or naturalized in the U.S. were citizens and guaranteed all equal protection of the laws (History.com Editors, 2021).

In 1919, Nebraska passed an act regarding teaching foreign languages in any school. In summary, the act stated that no language other than English can be taught to students in schools until they pass the eighth grade (Skelton, n.d.). The act also stated that anyone who violated the act would be charged and face a penalty (Skelton, n.d.). One teacher at a parochial school taught a student English language content in German and was subsequently charged and convicted.

The Nebraska Supreme Court upheld the decision and ruled that the act did not violate the 14th Amendment (Skelton, n.d.). In its comments, the Nebraska Supreme Court wrote that allowing foreigners to speak and teach their children in their native tongue impeded upon the safety of the land. It was not until these children became indoctrinated into the English language and culture that they could be taught another language. The primary language had to be English.

The Supreme Court reversed the conviction and upheld the constitutional right of the individual to contract, work, and follow other rights and common law privileges of citizens and obtain the pursuit of happiness by men (Skelton, n.d.). Individuals could live as their conscience sees fit (LexisNexis, 2021). The court stated that knowledge of other languages is not harmful to society and that certain languages were not included in the act (Skelton, n.d.). The Constitution pertained to everyone, regardless of what languages they spoke. The court commented that speech and language could not be forced but ideals that go against the Constitution (Skelton, n.d.). The actions of the state exceeded the limitations given to the states and interfered with the rights of the teacher. The court further explained that knowing another language has caused no emergency that would justify the prohibition of their rights. The explanation stated that learning another language is not harmful to the health, morals, or thinking of a person (Skelton, n.d.).

Opportunist Period: 1960s–1980s

Significant historical wars including World War II and the Cold War marked the beginning of the movement to address the inadequacies in foreign-language instruction (Ovando, 2003). When Sputnik was launched by the Soviets, there was speculation over the quality of education in the U.S. and whether it could compete internationally.

Language, math, and science became the priorities in education and led to the National Defense Education Act of 1958. Its goal was to increase foreign language instruction in schools (Ovando, 2003); however, the funds were ultimately used to teach native English speakers foreign languages instead of using the language resources of immigrants who already spoke other languages (Ovando, 2003). English-only education for immigrants was still practiced (Ovando, 2003), and funding was provided to ensure that employees were trained with quality and quantity to meet the national defense needs of the U. S. (History, Art & Archives, U.S. House of Representatives, 2021).

School segregation for minorities, such as African Americans in the South and Hispanics in Texas and California, became prevalent and was characterized by the use of English-only methods to accelerate assimilation into American culture (Encyclopedia Britannica, 2021). These groups had poor resources and unsafe conditions because they did not receive the same funding as White students (Encyclopedia Britannica, 2021). The Civil Rights Act of 1964 was created to stop race, religious, and national origin discrimination and pushed for educational equality and racial desegregation.

When the 1965 Immigration and Nationality Act, also known as the Hart-Celler Act, was implemented, there was an influx of Asian and Latin immigrants (History.com Editors, 2019). The act was named for the principal senators and representatives who backed the act. President Lyndon Johnson signed this act into place on October 3, 1965 to repeal the 1924 Johnson-Reed Act which enacted national origin quotas previously limiting the admission of immigrants from Asian and African countries (Kammer, 2015). The quotas were replaced with categories that provided preferences based on criteria like relatives of U.S. citizens, skills, or refugees (Chishti et al., 2015). Meanwhile, per-

country caps were established to maintain population control (History.com Editors, 2019). The Hart-Cellar Act has had the largest effect on immigration in the U.S., both positively and negatively (Skelton, n.d.). Between 1965 and 2000, 4.3 million immigrants from Mexico entered the U.S., making bilingual education a necessity (History.com Editors, 2019); however, these immigrants were not provided adequate opportunities for education and in being denied a meaningful education, they had been denied opportunities for advancement. To address this issue, Congress passed the Bilingual Education Act of 1968, which allowed immigrants to gain full access to American society and upward mobility. Through this act, funding was provided to initiate immersion programs for students in poverty who were English language minorities. The Bilingual Education Act recognized linguistic minority rights in the country's history, and it allowed English language minorities the opportunity to acclimate into the society and receive a successful education (Nieto, 2009). For that reason, it has been considered the most important law for bilingual minorities. By being denied a meaningful education, non-English speakers had been denied opportunities for advancement. Although school districts were not required to offer bilingual education based on this law, they had to find new approaches targeted at low-income and non-English-speaking students (Encyclopedia Britannica, 2021).

The 1974 Supreme Court case *Lau v. Nichols* played a major role in the development of immersion programs in the country (Sugarman & Widess, 1974). This was a class action suit representing 1,800 students who alleged they could not make academic achievements because they did not understand the instruction of their English-speaking teachers. In 1971, the California school district was integrated and gained 2,800

Chinese students who did not speak English (Sugarman & Widess, 1974). The students were in English-only classes and only a portion of the students received resources to help with the language barrier. Lau subsequently filed suit against the district regarding the violation of the 14th Amendment. They argued that programs receiving federal funding had to provide resources so as not to discriminate against specific groups (Sugarman & Widess, 1974). The district and appellate court ruled in favor of the district because the lack of English proficiency was not caused by the district (Sugarman & Widess, 1974). The Supreme Court overturned the decision and decided in favor of the students based on the Civil Rights Act of 1964 (Sugarman & Widess, 1974). Placing non-English-speaking students in a learning environment that is not designed to educate them was a violation of their civil rights (Sugarman & Widess, 1974). The public education system was not permitted “to turn a remediable educational ‘handicap’ based upon race and national origin into a permanent disability” (Sugarman & Widess, 1974, p. 27); therefore, in 1974, the Equal Educational Opportunities Act was passed. This act required that Congress mandate all school districts to implement actions to overcome language barriers. These barriers impeded students from accessing equal participation in schools without regard to race, color, sex, or national origin (Nieto, 2009). Deliberate segregation or discrimination was deemed unlawful, and individuals denied an equal educational opportunity were allowed to take civil actions against school districts (H.R. 40, 1974). The act further outlined that the neighborhood a child lived in determined which public school they would attend (H.R. 40, 1974); regarding funding, it provided financial assistance to educationally deprived schools with high percentages of low-income families.

Dismissive Period: 1980s–2050

Despite the spread of bilingual education throughout the U.S., negative feelings toward it regained strength during the dismissive period (Preceden, 2021). A major campaign against bilingual education and in favor of a “back to basics” education led by the Reagan administration was led in the 1980s. The administration blamed non-English-speaking communities for fragmenting states and regions and creating hostility among them (Crawford, 1989). In the 1990s, anti-dual language education pressure groups dedicated to preserving the unifying role of the English language in the country (U.S. English, 2020) began to appear and become active (Baker, 2006). In 1994 and 1998, Propositions 187 and 227 respectively were approved in California in opposition to bilingual education. Proposition 187 denied undocumented immigrants the use of public services, including K-12 and university public education (Kinney, 2018). Additionally, workers in public service positions were required to notify authorities of suspected undocumented immigrants (Kinney, 2018). Proposition 227, also known as “English for the Children” or the “The Unz Initiative,” ended 30 years of bilingual education, mandating that students be taught primarily in English (Kinney, 2018). Bilingual programs were dismantled and replaced with Structured English Immersion, a 1-year, intensive English program (Ebrary, 2014). Spearheaded by Silicon Valley millionaire and former gubernatorial candidate Ron Unz, similar propositions in Arizona, Proposition 203, and Massachusetts, Massachusetts Ballot Question 2, in 2000 and 2002 respectively were established (Jimenez-Silva et al., 2016). All the initiatives contained three key elements: a 1-year programmatic time limit, Structured English Immersion, and a waiver process to be exempt from participating in the program (Jimenez-Silva et al., 2016). The

effort to end bilingual education continued with the No Child Left Behind Act in 2002, in which all wording about bilingual instruction was eliminated (Nieto, 2009). Because of its focal point on English, No Child Left Behind required schools to teach ELLs English and move them into regular education classes taught only in English as soon as possible.

According to Preceden (2021), the Latino population is expected to make up 25% of the total U.S. population by 2050. Latinos have already surpassed African Americans as the country's largest minority. The historical perspective regarding bilingual education in the country shows there is much controversy regarding best practices for providing an educational basis that supports minority students of color. The permissive, restrictive, opportunist, and dismissive periods have provided a road map of the education of minorities in the country. Gaps in achievement for minority students remain evident, but along with the sorted history of language instruction, an environment for language immersion still exists and could help to close some of the gaps students of color face instructionally.

Spanish Immersion in North Carolina

North Carolina has a large Latino population. North Carolina has approximately 260,000 students. Nearly 17% of students speak a language other than English at home (Preceden, 2021). A total of 7% of the student population has been identified as English learners. After English, Spanish, at 16%, is the top language spoken in the home. There are 167 Spanish immersion programs in the state of North Carolina spread over 47 districts, with 133 elementary schools having an immersion program (Public Schools of North Carolina, 2020).

The first two-way Spanish immersion program in North Carolina began in 1997 at

Collinswood Elementary School in Charlotte and became a model program for the state. The U.S. Department of Education provided grant funds, the Foreign Language Assistance Program grant, to states to start more language immersion programs. States developed clear guidelines and implementation criteria for the programs. The state used this grant to create bilingual summer institutes to provide professional development for administrators and teachers (Thomas & Collier, 2012). At the summer institutes, it was decided that programs developed for English speakers would be called immersion. The following non-negotiables laid the foundation for language acquisition programs: “a K-12 commitment, separation of the two languages for instruction, and a minimum of 50% of instruction in the non-English language” (Thomas & Collier, 2012, p. 67).

Types of Spanish Immersion Programs

Bilingual programs in public schools are a mechanism to help reduce long-standing Latino-White achievement gaps (NCES, 2011). Immersion programs provide exposure and opportunities for students to learn in the foreign or target language the majority of the day, depending on the type of program (Rhodes, 2010): full immersion, partial immersion, dual immersion, or double immersion. Full immersion programs are for a specific group of students, native English speakers or native Spanish speakers. The students learn 100% of the curriculum in the target language in kindergarten and the first grade and 80% of the curriculum in the second grade with the addition of language arts. The percentage of instruction drops gradually to about 50% in the fifth grade (Brondum & Stenson, 1998). The percentage drops by 10% each year until sixth grade (Trevino, 2014). While in school, students learn to speak, listen, and read in Spanish first, then parents work and speak with them in English at home.

Dual immersion programs integrate native English-speaking and native Spanish-speaking students while promoting first and second language proficiency and high academic performance. Cultural competence and positive intergroup relations are also goals of these programs. In dual-language immersion programs, students are taught in both languages throughout the day (Center for Applied Linguistics, 1998). For example, English-speaking and Spanish-speaking students are put in the same class, and the instruction is split 50/50 into English and Spanish. This is not a bilingual program; students do not become as proficient in the target language due to having less time devoted to it (Center for Applied Linguistics, 1998).

Partial immersion programs vary among 70/30, 60/40, or 50/50 splits in English and Spanish instruction constantly between kindergarten and Grade 5. Most partial immersion students are native English speakers (Brondum & Stenson, 1998), and each school selects the percentage and the subjects taught. Conversely, double immersion is a full immersion program where instruction is provided in two non-native languages. Students begin one language in kindergarten and another in the second or third grade. They can also take a third language in kindergarten while enrolled in a language immersion program (Trevino, 2014). According to Alvear (2015), double immersion programs maintain a clear goal of developing full bilingualism with sizeable English and Spanish instruction throughout elementary school.

Literacy and Spanish Immersion

In the U.S., many elementary Spanish immersion students learn to read in Spanish before learning to read in English. There are three stages of literacy development in Spanish or English: emergent, beginning, and instructional. During the emergent stage,

which generally occurs in prekindergarten and kindergarten, students begin exploring the world of print but are not able to match speech to print. It is at the end of this stage that they learn to understand that letters are representative of sounds they hear in words (Ford & Palacios, 2015). The primary skill acquired in this stage is concept of word (COW) in text, which is observed in student attempts to finger-point read a familiar text (Bear et al., 2012). Students with a COW can read sight words and phonics. COW can be taught and assessed by language experience and guided reading activities like choral, support, and partner reading (Bear et al., 2012).

Following the emergent stage is the beginning stage, which typically occurs in the first and second grades. In this stage, children have a strong grasp of the alphabet and can sound out words. They read aloud, and their spelling is very basic (Ford & Palacios, 2015). They are also word-by-word readers and read in a monotone, staccato, disfluent way. In addition, they read single-syllable words and learn their vowel and consonant sounds. Articulation is a key part of this stage, the way it feels in their mouths as words are pronounced, and aids in learning phonics (Bear et al., 2012). This stage can be assessed by having students verbally pronounce words as they interact with them. It is also important to teach students to consider dialects and understand how different cultures pronounce sounds.

The final stage is the transitional stage wherein children can read independently and silently. Reading sounds like language, and they can comprehend new information and vocabulary. They begin to learn spelling patterns and combining letters to form sounds (Ford & Palacios, 2015). Finger-pointing is reduced, and the students become familiar with long vowel sounds and are able to spell words by sound and pattern (Bear et

al., 2012). Assessing this stage involves measuring the complexity of the text, comprehension, changes in intonation, and speed. Transitional students are usually in the second or third grade, around 7 or 8 years old; however, some readers stay in this stage longer or never leave it, namely ELLs or those in high-poverty schools (Bear et al., 2012).

Spanish and English are both alphabetic languages, and learning to read is very similar in both languages; they develop the alphabet, phonological awareness, and print knowledge as a foundation (Ford & Palacios, 2015). Then they apply the foundational skills as they begin to decode text and learn sight words and become more fluent in reading. Lastly, once they have mastered decoding, they begin to read more complex texts for comprehension. The differences in the two languages occur during decoding because English sound-symbol connections are not always predictable, while Spanish sounds remain constant in all words. Therefore, by the end of the first grade, children can read Spanish text with high levels of accuracy. Although students can read at a high rate, this does not equate to high reading comprehension rates automatically (Ford & Palacios, 2015). Early literacy instruction in Spanish can give children a head start on learning to read in English, which puts them on track to biliteracy and performing better than non-immersion students on assessments because of the head start (Ford & Palacios, 2015).

Krashen and Terrell (1983) postulated a theory of second language acquisition that consists of four main principles: comprehension, production, communicating goals for each classroom organized by topic, and classroom activities. First, comprehension inclusive of listening or reading comes before production, speaking, or writing. What is being said is emphasized rather than the form of the message (Krashen & Terrell, 1983).

When used to transmit a message and not for conscious learning, language is taught best (Krashen & Terrell, 1983). For this purpose, methods like visual aids can be used to facilitate communication. Vocabulary is important; therefore, grammar instruction, which limits vocabulary, is not the focus. Instead, feedback is focused on comprehension (Krashen & Terrell, 1983). Second, children begin to produce sounds in small stages beginning with non-verbal one-word responses and transition into complex conversation. One of the most effective ways to teach speaking is to focus on listening, as spoken fluency will occur on its own (Krashen & Terrell, 1983). Grammar should be taught to make learners optimal monitor-users, people who can use grammar as a supplement when grammar use is appropriate. Next, the focus of Krashen and Terrell's theory is communicating targets for each classroom. These targets are organized by topic, not grammar and sentence structure. The last principle targets classroom activities and prioritizes lowering the affective filter, including variables like motivation, self-confidence, anxiety, and other personality traits that affect the success of language acquisition of students via meaningful relationships with their teacher and classmates (Schütz, 1998). The more comfortable students are when they share how they feel, the higher the likelihood of success in language acquisition (Drozdowicz, 2012).

Three stages of learning to read were identified by Oller (2002). In Stage 1, students realize how to use books and that they contain words expressing ideas. In Stage 2, students recognize the words and determine the connection between alphabetic symbols and sounds. In Stage 3, students understand meaning and are capable of learning from reading. Immersion students learn to read in the target language (L2) and then transfer the knowledge to the primary language (L1; Oller, 2002). The central procession

framework indicates that when cognitive and linguistic component skills combine to facilitate the development of literacy skills, those skills can be transferred between L1 and L2 or vice versa (Geva, 2006). Word- and text-based processing skills may be measured in L1 and L2 to predict the development of literacy skills in both languages. According to Geva (2006), some word-based reading skills that students must learn in L1 and transfer to L2 are decoding, spelling, word recognition, and phonological awareness. Similarly, students must also learn some word-based reading skills in English to successfully learn reading comprehension skills in Spanish. Geva also explained that student performance in phonological awareness and rapid naming skills are predictors of their development of word-based reading skills. Once students have acquired these skills, Geva argued that students must have exposure to the language to learn it. Genealogy is not enough to speak a language; students need to be immersed in it. They must hear the language to learn it. To ensure the success of language immersion programs, policies must be formulated and implemented that require assessment of student language acquisition by state and local education agencies.

The immersion language model should incorporate a balanced curriculum focused on language and content to serve all students attending the program, including English speakers and Spanish speakers (Salgado, 2016). It is imperative to differentiate instruction with consideration given to the characteristics of the students served (Salgado, 2016). Furthermore, relationships are critical because teachers must meet students where they are, engage them, and challenge them to make learning relevant and meaningful (Salgado, 2016). The continuity of the program must also be a priority because language learning is based on practice and frequency of use.

Alvear (2015) conducted a study of the four major language acquisition programs and reading achievements of elementary programs. The purpose of this study was to examine reading achievement on language assessments and determine whether a specific form of immersion produces more academic success for immersion students. A longitudinal dataset from an urban school district in Texas was used, and multi-level models were employed to examine reading outcomes of elementary students. The results showed that the two-way (dual) approach wherein students received core content split between English and Spanish (50/50) had the best achievement scores. It was closely followed by the transitional method, in which instruction was provided in both languages, thus making students more proficient in the desired target language (Alvear, 2015). Overall, the study showed that the most prevalent language acquisition approaches in the country—transitional bilingual, one- and two-way dual language programs, and English immersion—not only contribute to ELL student achievement trends but also belong to a broader sociological process of acculturation among Latino youth. They not only help students make academic achievements but also create an environment of assimilation, where students lose their culture to adapt to the dominant culture (Alvear, 2015).

August and Shanahan (2006) described “concerns about the increasing numbers of ELLs in U.S. schools and the documented academic underperformance of these students” (p. 432). August and Shanahan’s literature review showed that well-implemented immersion programs are an effective way of promoting dual-language proficiency. Doherty and Hilberg (2008) outlined five standards of pedagogy that are effective for diverse populations of students: teachers and students creating together, reading and creating language across the curriculum, forging meaningful connections by

linking subjects to student interests, teaching complex thinking, and teaching through instructional conversation. Assessments must address individual strengths and weaknesses of Spanish immersion students. Cloud et al. (2000) provided instructional strategies to aid students in achieving bilingual proficiency. Based on his review of the literature on language immersion, Cummins (1979) found significant positive relationships between academic skill development in first and second languages because of the interdependence hypothesis, which states that instruction in one language will transfer to the other as long as exposure and motivation exist.

Successful Spanish Immersion Programs

Johnson and Swain (1997) suggested eight core features of immersion programs:

1. The second language is a medium of instruction, thus all instruction is provided in Spanish. This feature is what differentiates immersion programs from other forms of bilingual instruction, where the second language is taught formally and as a subject.
2. Immersion curriculum parallels the local first language curriculum, thus Spanish immersion students learn the same content as non-immersion students; however, the strategies used to teach the content should be different until the students are bilingual and are able to study in the target language as well as they can in their native language.
3. Overt support exists for the first language. At some point during immersion programs, the native language is taught as a subject or medium of instruction.
4. The program aims for additive bilingualism wherein students “add” second language proficiency while continuing to develop their first language; the goal

is to develop the abilities of students to communicate in both languages, not for students to lose their proficiency in their native language.

5. Student exposure to the second language is largely confined to the classroom. Typical immersion programs learn the target language in the classroom, while other bilingual programs learn the language inside and outside of the classroom. When outside language instruction is incorporated, students became proficient more quickly, in about half the time as traditional immersion students.
6. Students enter with similar levels of L2 proficiency.
7. The teachers are dual language proficient.
8. The culture of the classroom is that of the L1 community. The culture matches that of the native language and not the target language.

All eight of these features must be present for a program to be classified as immersion.

Johnson and Swain (1997) also identified other features that are used to distinguish language immersion programs. The features include the level the immersion program begins, the amount of time spent during the school day in the immersive environment, the ratio of exposure to the target and native languages, and continuity across levels. Other features include student support at the initial stages of immersion, resources, commitment from all stakeholders, attitudes toward the culture of the target language, status of the target language in the immersion program, and how success will be measured.

Spanish immersion programs date back to 1971. The first Spanish immersion program in the U.S. was conducted in California. Since the program's implementation in

1971, there was dissension and debate about whether students should learn content in their native tongue or the target language. The purpose of the 1971 study was to determine if Spanish language immersion students suffered a deficit in English oral and reading skills when learning in the target language and how students, teachers, and parents felt about the program. The significance of this study was that the Culver City Spanish Immersion program was the first in the country, and this research would determine its effectiveness and begin the body of research for language immersion programs (Cohen, 1974). The original pilot group, which comprised students in the second grade at the time of the study, was evaluated. There were 12 students from the original pilot group and nine native Spanish speakers. Qualitative data included student and teacher interviews and a parent questionnaire, while quantitative data were collected and analyzed from a math and reading assessment and a bilingual syntax assessment. The data analysis showed that students were not suffering a deficit in English oral and reading skills. Students were progressing satisfactorily in Spanish oral and reading skills and achieving at grade level in mathematics. In addition, they were developing positive attitudes toward the Spanish language and culture and language learning in general. Immersion teachers and parents strongly supported the program and advocated for its continuation (Cohen, 1974).

August and Hakuta (1997) conducted research because ELLs were part of the public education system, and there was ongoing debate on how to best educate these students. The purpose of their research was to review and summarize the state of knowledge ELLs received. Individual, social, and instructional factors affecting student learning were examined. The study was divided into themes, and the data from each area

were analyzed. Several themes were identified in this study to include second-language learning, how students learn to read and content learning, how social aspects affect school learning, testing, program evaluation, and studies of school and classroom efficacy. The study highlighted the importance of having literacy components integrated into a language immersion program. They also highlighted that oral proficiency is a critical aspect of programming. Other portions of their study noted that individual differences should be highlighted throughout a Spanish immersion program.

Rossel and Baker (1996, as cited in Greene, 1998) conducted a review of the literature on the success of dual language education. The results supported Proposition 227 in California (Greene, 1998). This proposition sought to eliminate the use of native languages in schools for ELLs (Greene, 1998). The purpose of Greene's (1998) reexamination of their review was to verify that the studies used in Rossell and Baker's review were methodologically acceptable and ultimately served to discredit it. Specifically, the limitations of the studies used were revealed. Only 11 of 75 studies met the minimal criteria to be included in the study, and they involved more than 2,000 students in 13 states, of which 1,562 were enrolled in Spanish immersion programs (Greene, 1998). Greene detailed how most of the studies should have been excluded, thus skewing the data to make it appear as though language immersion programs were not beneficial to students. Conversely, the findings showed that using some of the primary language in the instruction of limited English proficient children has positive impacts on those children in relation to providing them instruction exclusively in English (Greene, 1998). This study also highlighted the need for more studies to better determine the effectiveness of language immersion programs.

Freeman (1998) studied an enrichment bilingual Spanish immersion education program focused on achievement. He found that although native English speakers and native Spanish speakers had different levels of language acquisition, they outperformed their classmates in English and Spanish by the fifth grade. Coy and Litherland (2000) analyzed two inner-city elementary programs in Oklahoma to determine whether Spanish immersion positively impacted student achievement on academic tests. They found that students performed better in upper elementary grades. Castillo (2001) examined Spanish immersion student performance in standard academic measures at an elementary school in Texas. The study confirmed that students in the immersion program scored higher than their non-immersion peers. Furthermore, Stipek et al. (2001) found that Hispanic and non-Hispanic immersion students had achievement levels that were equal to or exceeded their non-immersion peers when the academic achievement of early elementary students was investigated.

A meta-analysis of 17 studies on the effectiveness of bilingual programs was conducted after Willig's (1985) review examining the best way to facilitate English language learning in U.S. schools (Rolstad et al., 2005), a question that still persists. A 32% increase in the enrollment of ELLs between 1997 and 2002 was noted. Since *Lau v. Nichols* (Sugarman & Widess, 1974) made it a legal obligation to educate ELLs and the influx of native Spanish speakers, determining the best method for educating ELLs became paramount. The significance of this study was that it clarified the large body of language immersion research and provided an unbiased overview of language immersion programs (Rolstad et al., 2005). The research method included limiting the studies to those post Willig's study. The criteria included the following: involved K-12 ELLs who

were not in special education classes, included statistical details that were used to do the research, and provided an overview of the treatment and comparison programs. The studies were coded into quantitative data and analyzed. Rolstad et al. (2005) concluded that “bilingual education programs are effective in promoting academic achievement, and that sound educational policy should permit and even encourage the development and implementation of bilingual education programs” (p. 572).

Slavin and Cheung (2005) reviewed experimental studies of reading programs for ELLs and compared multiple dual language and English-only programs. Since 1999, the country saw an influx of non-English-speaking children who were not as successful in reading achievement as their peers. During this time, the reading education of ELLs was one of the most important educational policies and practices in public education. Hispanics scored significantly lower than other students in reading (Slavin & Cheung, 2005). This study was conducted to determine the role of the native language in reading instruction. Research on reading instruction was reviewed to determine outcomes (Slavin & Cheung, 2005). It studied whether there was a scientific basis for competing claims about the effects of bilingual as opposed to English-only programs (Slavin & Cheung, 2005). The study was significant because a review like this was needed to share the evidence and the gaps that were in need of further investigation (Slavin & Cheung, 2005). The best-evidence synthesis, a practice that uses consistent, clear standards to collect unbiased information, was employed because few studies were using diverse methodology (Slavin & Cheung, 2005). A literature search and an overview of the outcomes and discussions of individual studies were also used in this study. Seventeen studies met the criteria and were evaluated. The study compared bilingual and English

approaches to reading in kindergarten through fifth grades and sixth through 12th grades (Slavin & Cheung, 2005). The research found that immersion programs are effective in teaching reading. Twelve of the studies favored immersion, and five found no differences. Zero favored English-only programs (Slavin & Cheung, 2005). The best outcomes were observed when the native language and English were taught at different times during the day. It was also found that more research was needed to make comparisons of the effects of immersion programs for ELLs and minorities (Slavin & Cheung, 2005).

Boone (2007) conducted research on African American students enrolled in a Spanish immersion program and the perceptions of them and their parents. While many studies were conducted on White or Hispanic students and their experiences in language immersion programs, few were done to analyze the academic success of African American students in immersion programs (Boone, 2007); therefore, due to the lack of research about this specific group of students, it made it difficult for teachers, school administrators, and parents to develop strategies that would help African American students succeed academically while learning a second language (Boone, 2007). The study sought to examine perceptions of possible factors that led to academic success for African American students in language immersion programs (Boone, 2007). The study was significant because Spanish is used so widespread; fluency in languages other than English was necessary and would help with regard to competing economically, socially, and politically in the state and world. Positive perceptions of African American students, who lagged behind other ethnic groups, would help these students be better able to compete with their peers in the political and economic growth of the state and country

(Boone, 2007). The study was a naturalistic study that included six students who participated in the elementary immersion program. Qualitative data were collected through interviews with the students and their parents. The study showed that the students and parents understood that bilingualism was important. The more teachers interacted with the students was a factor that played a part in the students' academic success. The parents felt there was no support at the school level to provide additional opportunities for the students outside of the classroom (Boone, 2007).

Anberg-Espinosa (2008) studied the experiences and perspectives of African American students and their parents in immersion programs. There were very few studies that evaluated the experiences of African American language immersion students, although the numbers of Latino and African American students in immersion programs show that students of color enroll in these programs. The perspectives of marginalized students and parents were needed to understand how African American students persevered and navigated through language immersion programs. The purpose of the study was to discover experiences and perspectives of African American language immersion students to provide insight into the reasons behind perseverance in the program and the role of language and culture in the students' lives. This study was significant because it explored the perspectives that encouraged African American students to continue in language immersion programs, therefore ensuring that African American students had equal access to opportunities for bilingualism and cross-cultural understanding (Anberg-Espinosa, 2008). This qualitative study including nine African American students and their parents was conducted through participatory research; researchers and their communities participated in service and action discussions (Anberg-

Espinosa, 2008). Dialogic interviews were used to gather data. The findings found that the students persevered through the program because the school was familial and small and there was good school-home communication. High expectations were present, and students had to rise to the challenge of performing in two languages. It was found that cultural awareness should be included in the curriculum and students should move into deeper levels of their own identity and a deeper understanding of race and equity (Anberg-Espinosa, 2008). Academic support in the program to support high achievement and help African American students to manage the linguistic demands as they move up was found to be necessary. Alternate opportunities for parents to be involved in the community was another area the research highlighted.

Vega (2014) examined native Spanish speakers and non-native speakers to determine whether Spanish immersion had a negative effect in the core academic areas of math, reading, and writing. Vega observed that dual-language immersion programs were growing throughout the U.S., and the studies previously conducted examined student performance versus English-only instruction and could not adjust for the differences between immersion and non-immersion students (Vega, 2014). The purpose of the study was to track native English and non-native English-speaking students who were randomly selected for an immersion program in Portland Public Schools through a lottery for up to 9 years. They tracked the students' academic success relative to their non-immersion peers in reading, math, and science. This study was significant because it examined the academic effects on native and non-native immersion students and examined the impact of an immersion program in a large urban district. A longitudinal, non-randomized, matched-pairs design was used (Vega, 2014), and the results showed

that the native English and non-native English-speaking students in the immersion program performed better on assessments throughout elementary, middle, and high school.

Valentino and Reardon (2014) researched a San Francisco bilingual education program where ELLs scored well below their English peers. With the increase of non-native immigrants in California public school systems, the study was conducted to determine the most effective instructional methods for English learners. This study was significant because it addressed the gaps in the language immersion literature. The study evaluated the outcomes of four English learner immersion instructional programs on English learner performance in reading in Grades 6-8 as well as whether the success rates by program differed by race or how well the English learner spoke English at the onset of the program (Valentino & Reardon, 2014). The results showed that students in dual language immersion grew faster academically than in the English immersion or bilingual programs. Short-term success was less evident than long-term academic success in the immersion program. A regression analysis of associations between pathways and student outcomes was conducted with kindergartners to determine their English and academic proficiency (Valentino & Reardon, 2014). According to Mitchell (2017), in Oregon, immersion students scored significantly higher on the Oregon Assessment of Knowledge and Skills in reading by 7 months of learning by the end of fifth grade and 9 months of learning by the end of eighth grade.

Taylor (2016) found that public education in its current form was counterproductive to change and improvement. Public education was considered a monopoly that stifled accountability and drove out education entrepreneurs who could

reinvent education. Instead, there were people who wanted more parental choice in their children's education. The purpose of this study was to determine if language immersion programs were a viable choice for families. It also analyzed the factors parents considered when enrolling their children in language immersion programs. The study also sought to determine how the reasoning of English-speaking parents and Spanish-speaking parents differed. Additionally, it determined if parents of students within ongoing dual language immersion programs were satisfied with the program (Taylor, 2016). This study was significant because unlike most of the research on language immersion, it focused on the parent perspective in terms of the reasons why they chose the program. This non-experimental mixed-methods study consisted of three elementary schools in three demographically different districts with established language immersion programs. The quantitative data were generated from a parent survey, whereas parents were interviewed for the qualitative data.

The findings from Taylor (2016) showed that parents were motivated to enroll their students in language immersion and were satisfied with the program. The reasons for their choice varied but included students being able to communicate in multiple languages, being globally competitive and culturally sensitive, having stronger self-esteem as a bilingual person, and being more successful in academics (Taylor, 2016). Other reasons included students having better opportunities in the future. Ultimately, the study emphasized that the creation of a strong partnership among parents, teachers, and administrators helps build a solid foundation that encourages student success (Taylor, 2016). There must be quality professional development and commitment from teaching staff to further support the mission of the school with the end goal of creating bilingual

and multi-cultural graduates. For this purpose, a commitment to the type of immersion program must exist, and the program must be academically rigorous (Drozdowicz, 2012).

After reviewing the numerous studies on dual language immersion programs, 12 were identified as successful, mostly because students had access to the target language for extended periods of time daily. The review shows that students enrolled in language immersion programs are successful on academic assessments at varying levels. Overall, there may be a positive advantage and correlation between language immersion programs and academic success in elementary school programs.

In an article researching elementary academic achievement of language immersion students, Watzinger-Tharp et al. (2016) found that immersion students performed better than their non-immersion peers over time. There was a need to prove to stakeholders that students in language immersion programs were as successful as or more successful than their non-immersion peers. The purpose of the study was to determine if language immersion programs had a positive impact on academic achievement and if these programs have a positive impact that helps to close the achievement gap (Watzinger-Tharp et al., 2016). This study was significant because it provided data on how immersion programs influenced student academic achievement. It also compared three different language immersion programs: French, Spanish, and Chinese. Three immersion languages and two program types were studied using statistical analyses through quasi-experimental tests (Watzinger-Tharp et al., 2016). The participants were in the third and fourth grades over the years of 2011-2012 and 2012-2014. Over 2,700 students were included in the study. The Utah standardized Criterion Reference Tests in math and reading were used in this study. The results showed that third-grade students

performed the same as their non-immersion peers, but in fourth grade, students grew more than their non-immersion peers (Watzinger-Tharp et al., 2016).

Tran et al. (2015) found that there was an opportunity gap between minority students and White students due to a lack of exposure to instructional programs. These gaps create achievement gaps among minority students. The purpose of the study was to measure the level of success immersion students had academically, determine effective strategies to compare results, and share future implications for bilingual programs. This study was significant because it provided data that influence future immersion programs and implications for bilingual education. Statistical analyses were used to examine student academic achievement in science and math. The results showed that immersion students performed significantly higher in math and science than non-immersion students.

Oberg de la Garza et al. (2015) saw that there was a need for effective programming that would be beneficial to ELLs in the Midwest. ELLs were participating in programs that were not effective, and there was research in other states that proved that dual language programs were successful with ELLs and academic performance. The purpose of this study was to examine bilingual programs to determine barriers to implementing language immersion programs (Oberg De La Garza et al., 2015). This study also presented strategies to increase programming of immersion programs, teacher training, and professional development in order to foster the enhancement of language immersion programs. This study was significant because it provided guidance for statewide implementation of language immersion programs in order to aid ELLs in being more successful academically (Oberg De La Garza et al., 2015). The results showed that

there was a need to develop a multilingual Midwest by increasing bilingual programs, promoting a positive attitude for bilingual education, developing a bilingual area, and preparing teachers to teach immersion programs appropriately (Oberg De La Garza et al., 2015).

How the Impact of Spanish Immersion is Assessed

EOG Testing

Assessments should be the tool to guide educators to measure achievement levels and to determine student placement and support needs (Lopez et al., 1997). EOG tests should assess the curriculum taught and the curriculum practiced. EOG tests are created to assess what students know, what students understand, and what students can do; at the same time, they examine the performance of each school system. It is this assessment that will determine the impact of language immersion programs and academic success.

The Center for Advanced Research on Language Acquisition (CARLA, 2019) highlighted achievement-oriented assessments and proficiency-oriented assessments as ways to determine student academic success in the target language. Achievement-oriented assessments are tasks based on skill components such as grammar. Proficiency-oriented assessments focus on the communicative aspect of language learning by using the four modalities of listening, speaking, reading, and writing (CARLA, 2019). On the contrary, norm-based assessments are not appropriate for ELLs. Chamberlain (2005) recommended implementing curriculum-based assessments and dynamic assessments instead. Curriculum-based assessments address the content taught in the classroom and facilitate the monitoring of student progress. Dynamic assessments are based on students' learning ability and measure students' task performance during instruction.

From the third grade through eighth grade, students in North Carolina take EOG tests. These tests are designed to measure student performance of the goals, objectives, and grade-level competencies (NCDPI, 2020) on the state curriculum. These tests are used to determine student proficiency in reading and math. In Grades 5 and 8, students are also assessed in science. Test scores are used by the state, districts, and schools to compare student performance across the state and in the same grade at the same school. Different forms of tests are conducted in each classroom, and they are administered using either paper and pencil or online. The forms are “equated” or linked so they can be compared (NCDPI, 2014a).

The tests are based on curriculum standards that are expected to be taught throughout the school year. Test questions all correspond with a specific goal, and a percentage of each goal is tested (NCDPI, 2020). Teachers are provided goal summaries that tell them how much of the test covers each goal so they know how to focus their instruction throughout the year. Teachers often spend more time working with students on goal areas that have larger percentages or more questions to help students be better prepared for the test.

The EOG reading test assesses reading and knowledge of vocabulary by having students read selections and answer questions. These selections reflect the variety of reading students do in the classroom. There are 50 questions on the test that cover literary and informational texts, besides others. A new test was implemented in the 2020–2021 school year, which has fewer questions. The test questions are organized into categories such as cognition, the initial strategies readers use to understand the reading selection; interpretation, which requires students to have a deeper understanding of the text; critical

stance, tasks that ask students to compare and contrast and understand the impact of literary elements; and connections, the connection of knowledge from selection to other experiences and information (NCDPI, 2012).

EOG test scores are broken down into raw scores, developmental scale scores, percentiles, and achievement levels. The raw score is the number of questions answered correctly. The raw score is converted into a developmental scale score which is a range that is used to compare student scores as they matriculate from one grade to another. The developmental scale score of each student should increase each year to measure growth from one year to the next. The percentile compares student performance on the current year's test to all students in the state who took the test when it was first administered. If the percentile of the student is at a level equal to or better than other students who took the test, they made growth. The higher the percentile, the better the student performed in comparison to other students in the same grade. The maximum range of percentages a student can attain is 1 to 99 (NCDPI, 2012).

According to the North Carolina State Board of Education Policy Manual, Policy Test 013, Multiple Choice Test Development, test development is a six-phase, multiple-step process that takes over 2 years to complete, with built-in validity checks throughout the process (NCDPI, 2012). Figure 5 shows the flowchart of each phase and the steps included.

Figure 5*North Carolina Testing Program Test Development Process Flow Chart*

Adopt Content Standards	Step 7 Review Item Tryout Statistics	Step14 ^b Conduct Bias Reviews
Step 1 ^a Develop Test Specifications (Blueprint)	Step 8 ^b Develop New Items	Step15 Assemble Equivalent and Parallel Forms
Step 2 ^b Develop Test Items	Step 9 ^b Review Items for Field Test	Step16 Review Assembled Test
Step 3 ^b Review Items for Tryouts	Step 10 Assemble Field Test Forms	Step17 Final Review of Test
Step 4 Assemble Item Tryout Forms	Step 11 Review Field Test Forms	Step 18 ^{ab} Administer Test as Pilot
Step 5 Review Item Tryout Forms	Step 12 ^b Administer Field Test	Step19 Score Test
Step 6 ^b Administer Item Tryouts	Step 13 Review Field Test Statistics	Step 20 ^{ab} Establish Standards
		Step 21 ^b Administer Test as Fully Operational
		Step 22 Report Test Results

Each of the six phases of this process takes months to complete (NCDPI, 2014a).

This is a process that includes a battery of activities to assess the validity of the test questions. In 2014, NCDPI implemented Achievement Level 3 which identified “students who are prepared for the next grade level, but do not meet the college-and-career readiness standard” (NCDPI, 2014b, p. 1). In the 2013-2014 school year, student scores are reported as Levels 1 through 5.

Achievement levels are predetermined performance standards that allow student performance to be compared to grade-level expectations. The lowest level is Level 1,

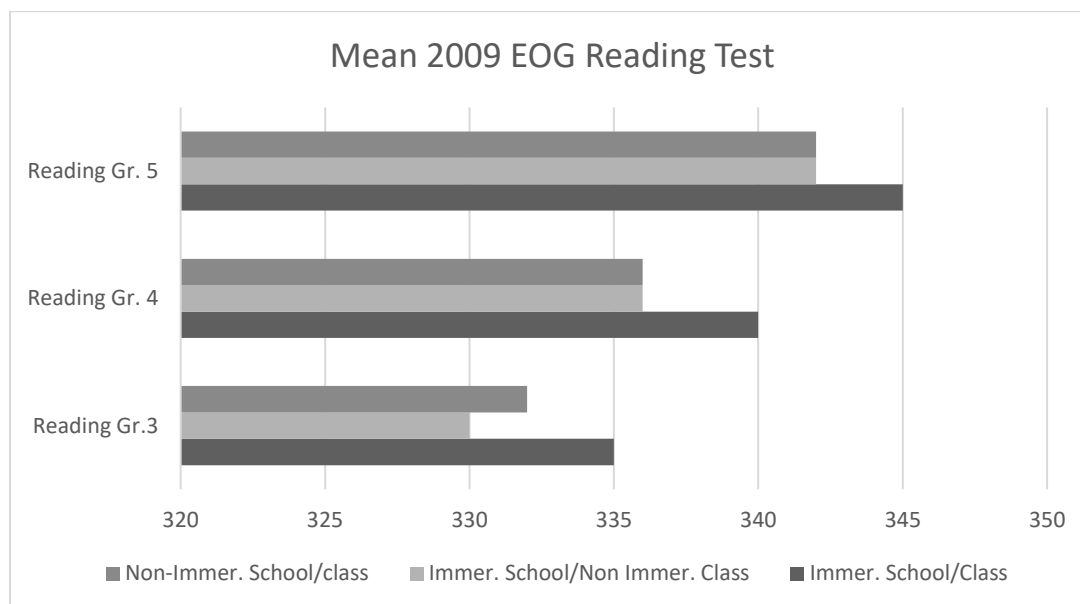
students have a limited command of the content standards, and continue to Level 5 where students have a superior command of the content standards. Each level corresponds to a range of developmental scale scores. Table 4 shows the achievement levels and which ones meet grade-level proficiency or college and career readiness standards.

Table 4

EOG Achievement Level Description

Achievement levels	Meets grade-level proficiency standard	Meets college and career readiness standard
Level 1–Limited command	No	No
Level 2–Partial command	No	No
Level 3–Sufficient command	Yes	No
Level 4–Solid command	Yes	Yes
Level 5–Superior command	Yes	Yes

The reading EOG assesses the reading and comprehension of vocabulary by having students read selections and answer questions. There are questions on the test that include literary and informational texts. The test questions are organized into categories that include cognition, interpretation, and critical stance (NCDPI, 2012). This study compared EOG reading results of ELLs, Hispanic and African American Spanish immersion students in Grades 3-5, with those of their ELLs, Hispanic and African American non-immersion students in a traditional English-only classroom. This study clarified that although students who learned to read first in Spanish were able to comprehend English texts and excelled higher than their peers who learned to read in English, there was no statistical significance. Figure 6 shows 2009 EOG reading data comparing dual language learners and nondual language learners (Thomas & Collier, 2012). In 2009, dual-language students outperformed nondual language students.

Figure 6*Reading Mean Scores*

The following research questions guided this study:

1. Does a K-5 Spanish-immersion educational continuum for African American and Hispanic students produce a significantly higher level of proficiency in reading versus K-5 students taught in traditional classroom settings?
2. Which ethnic group showed the most significant overall academic gains in 5 years, as evidenced by the North Carolina EOG reading test between 2016 and 2019?
3. Do the data from this study provide support for the continuation of language immersion in District X?

Chapter 2 provided an overview of the research that exists regarding language immersion programs in the U.S. and North Carolina. The summary of research included the history of bilingual education starting in the 1700s through modern times. Although immigrants shaped the U.S., there were contrary beliefs to maintaining cultures other

than the dominant American culture and the English language. Minority groups and supporters had to struggle and pursue justice from the legal system to be afforded the right to maintain their own culture and language. This chapter also reviewed the types of language immersion programs that are offered to students and how these programs are assessed. An overview of successful Spanish immersion programs in the U.S. was provided that showed that these programs have been successful in educating students and providing opportunities for success and acceleration. Some of the studies showed that language immersion programs had positive effects on minority students. Chapter 3 provides a detailed description of the methodology that was used to conduct this study. Chapter 4 presents the quantitative findings; Chapter 5 provides an analysis of the findings, a summary of the study, and future implications.

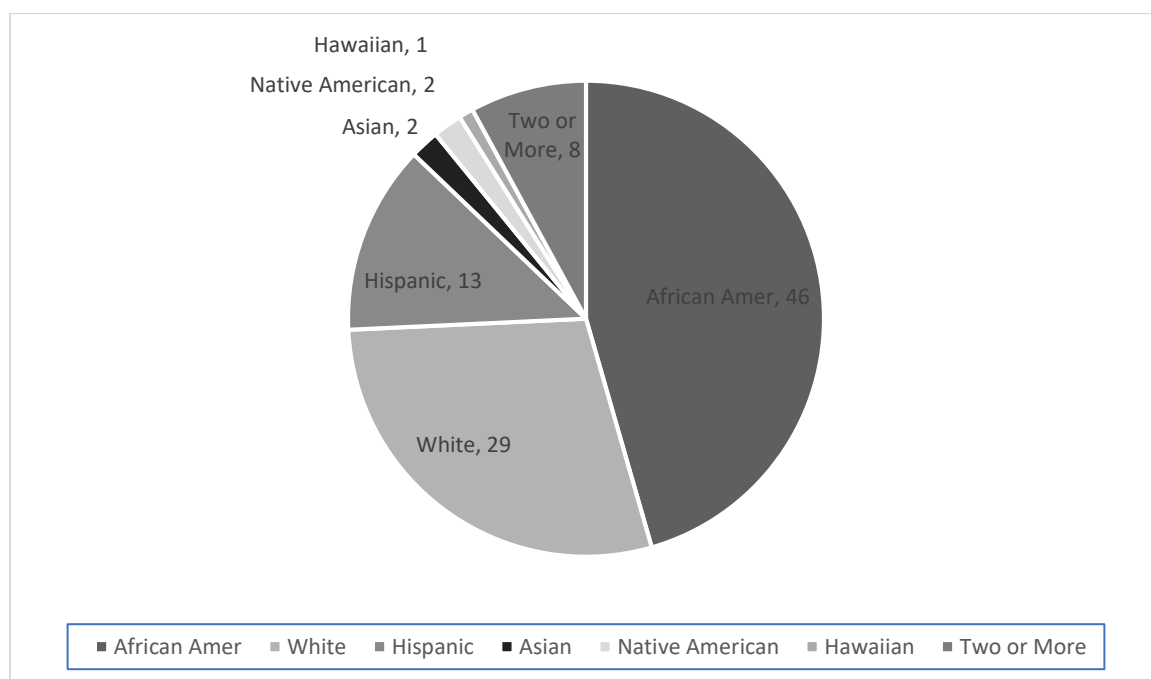
Chapter 3: Methodology

Introduction

Spanish immersion programs are those where students are learning their core content in Spanish, and non-immersion programs are traditional classes where students are learning the core content in English, the dominant language. This study analyzed student achievement of ELLs, Hispanic, and African American students in Spanish immersion programs and their non-immersion ELLs, Hispanic, and African American peers in the third, fourth, and fifth grades. The results clarified whether Spanish immersion program students performed better than traditional, non-immersion program students on EOG exams. The findings also showed which subgroups in Spanish immersion programs performed better. A detailed description of the design and procedures is presented in this chapter.

Participants

The study population was selected from a school district, District X, in eastern North Carolina. District X is one of the largest school districts in North Carolina and serves approximately 51,000 students. There are 89 schools: 52 elementary schools, 18 middle schools, 17 high schools, and two virtual academies. A total of 45% of students are Black, 29% are White, and 13% are Hispanic. Figure 7 shows the breakdown of all the demographics represented in the district. A total of 75% of students receive free and reduced lunch. These students came from two elementary Spanish immersion programs. The age range of the participants was 5–10 years old. The genders were mixed, and the ethnicities were varied based on the students enrolled in the Spanish immersion programs.

Figure 7*District Demographics*

District X has three elementary Spanish immersion programs, two full immersion and one partial immersion program. These programs are a part of the schools of choice program in the district. Families can apply for their students to attend these programs, regardless of where they live in the county. Students have specific requirements that must be met in order to be eligible for the program. These requirements are determined by each school. A lottery is utilized to select students for programs when more applicants apply than there are available seats.

Research Questions

This study answered the following questions:

1. Does a K-5 Spanish-immersion educational continuum for African American and Hispanic students produce a significantly higher level of proficiency in reading versus K-5 students taught in traditional classroom settings?

2. Which ethnic group showed the most significant overall academic gains in 5 years, as evidenced by the North Carolina EOG reading test between 2016 and 2019?
3. Do the data from this study provide support for the continuation of language immersion in District X?

Research Design and Rationale

This was a longitudinal quasi-experimental study. The study design was an ex post facto, nonrandomized, matched pairs design. Students from the Spanish immersion program were matched with non-language immersion students starting in the third grade. Data on EOG tests in reading were analyzed for Grades 3, 4, and 5 and used for comparison.

This study analyzed a group of students in Grades 3-5 over time. The same students were used throughout the entire study so the data were able to show trends over time. This type of study was classified as quasi-experimental because the participants were strategically selected, not randomized (Drummond & Murphy-Reyes, 2018). Each of the matched pairs was observed using the same intervention, the EOG reading exam, over a 3-year period. Since the groups were not randomized, there could have been threats to the internal and external validity; therefore, controls had to be incorporated into the study (Drummond & Murphy-Reyes, 2018).

Longitudinal studies have several advantages over other types of studies. For example, longitudinal data involve repetition of factors that test the same subjects over time and can provide some information on cause variation (Menard, 2008). They allow for examination of consistency and continuity of specific factors and can identify trends

over time. Longitudinal studies can examine change and variation between individuals (Black, 1991). In longitudinal studies, the independent variable is measured prior to and after the time period. Some advantages to longitudinal studies are that there are no age differences over the period of the study and individual changes can be observed over time (Dunn, 2015).

A matched-pairs design involves using similar participants in different conditions. Researchers try to get important characteristics that may affect performance outcomes to match in each condition. Two advantages of this design are that participant variables are kept more constant between conditions if matched, and more sophisticated statistical tests can be used because of less variation between conditions (Love, 2005). Some disadvantages are that the variables cannot be perfectly matched, the design is time consuming, and more participants are required to ensure good matches. The criteria for matching may be difficult to meet. If one member is omitted from a pair, both participants would have to be deleted from the study.

For this study, a multi-level matching procedure was used to match students from a Spanish immersion elementary school with a control group beginning in third grade. In order to select the pairs, I first measured the variables and matched students to select similar pairs of immersion and non-immersion students (Hanover.edu, n.d.). I started my matching process with the fifth-grade students. In this group, I determined the list of Spanish immersion students who were enrolled in Spanish immersion in the fifth grade. I then compared the list of fifth-grade immersion students in each grade to determine if the same students were in Spanish immersion in the third grade at the same school. Any students who were not on all lists from third through fifth grade at the same school were

excluded from the study. Once the Spanish immersion list was compiled, I removed any students who were not African American or Hispanic. Once the final list of Spanish immersion African American and Hispanic students was compiled, I then proceeded to find a matching non-immersion pair. The non-immersion students also had to be at the same school for Grades 3-5, be African American or Hispanic, and have EOG reading scores for all grades. This type of study was chosen because longitudinal data measure students over time and provide more stable data. EOG test data from third-, fourth-, and fifth-grade Spanish immersion students were analyzed and compared with their peers in non-immersion English-only classes in the same grades. Data from 2016–2017, 2017–2018, and 2018–2019 were used in this study.

Sampling Procedure

Inclusionary and exclusionary criteria were defined for the different samples: African American and Hispanic students enrolled in Spanish immersion and African American and Hispanic traditional non-immersion students. Exclusionary criteria were the same for the two samples: absence of primary language information, qualification for special education services, and enrollment in students' choice program after kindergarten. The samples were created using the following inclusionary criteria: The immersion student must have been enrolled in a full language immersion program since kindergarten; the student must have been enrolled in Grades 3-5 during the periods of 2016–2017, 2017–2018, and 2018–2019; and there must have been accurate records of student ethnicity and gender. The only difference in the process of creating the samples was that the non-immersion group would not be enrolled in a full language immersion program, but they had to be enrolled in the traditional program at the language immersion

school since kindergarten.

Matching Procedure

A leveled matched-pairs selection procedure was used to select comparable Hispanic and African American students. The available pool of traditional African American students from which the immersion African American students were matched was greater than the available pool of traditional Hispanic students from which the immersion Hispanic students were matched. I selected each traditional native African American student to pair with each immersion native African American student using the following procedure. First, the traditional program was compared with the immersion program at the same schools. Second, a pool of students from these schools who met the inclusion and exclusion criteria previously described for African American students was created. Third, immersion students were matched with students from the pool on the following variables: year student was enrolled in third, fourth, and fifth grades; number of years enrolled in the program; ethnicity; gender; and EOG reading test scores. The procedure was conducted when students were in third, fourth, and fifth grades.

The matching procedure used for Hispanic students was different. Rather than creating a pool of students from schools that were similar to the language immersion school, Hispanic students and African American students from the Spanish immersion schools were paired together. Students in this pool were then analyzed to determine whether they met the inclusion and exclusion criteria previously described for native Spanish speakers. Finally, they were matched with traditional native Spanish speakers from the same school on the following variables: The immersion student had to be enrolled in a full language immersion program since kindergarten; the student had to be

enrolled in third, fourth, and fifth grades during the periods of 2016–2017, 2017–2018, 2018–2019; and there must have been accurate records of the student’s ethnicity and gender. The same process was conducted for the native English speakers.

Instruments

One instrument was used in this study: EOG reading exam. This is the state norm test used to assess proficiency of grade-level standards. The exam was used to compare student performance. A description of the instrument follows.

EOG Reading Tests

EOG tests are administered to measure student comprehension of the goals and objectives outlined in the state curriculum (NCDPI, 2020). Test scores are used by the state, districts, and schools to compare student performance across the state and in the same grade at the same school. Different forms of tests are provided in each classroom and are administered using either paper and pencil or online. The forms are “equated” or linked so that the scores can be compared (NCDPI, 2012). The tests are based on curriculum standards that are expected to be taught throughout the school year. The test questions all correspond with a specific goal, and a percentage of each goal is tested.

EOG test scores are broken down into raw scores, developmental scale scores, percentiles, and achievement levels. The raw score is the number of questions that were answered correctly. The raw score is converted into a developmental scale score, which is a range that allows student scores to be compared by subject from one grade to the next. According to the North Carolina State Board of Education Policy Manual (2012), Policy Test 013, Multiple Choice Test Development, test development is a 6-phase, 22-step process that takes 44 to 49 months, with tests for validity included (NCDPI, 2012).

Procedures

One group of students was grouped to conduct an analysis on the academic achievement of third graders. Means, standard deviations, sample sizes, and effect sizes were calculated. An effect size of .20 represented a small impact of a treatment, an effect size of .50 represented a decent impact, and an effect size of .80 represented a great impact (Cohen, 1988).

The independent variable for between groups was “subgroup” with two levels: African American and Hispanic. There were two within-subjects independent variables. Because this was a matched-pairs design, the primary independent variable “program” was analyzed with two levels: immersion program or traditional program. The second within-subjects variable was “change over time” with three levels: third grade, fourth grade, and fifth grade. The dependent variable for this study was EOG reading test scale scores for the three levels of the within-subjects independent variables; hence, this design was classified as a 3 x 2 x 3 mixed design with repeated measures on the second and third factors.

Analysis of variance (ANOVA) was used to evaluate significant statistical differences between the program groups’ academic performance. Statistical Package for the Social Sciences (SPSS) for IBM Version 28 was used for data analyses. Effect sizes were calculated using standard formulae for the Hedges g statistic.

To address Research Question 1, a 3 x 2 x 3 mixed-design repeated-measures ANOVA (one in reading respectively) was conducted. The two independent variables (immersion/non-immersion, grade) in each of the 3 x 2 x 3 mixed ANOVAs was in sequence: primary subgroup—a between-groups factor; type of program—a within-

groups factor; and grade level (third, fourth, and fifth)—a repeated-measures factor. To interpret the analyses results, I searched for significant main effects on the type of program. I also looked for the absence of significant interactions with the program on the grade-level factor in the mixed ANOVA.

For Research Question 2, the ANOVA model was the same. I ran a 3 x 2 x 3 repeated-measures ANOVA with the subgroups. The independent variable was ethnicity. The two factors were both within-subjects factors (type of program and time). To interpret the analysis results, I searched for significant main effects on the ethnicity of the student. I also looked for the absence of significant interactions with the program on the grade-level factor in the mixed ANOVA.

For Research Question 3, the data were analyzed to determine if language immersion programs should be continued in the district as a means to close the achievement gap between minority students, African American and Hispanic specifically, and White students.

Limitations

There were several challenges of methodology associated with research on Spanish language immersion programs that made it difficult to obtain definitive findings. First, the language immersion program examined in this longitudinal study is a choice program; the district does not require it, and therefore, self-selection may have influenced student outcomes, causing a lack of randomization. With this knowledge, when comparing traditional and immersion students, if language immersion students performed better than their peers in a traditional program, it was difficult to determine whether this is due to the effects of the program itself or due to inherent differences among the student

population and their families who decided to opt into the language immersion program. Although the matching process removed some uncertainty, random assignment to groups would provide more concrete results.

Another limitation between groups was the differences in socioeconomic status. There was a chance that there would be a significant difference between native Spanish speakers and native English speakers enrolled in the program. Native Spanish speakers likely came from homes where there is poverty and where parents had limited formal school education, whereas native English speakers likely came from homes that do not have as much poverty and where parents had more formal education. This difference could have made internal comparisons of English versus Spanish student performance difficult because the performance frequently differed by more than just their native language.

Chapter Summary

Although Spanish immersion was one of several choice programs in this district and families from across the district could apply to participate in it, there was a selection process, and not all applicants were enrolled. Further, there were transportation concerns for students who did not live near the two language immersion schools. Only students who started the program in kindergarten were included in this study. Students who enrolled in Spanish immersion after kindergarten were excluded. The study was confined to one school district in North Carolina. The program did not represent all Spanish language immersion programs operating in the country. Chapter 3 provided detailed information on the methodology of the study. It explained how this longitudinal quasi experimental study was implemented and how the data were analyzed. It provided an

overview of how the participants were selected to be a part of this research. It concluded by providing details of the tests that were utilized to answer each of the three research questions. Chapter 4 provides the results from the study, and Chapter 5 provides discussion about the findings and how this study information will influence educational research. Chapter 5 provides an overview of the results, implications for future study, and recommendations for future study.

Chapter 4: Results

Introduction

The purposes of this study were to determine whether a K–5 Spanish-immersion educational continuum produced a significantly higher level of proficiency in reading for African American and Hispanic students compared to K–5 students taught in traditional classroom settings and to delineate which of those two ethnic groups showed the most significant overall academic gain. The final purpose of this research was whether evidential data supported expansion and continuation of Spanish language immersion programs in District X. This research is a quantitative study. According to Detry and Ma (2016), a mixed-model repeated-measure design analyzes participant outcomes over time and the correlations between and within subject factors. This study analyzed a group of students in Grades 3-5 over time. The same students were used throughout the entire study so the data were able to show trends over time. This type of study was classified as quasi-experimental because the participants were strategically selected, not randomized (Drummond & Murphy-Reyes, 2018). Each of the matched pairs was observed using the same intervention, the EOG reading exam, over a 3-year period. Chapter 4 is organized as follows: district demographics and an overview of participants. Chapter 4 displays the data collected, and I analyze the quantitative findings according to SPSS Version 28.

District Demographics

District X is a large, suburban school district in eastern North Carolina that serves 50,870 students. It has 52 elementary schools, two of which are full Spanish immersion schools. The largest ethnic group is African American, followed by White and Hispanic. Table 5 shows the demographic breakdown of the district. I used the EOG reading test

data for years 2016–2017, 2017–2018, and 2018–2019 from two schools to compare student academic progress in a full-time Spanish immersion program with the progress of students in a traditional non-immersion program. School A has 545 students, and School B has 342 students. An achievement gap was evident at both schools between African American and Hispanic students when compared to their White counterparts. Considering that African American students were the largest demographic and Hispanics were the third largest, there should not be an achievement gap between these groups.

Table 5

District X Demographic Profile

Ethnicity	<i>N</i>	Percentage
African American	23,791	45
White	14,803	28
Hispanic	7,401	14
Asian	528	1
Native American	528	1
Two or More	4,229	8

Overview of Participants

My study used 52 students from the two Spanish immersion schools; 32 students were African American, and 20 were Hispanic. Table 6 provides a breakdown of the students. I used a matching process to pair African American and Hispanic Spanish immersion students with non-immersion African American and Hispanic students. I matched them based on ethnicity and exclusionary and inclusionary factors. Exclusionary criteria were the absence of primary language information, qualification for special education services, and enrollment in a students' choice program after kindergarten. The immersion students selected for the study had been enrolled in full language immersion since kindergarten, and all had participated in the EOG reading test for the following

school years: third grade, 2016–2017; fourth grade, 2017–2018; and fifth grade, 2018–2019.

Table 6

Description of Study Participants

School	Students	African American students	Hispanic students	Immersion students
A	32	18	14	16
B	20	14	6	10

Additionally, the Spanish immersion programs in the district are choice programs, programs within schools to which parents can apply for their children. Students are selected for the programs through a lottery; therefore, Spanish immersion students are considerably fewer in number than traditional, non-immersion students. The choice program selection process resulted in a small number of participants in the study.

School A had 16 Spanish immersion students; nine were African American, and seven were Hispanic. School B had 10; seven were African American, and three were Hispanic. These immersion students had been part of the Spanish immersion program since kindergarten. Unlike the non-immersion students, the number of students in the Spanish immersion program did not fluctuate significantly from year to year.

I sorted the original non-immersion data based on the exclusionary and inclusionary factors to match the number of Spanish immersion students. There were many transitions among traditional, non-immersion students. Many non-immersion students changed schools between kindergarten and fifth grade. Also, some students in both categories did not have EOG test scores for at least 1 of the years being analyzed. School A's non-immersion student demographics matched their Spanish immersion pair;

nine were African American, and seven were Hispanic. School B had seven African American students and three Hispanic students.

Data Collection

I collected historical testing data from the associate superintendent of data and accountability. My comparison data were from the North Carolina EOG reading test. The EOG is an annual test of students in Grades 3-8 in math, reading, and science. The test is based on curriculum standards that originate from the North Carolina Standard Course of Study, which is taught throughout the school year. Students are given scale scores based on their responses and are compared to other North Carolina students in the same grade.

EOG test scores are broken down into raw scores, developmental scale scores, percentiles, and achievement levels. The raw score is the number of questions that were answered correctly. The raw score is converted into a developmental scale score, which is a range that allows student scores to be compared by subject from one grade to the next.

I collected the data in Microsoft Excel to create the matching pairs of Spanish immersion and non-immersion students. I created the data sample by determining the students with the appropriate qualifying data and enrollment information. Immersion students had to be enrolled in the same Spanish immersion program since kindergarten, had to be African American or Hispanic, and had to have EOG scores for 2016–2017, 2017–2018, and 2018–2019 in Grades 3-5. Non-immersion students were selected with the same criteria except being enrolled in a Spanish immersion program. They also had to have been enrolled at the same school from kindergarten through fifth grade.

For this study, a multi-level matching procedure was used to match students from a Spanish immersion elementary school with a control group beginning in third grade. In

order to select the pairs, I first measured the variables and matched students to select similar pairs of immersion and non-immersion students (Hanover.edu, n.d.). I started my matching process with the fifth-grade students. In this group, I determined the list of Spanish immersion students who were enrolled in Spanish immersion in the fifth grade. I then compared the list of fifth-grade immersion students in each grade to determine if the same students were in Spanish immersion in the third grade at the same school. Any students who were not on all lists from third through fifth grades at the same school were excluded from the study. Once the Spanish immersion list was compiled, I removed any students who were not African American or Hispanic. Once the final list of Spanish immersion African American and Hispanic students was compiled, I then proceeded to find a matching non-immersion pair. The non-immersion students also had to be at the same school for Grades 3-5, be African American or Hispanic, and have EOG reading scores for all grades.

Matching Procedure

I matched comparable Hispanic and African American students in Spanish immersion programs with Hispanic and African American students in the traditional non-immersion program. The available pool of traditional African American students to match the immersion African American students was greater than the available pool of traditional Hispanic students from which to match the immersion Hispanic students. I paired each traditional African American student with each immersion African American student by comparing the traditional program with the immersion program at the same schools. Next, I matched immersion students with students from the pool based on the following variables: the year students were enrolled in third, fourth, and fifth grades; the

number of years they were enrolled in the program; ethnicity; and EOG reading test scores. Student participants were in the third, fourth, and fifth grades. School A had 16 pairs, and School B had 10 pairs, totaling 52 student participants.

Once the matching procedures were completed, I imported the data into SPSS Version 28 to be analyzed. I performed a mixed-design ANOVA to determine if there were mean differences in scores between the groups. I developed descriptive statistics by identifying the variables that were compared. There were three independent variables. The within-subject effect was time. The between-subject effects were program type and ethnicity. The dependent variable was the EOG reading exam. I analyzed each variable to determine if it was statistically significant. In general, if significance is less than .05, the relationship between the variables is significant, meaning there is a less than 5% chance that the results are random (Grant, 2017). The significance is expressed using a *p* value—the probability value—which describes the likelihood that the results would happen by chance. The smaller the *p* value is, the more statistically significant it is (McLeod, 2019).

Prior to analyzing the ANOVA model, I ran Mauchly's test of sphericity to test for equal variances. Sphericity is a variance of differences between all combinations of related conditions that are equal. This test is used to determine whether the assumption of sphericity is met in an ANOVA (Girden, 1992). The test was nonsignificant ($X^2 = 3.016$, $p = .221$), thus the assumption was met. I separated the results from the analysis by research question as follows.

Research Question 1

Research Question 1 asked if a full K–5 Spanish-immersion educational continuum produces significantly higher proficiency in reading for African American and

Hispanic students versus K–5 African American and Hispanic students taught in traditional classroom settings, as evidenced by the North Carolina EOG reading test. The test was a mixed-design repeated measure between immersion and non-immersion students. Table 7 shows the extracted results of the within- and between-subjects data. Program type was not a significant factor in the model, $F(1,48) = 1.632, p = .208$. Time was a significant factor $F(2,48) = 41.249, p < .001$. While the mean scores were different, they were not statistically significant; thus, program type was not a significant factor. Time, however, was a significant factor: As students progressed through their schooling, EOG scores steadily increased.

Table 7

Tests of Within- and Between-Subjects Effects

Source	<i>Df</i>	Mean square	<i>F</i>	Sig. (<i>p</i>)
Time	2	838.692	41.249	.000
Program type	1	295.975	1.632	.208
Ethnicity	1	457.167	2.520	.119

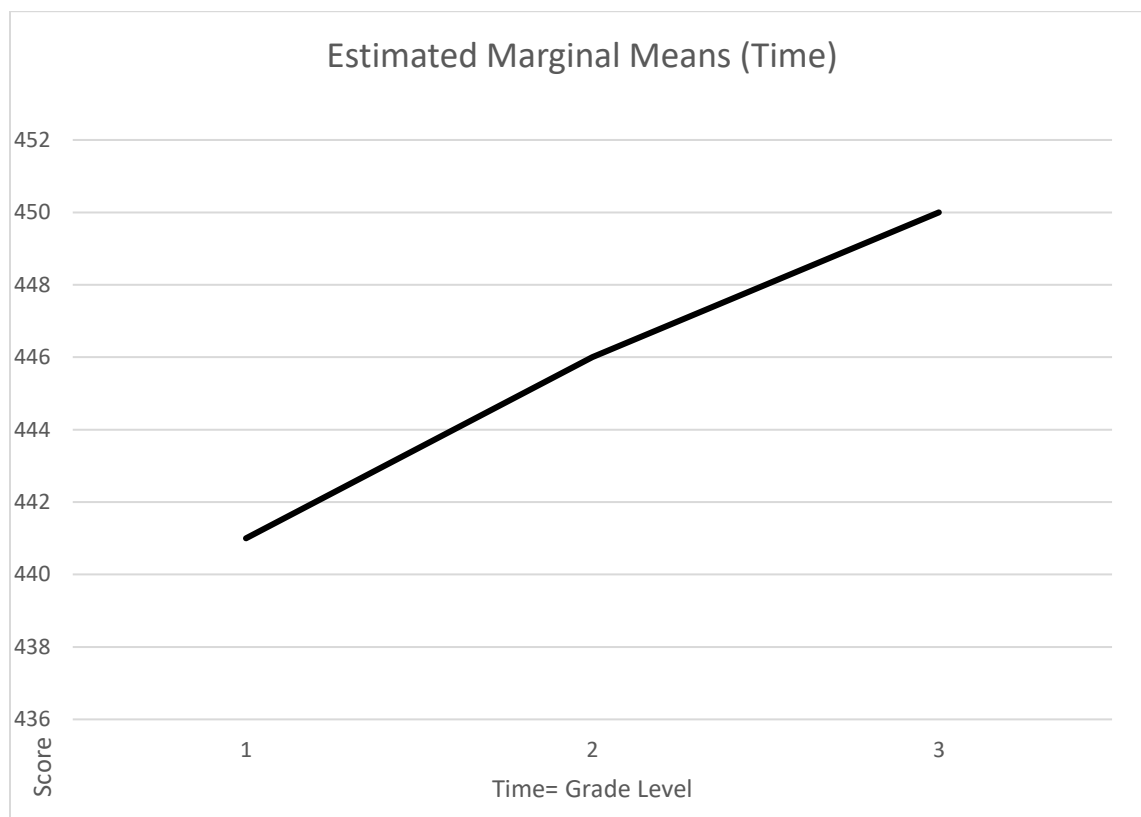
Table 8 outlines the descriptive statistics for the third- through fifth-grade students. The mean score for African American immersion students ranged from 443 to 452, with a standard deviation of 6.490 and 6.640. The mean score for non-immersion African American students was 443 through 450, with a standard deviation of 9.151 and 11.397. Immersion Hispanic student scores ranged from 441 to 451, with a standard deviation of 6.523 and 7.749. Non-immersion Hispanic scores were 437 and 445, with a standard deviation of 10.002 and 9.359. There were statistical increases from Grade 3 (442.13) to Grade 4 (446.44). Additionally, there were statistical increases from Grade 4 (446.44) to Grade 5 (450.27). Figure 8 shows the increase in test scores between Grades

3-5. Over time student test scores consistently increased from 441 to 450.

Table 8

Descriptive Statistics

	Program type	Ethnicity	Mean	Standard deviation	N
Grade 3	Immersion	African American	443.88	6.490	16
		Hispanic	441.90	6.523	10
		Total	443.12	6.446	26
	Non-immersion	African American	443.50	9.151	16
		Hispanic	437.40	10.002	10
		Total	441.15	9.768	26
	Total	African American	443.69	7.806	32
		Hispanic	439.65	8.536	20
		Total	442.13	8.253	52
Grade 4	Immersion	African American	447.69	5.486	16
		Hispanic	446.20	7.525	10
		Total	447.12	6.244	26
	Non-immersion	African American	447.88	10.632	32
		Hispanic	442.40	9.958	20
		Total	445.77	10.531	52
	Total	African American	447.78	8.323	16
		Hispanic	444.30	8.808	10
		Total	446.44	8.599	26
Grade 5	Immersion	African American	452.69	6.640	16
		Hispanic	451.40	7.749	10
		Total	452.19	6.963	26
	Non-immersion	African American	450.19	11.397	16
		Hispanic	445.40	9.359	10
		Total	448.40	10.729	26
	Total	African American	451.44	9.263	32
		Hispanic	448.40	8.911	20
		Total	450.27	9.163	52

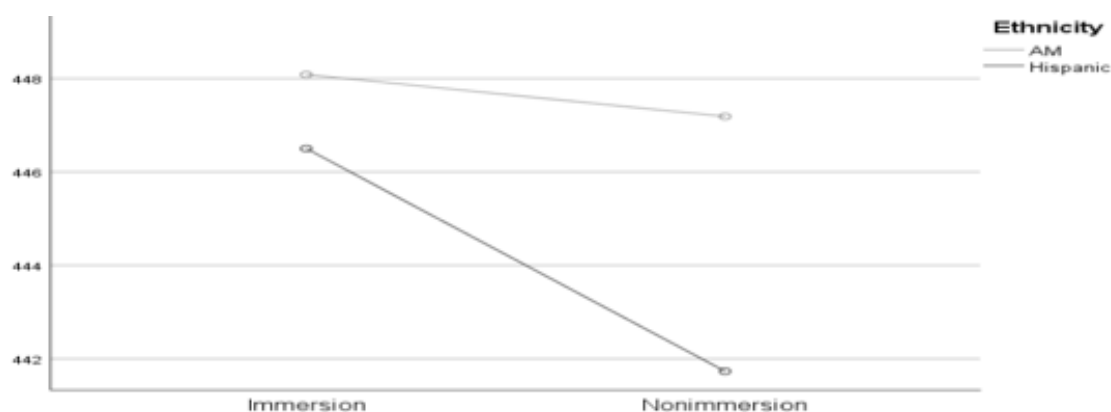
Figure 8*Estimated Marginal Means (Time)***Research Question 2**

Research Question 2 asked which Spanish immersion ethnic group, African American or Hispanic, showed the greatest overall gains in third through fifth grade from 2016 to 2019 as evidenced by the North Carolina EOG reading exam as a result of their 5-year participation in a Spanish immersion program. The test used was a mixed-design repeated measure between immersion and non-immersion students. Table 7 showed that ethnicity was not significant $F(1,48) = 2.520, p = .119$. While African American students appeared to perform better than Hispanic students, there was no statistical significance between African American and Hispanic students. African Americans enrolled in Spanish immersion had a mean score of 443 in the third grade and increased to 452 in the fifth

grade. Meanwhile, Spanish immersion Hispanic students had a mean third-grade score of 441, which increased to 451 in the fifth grade. In both ethnicities, immersion students performed better than non-immersion students. Figure 9 shows that immersion African American and Hispanic students outscored their traditional African American and Hispanic peers, though not to a statistically significant extent.

Figure 9

Estimated Marginal Means (Ethnicity)



Research Question 3

Research Question 3 asked if the data from this study provided support for the continuation of language immersion in District X. Other than time, there was no statistical significance; however, it does show that minority students are successful in these programs when compared to non-immersion students. While the data do not directly support the continuation of language immersion, continuation of Spanish immersion programs would be a decision left to the district administration; however, it appears to be a strategy to decrease the achievement gap between minority students and White students. The data do warrant further research with a larger population of students.

The data from Research Question 1 showed that there was statistical significance

in academic success over time. The longer students were exposed to the academic test, the better their scores were. Research Question 2 focused on the ethnic groups, and ethnicity was not statistically significant; however, all the analyzed data showed that immersion students outperformed their non-immersion peers in all grade levels. As noted in Figure 9, as student scores increased each year, immersion students always had higher mean scores on the EOG reading test. Based on these data, Spanish immersion is providing an environment that does not hinder the academic progress of elementary students. Taylor (2016) determined that parents of immersion students preferred bilingual programs because the programs provided them with the school-to-home support as well as the choice to give their children the opportunity to be bilingual at a young age. These programs also allowed for community engagement and a familiar environment.

Summary

The purpose of this study was to determine if African American and Hispanic students in elementary Spanish immersion programs performed better on EOG reading tests in Grades 3, 4, and 5 than their non-immersion peers. Additionally, this study sought to determine if language immersion programs should be continued and/or expanded in the school district used in this study. The results showed that time was a significant factor in determining student success. Both Spanish immersion and traditional students in Grades 3-5 increased their EOG test scores. The time variable was significant, $F(2,48) = 41.249$, $p < .001$.

The program type, immersion or traditional non-immersion, was not statistically significant, $F(1,48) = 1.632$, $p = .208$. Student ethnicity—African American or Hispanic—also was not statistically significant, $F(1,48) = 2.520$, $p = .119$. While

program type or ethnicity was not a significant factor in student success, immersion students performed better on the exams. Additionally, African American students outperformed Hispanic students. Further studies with more participants would potentially show a statistical difference.

Chapter 5: Discussion

Introduction

The purpose of this research was to determine whether marginalized students of color performed better in Spanish immersion programs over time when compared to their non-immersion peers. The study further sought to determine whether participation in a Spanish immersion program was significant to the academic success of African American and Hispanic students in reading, as evidenced by the North Carolina EOG test in Grades 3, 4, and 5. This study finally sought to determine if there is strong evidence for continuing Spanish immersion programs in District X and other districts that will use this research to make instructional decisions. The student participants were African American and Hispanic, and I compared their scores over 3 years. I collected EOG results for 2016–2019 from Spanish immersion and non-immersion classes.

I used two Spanish immersion schools in a suburban school district in eastern North Carolina. The school district has 89 schools with 52 elementary schools. Forty-five percent of students in the district are African American, and 14% are Hispanic; together, the two groups comprise 59% of the total student population of the district. Despite being more than half of the demographic makeup of the school district, there continue to be achievement gaps between students of color and their White peers. Two of the elementary schools have full Spanish immersion programs in which students receive their general education in the Spanish language. In third grade, students take the EOG test in reading to assess their proficiency. This chapter includes a summary of the study, a brief overview of the findings, implications for educational practice, conclusions, and recommendations for further study.

Summary of the Study

I examined 52 elementary students in Grades 3, 4, and 5 to determine if African American and Hispanic Spanish immersion students were more successful in reading as measured by the North Carolina EOG reading assessment. I extracted participant data from two schools with Spanish immersion programs. I paired Spanish immersion students with traditional non-immersion students of the same ethnic group. I analyzed the data to answer the following research questions:

1. Does a K–5 Spanish-immersion educational continuum for African American and Hispanic students produce a significantly higher level of proficiency in reading versus K–5 students taught in traditional classroom settings?
2. Which ethnic group showed the most significant overall academic gains in 5 years, as evidenced by the North Carolina EOG reading test between 2016 and 2019?
3. Do the data from this study provide support for the continuation of language immersion in District X?

I paired Spanish immersion and traditional students based on ethnicity, program type, and change over time. I compared academic growth between the groups using the North Carolina EOG reading test from 3 consecutive school years: 2016–2017, 2017–2018, and 2018–2019. For this longitudinal, quasi-experimental mixed-methods study, I employed a 3 X 2 X 2 ANOVA using SPSS to analyze the findings. For Research Question 1, the two independent variables (immersion/non-immersion, grade) in the 3 x 2 x 3 mixed ANOVAs were in sequence: primary subgroup—a between-groups factor; type of program—a within-groups factor; and grade level (third, fourth, and fifth)—a

repeated-measures factor. The 3 X 2 X 2 ANOVA for Research Question 2 was with the subgroups. The two factors were both within-subjects (type of program and time).

Longitudinal data involve testing of the same subjects over time using the same factors to provide information on causation and change (Menard, 2008). They allow for the examination of stability and continuity of interest factors and can identify developments over time. Longitudinal studies can examine change and variation between individuals (Black, 1991). Quasi-experimental designs are conducted when the researcher does not have control of all variables in a study (Tennessee State University, n.d.). An ex post facto design allows a researcher to investigate how an independent variable interacts with dependent variables in a study. This design is used when certain variables cannot be manipulated (Tennessee State University, n.d.).

Interpretations and Discussion of Quantitative Data

I collected and analyzed historical North Carolina EOG reading exam data for the participants in Grades 3, 4, and 5 for 2016–2017, 2017–2018, and 2018–2019. The students who participated in this study were the same students who took the test in all 3 years, so their progression could be analyzed over time. I collected the data in Microsoft Excel to create the matching pairs of Spanish immersion and non-immersion students. I created the data sample by selecting students with the appropriate qualifying data and enrollment information. Immersion students had to be enrolled in the same Spanish immersion program since kindergarten, had to be African American or Hispanic, and had to have EOG scores for 2016–2017, 2017–2018, and 2018–2019 in Grades 3-5. Non-immersion students were selected with the same criteria except for being enrolled in a Spanish immersion program. These students had to have been enrolled at the same school

from kindergarten through fifth grade.

I matched Hispanic and African American Spanish immersion students with comparable Hispanic and African American students in the traditional non-immersion program. The available pool of traditional African American students to match the immersion African American students was larger than the available pool of traditional Hispanic students from which to match the immersion Hispanic students. I paired each traditional African American student with each immersion African American student by comparing the traditional program with the immersion program at the same schools.

Next, I matched immersion students with students from the pool based on the following variables: the year the students were enrolled in third, fourth, and fifth grades; the number of years they were enrolled in the program; ethnicity; and EOG reading test scores. Student participants were in the third, fourth, and fifth grades. School A had 16 pairs, and School B had 10 pairs, totaling 52 student participants.

Once the matching procedures were completed, I imported the data into SPSS Version 28 to be analyzed. I performed a mixed-design ANOVA to determine the significance of the variables. I developed descriptive statistics by identifying the variables that were compared. The within-subject effect was time. The between-subject effects were program type and ethnicity. I analyzed each variable to determine if it was statistically significant.

Research Question 1

Research Question 1 asked if a K–5 Spanish-immersion educational continuum for African American and Hispanic students produces a significantly higher level of proficiency in reading versus K–5 students taught in traditional classroom settings. Two

variables were essential to this research question: program type and time. The findings showed that program type—immersion or non-immersion—was not a significant factor in reading proficiency for students of color, $F(1,48) = 1.632, p = .208$. Immersion students did score higher than non-immersion students; however, the increases were not statistically significant, possibly due to the limited number of student participants.

The data did indicate that the only variable that was significant to students performing better in reading was the continuum of time, $F(2,48) = 41.249, p < .001$. The students' scores showed that they performed better on the EOG reading each year, with Grade 5 showing the highest rate of success. Thomas and Collier (2002) determined that the longer that Spanish immersion students were in the program, the better they performed compared to non-immersion students, causing an achievement gap. While there are no significant findings other than time, it may be recommended that African American students continue in language immersion programs for an extended period of time.

While immersion students performed better than non-immersion students, this was not statistically significant. The number of participants in my study affected the significance of the results. The better performance coincides with Cummins's (1979) interdependence hypothesis, which states that instruction in one language will transfer to the other as long as exposure and motivation exist. The data show that exposure and motivation over time resulted in significant academic growth in reading based on the EOG reading exam. Immersion students' mean scale score rose from 443 in third grade to 452 in fifth grade, increasing 9 points. Non-immersion students increased 7 points, from 441 in third grade to 448 in fifth grade. While all students improved over time,

immersion students had a larger increase, although it was not statistically significant.

Research Question 2

Research Question 2 asked which Spanish immersion ethnic group, African American or Hispanic, showed the greatest overall gains in third through fifth grade from 2016–2017, 2017–2018, and 2018–2019, as evidenced by the North Carolina EOG reading exam as a result of their 5-year participation in a Spanish immersion program. As outlined in Chapter 4, subgroup or ethnicity was not statistically significant, with a significance of .119; however, African American students scored higher overall than Hispanic students in all grades studied. Ethnicity would probably be a significant factor with a larger pool of participants. In my study, 32 students were African American and 20 were Hispanic. In 2016–2019, African American immersion students' third-grade mean scores were 443, 447 in fourth grade, and 452 in fifth grade, an increase of 9 points. Meanwhile, African American non-immersion scores rose from 443 in third grade, to 447 in fourth grade, to 450 in fifth grade, a 7-point increase. Comparatively, immersion Hispanic students had a 10-point increase during 2016–2019. Their third-grade mean EOG score was 441, fourth grade was 446, and fifth grade was 451. Non-immersion Hispanic students had an 8-point increase over 3 years: 437 in third grade, 442 in fourth grade, and 445 in fifth grade. While the mean scores for the African Americans were higher than those of the Hispanic students, the Hispanic students produced higher growth over the 3 years.

When individual year data were analyzed, African American immersion students increased 4 points between third and fourth grades, and Hispanic immersion students increased 5 points. Non-immersion African Americans produced a 4-point increase, and

Hispanic students increased 5 points during third grade. The fourth- to fifth-grade score differential was 5 points for immersion African American and Hispanic students. Non-immersion increases for this grade level were 3 points for African Americans and Hispanics. In the third to fourth grade, Hispanic students improved more than African American students. In fourth to fifth grade, both groups improved the same amount.

Although African American students had higher scores in all grade levels, immersion Hispanic students showed more growth from Grades 3-5, signifying that African American students showed greater proficiency than their Hispanic peers.

Thomas and Collier's (2012) North Carolina study showed that when English learners and African American students of low socioeconomic status participated in language immersion programs, they scored higher on EOG reading tests in all grades compared with their non-immersion peers. While not statistically significant, my findings align with those of Thomas and Collier (2012).

Research Question 3

Research Question 3 asked if the data from this study provided support for the continuation of language immersion in District X. Findings showed no significance other than time; however, while the data do not directly support the continuation of language immersion, they do show that minority students are successful in these programs when compared to non-immersion students. Support for and continuation of Spanish immersion programs would be a decision left to the district administration; however, it appears to be a strategy to decrease the achievement gap between minority students and White students. The data do warrant further research with a larger population of students.

Rega (2015) determined that test scores for immersion students and non-

immersion students were, based on statistical significance, higher from third to fifth grade. Both groups performed above grade level in reading and math. Rega specifically studied immersion students who were native English speakers to determine the effectiveness of immersion on students who spoke English. This adds to the strength that programs like language immersion can have a positive effect on English and limited English proficient students. Additionally, according to Heinrichs (2016), dual language was found to be a helpful program that culturally and linguistically prepares students to enhance their 21st century skills. The data from this study determined that there is no negative effect on student academic performance. Freeman (1998) found that while native English speakers and ELLs performed at different proficiencies, they had higher proficiencies than their classmates in English and Spanish by the fifth grade.

District X has a large minority population and a poverty rate of 27% for students under the age of 18. Previous research has shown that minority students and students experiencing poverty perform better when enrolled in immersion programs. Thomas and Collier (2012) showed that minority and low-poverty students benefit from immersion programs. Based on the findings and previous studies, Spanish immersion programs are a beneficial program that has positive effects on all students. Immersion programs can aid in reducing or closing the current achievement gaps that are noted in academic areas between minority students and White students.

Conclusions

This study is significant for immersion research because it provides longitudinal research on how Spanish immersion programs impact student achievement for African American and Hispanic students in Grades 3-5. It also provides research on how students

of color, specifically African Americans and Hispanics, perform in language immersion programs, and on whether immersion programs have a positive impact on the reading proficiency of minority students in relation to traditional non-immersion programs. Finally, it provides school districts with data to determine if Spanish immersions should be continued or need to be implemented as programs that can help to close achievement gaps.

The three variables I analyzed were program type, time, and ethnicity. Program type—Spanish immersion or traditional non-immersion—was not statistically significant, although I detected no detriment. The data showed that Spanish immersion students' mean scores on the EOG reading exam were consistently higher than their non-immersion partners. There was probably no statistical significance due to the small number of participants in the study. Equitable access to Spanish immersion programs would permit continued improvement in academic achievement in reading, promote bilingualism, and distribute educational benefits to all stakeholders. It would also create a larger pool of eligible participants in immersion programs for future research.

When analyzing student performance by grade, I found that time was a statistically significant factor. Scale scores increased every year, between 3 and 5 points in each grade, regardless of program type. Factors that directly correlated to higher scores included time spent in school, time spent on literacy activities, length of attention span, maturity, and test familiarity. The time factor supports Thomas and Collier's (2012) observation that the longer students are in a program, the better their scores will be. Valentino and Reardon's (2014) research also showed that students had more long-term success when compared to short-term results. My study showed that the Spanish

immersion groups had less transition from year to year. Previous research showed that immersion minority students performed better when there were relationships built and teachers knew their students (Boone, 2007). Tracking immersion students and keeping them together with their teachers as they matriculate from grade to grade could show greater academic success for African American and Hispanic students. The teachers would have greater opportunities to develop meaningful relationships with the students. Anberg-Espinosa (2008) said that African American students show greater success in immersion programs where there were familial relationships and high expectations. This would allow for differentiated instruction that could improve the reading proficiency of students of color.

I found no statistical significance in ethnicity, whether African American or Hispanic; nor did I find any detriment. The limited number of participants—32 were African American and 20 were Hispanic—played a role in this lack of significance. The data revealed that African American students produced higher scale scores than their Hispanic peers. Conversely, Hispanic students showed more growth each year when their scores were compared within the subgroup. Unlike traditional non-immersion schools, Spanish immersion programs are choice programs; families have to apply to participate; therefore, the number of students is more limited, creating small pools of students from which to select. The candidate pool is reduced further when the criteria for inclusion are considered. Each of the variables analyzed in this study was skewed based on the limited number of participants.

Although this was a small study, the data showed that Spanish immersion students found greater success in reading. Based on my findings, I recommend that Spanish

immersion programs be made available in all elementary school districts to provide all students an equal opportunity to participate. Enrollment barriers, such as choice programs that are only available to families who seek out the opportunity, limit the number of students who can benefit from an immersion program. Making immersion programs available to all also would increase the number of students who would meet the criteria for this study. The findings showed that although there was no statistical significance in the program type, immersion students scored higher than their non-immersion peers in Grades 3-5. I found no reduction in student scores throughout this research. Ford and Palacios (2015) found that early reading instruction in Spanish gives immersion students a head start at reading in English and helps them to show better proficiency on assessments; therefore, providing elementary Spanish immersion starting in kindergarten in all districts to allow access for all will produce higher proficiencies in reading for minority students.

Greater success in Spanish immersion programs could be achieved if students were provided more real-life opportunities to interact with the language in a non-school environment. Anberg-Espinosa (2008) suggested that if parents and students had more interactions with the language outside of the classroom, it would increase their academic success and create strong cultural identities and acceptance. Incorporating service opportunities and Spanish cultural events into the Spanish immersion curriculum at an early stage would enhance language immersion programs and possibly attract a larger population of families who would be interested in the program. If students and families have opportunities to have ownership over their acquisition of the language, there will be higher motivation to start and continue in language immersion programs.

This study used one assessment to analyze student performance, the EOG reading exam. This multiple choice exam solely measures a student's reading comprehension ability. In order to have more robust and equitable results, additional tests should be performed on immersion and non-immersion students. A baseline exam should be provided at the beginning of the study to gauge students' initial levels and conclude with the EOG exam to compare growth throughout the year. Additionally, a variety of assessments should be administered to determine students' Spanish and English proficiency: written, verbal, and comprehension. If multiple areas are assessed, teachers can then determine areas of strengths and weaknesses and improve students' overall academic success.

Implications for Educational Practice

Limitations of the Study

A limitation of the study was that only one North Carolina school district with two full Spanish immersion programs was used. While the immersion programs were at traditional elementary schools, they are choice programs and include a small number of the total school population. Although Spanish immersion was one of the several choice programs offered in this district and families from across the district could apply to participate, there was a selection process, and not all applicants were enrolled. Additionally, many students could not participate in the Spanish immersion program because their families did not live near the two language immersion schools. Bus transportation was not provided to Spanish immersion students who did not live in the school district, so their families had to provide transportation. Transportation was a barrier for some families. For this reason, not all students who were eligible to participate

were able to be a part of the program.

Additionally, the pool of participants was reduced based on the criteria for inclusion in the study. The small sample size included only 52 students from the 82 students evaluated for the study. Students had to have been in the immersion program since kindergarten at their original school, had 3 years of EOG test data between 2016 and 2019, and been classified as either African American or Hispanic.

The language immersion program examined in this longitudinal study was a choice program; the district does not require it, and therefore, self-selection influenced student outcomes. With this knowledge, it is difficult to determine whether immersion students performed better than non-immersion students due to the effects of the program itself or to inherent differences among the students and their families who decided to opt into the language immersion program.

Recommendations for Further Study

I recommend the solicitation of multiple school districts across the state to get a larger pool of eligible participants. With more participants, the program type and ethnicity would likely be significant. The state of North Carolina has over 200 dual language immersion programs; 167 are Spanish immersion programs. Including multiple districts from different areas in the state would provide a more diverse set of data. All students in public schools of North Carolina take the EOG; therefore, it would be easy to compare student EOG reading scores to determine student success. Extending the participant pool would allow the opportunity to research multiple types of immersion programs and determine if students in certain areas of the state performed better than another area.

Further studies should include qualitative data from teachers and other stakeholders who participate in immersion and non-immersion education programs. This would create a more well-rounded result based on assessment data and human interaction. These data would include a more in-depth pool of data to include perspectives on program implementation, teacher feedback, parent feedback, and actual student feedback on how they perceive the language immersion programs to affect them academically. More strategies to improve Spanish immersion can be retrieved to help improve the facilitation of organizing and overseeing more immersion programs. These data could be compared with the quantitative data based solely on one cumulative summative assessment. Finally, a comparison of different language immersion programs would also provide a new lens of education choice. Comparing Spanish immersion and Chinese immersion programs would create a different lens and set of data for future research. This type of research can examine the similarities, differences, and success rates of multiple language immersion programs to determine if one language has a higher rate of success.

Future studies should include more than one assessment to compare student progress. In order to maintain the importance of language immersion, it is vital to assess students on Spanish proficiency in reading, writing, and speaking. In addition to the reading EOG, the math EOG should also be used to have a more comprehensive view of how language immersion programs prepare students as they matriculate from grade to grade. An alternate assessment that can be used is the Student Oral Proficiency Assessment. This test assesses the oral proficiency of students in the target language (Rhodes,1996). The assessment is used in the U.S. for elementary students between the

ages of 6 and 9. The Student Oral Proficiency Assessment measures student abilities in listening, comprehension, vocabulary, and storytelling in the foreign language (Rhodes, 1996). Providing multiple assessments to language immersion students in English and Spanish will help to provide a more complete depiction of student academic progress in Spanish immersion programs.

More language immersion programs are needed in areas of high-poverty and large minority student populations. While not statistically significant, the study showed that immersion minority students outperformed their non-immersion peers in all grades. If there are more language immersion programs in high-poverty and minority schools, there will be more motivation for minority students to take advantage of programs like immersion and it will ensure more equitable education for all students. There needs to be an immersion program in every elementary school to remove barriers and give access to all, regardless of where they reside or what kind of transportation they have. In order to address the achievement gap, opportunities like language immersion must be provided to all students. In an article on the widening achievement gap, ASCD (2013) said that schools must provide resources to students at an early age in order to eliminate these gaps; therefore, language immersion programs have to be implemented in low-income, high-poverty areas beginning in kindergarten (ASCD, 2013). All schools including high-poverty, minority-populated schools must ensure students have access to good teachers, engaging instruction, and appropriate resources in order to provide the learning environment to promote success, thus closing the achievement gap. Spanish immersion programs are engaging programs that, with the leadership of a high-quality teacher, can show great gains in reducing and closing the achievement gap.

Future studies should use the EOG test scores of White students as a control group in which to compare the growth and proficiency of minority students. This would better determine if participation in Spanish immersion programs effectively help to close the achievement gap. A final recommendation would be to include students whom applied to be a part of language immersion but did not participate due to the lottery or other issues that would deter them from participating. This would provide a larger pool of students and would provide a comparable group of non-immersion students with similar motivation levels as immersion students. These recommendations would provide deeper insight on how language immersion programs contribute to the academic success of students in the targeted district.

Summary of Findings

Although past research from Cummins (1979) and August and Shanahan (2006) has proven that Spanish immersion programs increase academic proficiency in reading, and Thomas and Collier (1997) specifically postulated that minority students perform better academically in Spanish immersion programs, my study does not fully support that research. My study, though small and not statistically significant, did not show any negative effect on immersion students, specifically African American and Hispanic students, and their academic performance on EOG reading exams. In fact, immersion students performed higher than non-immersion students in Grades 3-5. Immersion minority students also scored higher on the EOG reading exam than non-immersion minority students; therefore, further studies that include more participants could be significant because immersion students in this study performed better than their non-immersion peers.

My study showed that over time, students perform better on the EOG reading exam. Time allows for more exposure to content and each year, student reading skills become stronger. These skills correlate to the success on these exams. While immersion minority students performed better on their assessments, it was not statistically significant; however, due to the fact there were no negative effects, Spanish immersion does not cause student achievement to dwindle. This research is significant because it does show positive effects which would determine that District X should continue to offer Spanish immersion as an option for families to participate. More programs should be implemented in every elementary school so all students have access to the program, regardless of social-economic status, transportation, or lack of motivation by parents. My findings highlight the need for more Spanish immersion programs to be available to all students. Access to these programs could change and begin to close the gaps between minority students and their White counterparts. If the primary goal of public education is to provide opportunities for all students, especially for students of color for whom there is a significant achievement gap, Spanish language immersion programs should be offered in all school districts as an option for all students.

References

- Alvear, S. (2015). *Learning more than language: An examination of bilingual programs and student achievement in a large urban school district* (Accession No. 10670613) [Master's thesis, Rice University]. Proquest LLC.
- American Academy of Arts and Sciences. (2017). *America's languages: Investing in language education for the 21st century*.
https://www.amacad.org/sites/default/files/academy/multimedia/pdfs/publications/researchpapersmonographs/language/Commission-on-Language-Learning_Americas-Languages.pdf
- Anberg-Espinosa, M. (2008). *Experiences and perspectives of African American students and their parents in a two-way Spanish immersion program* [Doctoral dissertation, The University of San Francisco].
<https://repositotry.usfca.edu/diss/155>.
- ASCD. (2013, May). The widening income achievement gap.
<https://www.ascd.org/el/articles/the-widening-income-achievement-gap>
- August, D., & Hakuta, K. (Eds.). (1997). *Improving schooling for language minority children: A research agenda*. National Academy Press.
- August, D., & Shanahan, T. (Eds.). (2006). *Developing literacy in second-language learners*. Erlbaum.
- Baker, C. (2006). *Foundations of bilingual education and bilingualism* (4th ed.). Multilingual Matters.

- Bear, D. R., Negrete, S., & Cathey, S. (2012). Developmental literacy instruction with struggling readers across three stages. *New England Reading Association Journal*, 48(1), 1-9,112,114.
- Best Countries for Education. (2021). Education rankings by country 2021. <https://worldpopulationreview.com/country-rankings/education-rankings-by-country>.
- Black, M. (1991). Longitudinal studies in child maltreatment: Methodological considerations. In R. Starr (Ed.), *The effects of child abuse and neglect: Issues and research* (pp. 129–143). Guilford.
- Bohrnstedt, G., Kitmitto, S., Ogut, B., Sherman, D., & Chan, D. (2015). *School composition and the Black–White achievement gap* (NCES 2015-018). U.S. Department of Education, Washington, DC: National Center for Education Statistics.
- https://nces.ed.gov/nationsreportcard/subject/studies/pdf/school_composition_and_the_bw_achievement_gap_2015_methodology.pdf
- Boone, S. (2007). *Successful African American students in two-way immersion programs: parent and student perceptions* [Doctoral dissertation, Texas A&M University]. <https://core.ac.uk/download/pdf/4276587.pdf>
- Broadway Elementary School. (2020). *What is Spanish immersion?* <https://broadwayes-laUSDCA.schoolloop.com/whatspanishimmersion#:~:text=Spanish%20Immersion%20programs%20integrate%20Spanish%20into%20everyday%20curriculum.&text=It%20is%20designed%20for%20English,become%20truly%20proficient%20in%20it>

- Brondum, J., Stenson, N. (1998, February). Types of immersion education: An introduction. *The ACIE Newsletter*, 1(2). Minneapolis, MN.
https://carla.umn.edu/immersion/acie/vol1/Feb1998_ImmersTypes.html
- Castillo, C. T. (2001). *The effects of a dual-language education program on student achievement and development of leadership abilities* (Unpublished doctoral dissertation). Our Lady of the Lake University, San Antonio, TX.
- Center for Advanced Research on Language Acquisition. (2019). Virtual Assessment Center. University of Minnesota. <https://carla.umn.edu/assessment/vac/index.html>
- Center for Applied Linguistics. (1998, April). Two-way immersion education. Tools for schools. <https://www2.ed.gov/pubs/ToolsforSchools/2way.html>
- Chamberlain, S. P. (2005). Recognizing and responding to cultural differences in the education of culturally and linguistically diverse learners. *Intervention in School and Clinic*, 40(4), 195-211.
- Chishti, M, Hipsman, F., & Ball, I. (2015). Fifty years on, the 1965 Immigration and Nationality Act continues to reshape the United States.
<https://www.migrationpolicy.org/article/fifty-years-1965-immigration-and-nationality-act-continues-reshape-united-states>
- Cloud, N., Genesee, F., & Hamayan, E. (2000). *Dual language instruction*. Heinle & Heinle.
- Cohen, A. (1974). The Culver City Spanish immersion program: The first two years. *The Modern Language Journal*, 58(3), 95-103. <http://www.jstor.org/stable/323824>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Academic Press.

- Coy, S., & Litherland, L. (2000). *From a foreign language perspective: A snapshot view of a dual language program in two inner-city high poverty elementary schools* [Report: ERIC Document Reproduction Service No. ED 44645].
<https://files.eric.ed.gov/fulltext/ED446450.pdf>
- Crawford, J. (1989). *Bilingual education: History, politics, theory, and practice* (4th ed.). Bilingual Educational Services.
- Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research*, 49(2), 222–251.
- Detry, M., & Ma, Y. (2016, January 16). Analyzing repeated measurements using mixed models. *JAMA*, 315(4), 407.
- Doherty, R. W., & Hilberg, R. S. (2008). Efficacy of five standards in raising student achievement findings from three studies. *Journal of Educational Research*, 101(4), 195–206.
- Drozdowicz, S. (2012). *English/Spanish dual immersion elementary school programs: Factors to consider* (Accession No. ED530018) [Master's thesis, Dominican University of California]. Eric Database.
- Drummond, K., & Murphy-Reyes, A. (2018). *Experiment study designs*. Jones and Bartlett Learning, LLC.
https://samples.jbpub.com/9781284101539/9781284101539_CH06_Drummond.pdf
- Dunn, M. (2015). *Welcome to research methodology in psychology*. University of Southern Florida. <https://webcourses.ucf.edu/courses/1140056/pages/chapter-11-single-case-quasi-experimental-and-developmental-research>

Ebrary. (2014). *The dismissive period: 1980s-Present*.

[https://ebrary.net/113387/economics/dismissive_period_1980s_present#:~:text=Ovando%20\(2003\)%20states%20that%20the,campaigned%20vigorously%20against%20bilingual%20education](https://ebrary.net/113387/economics/dismissive_period_1980s_present#:~:text=Ovando%20(2003)%20states%20that%20the,campaigned%20vigorously%20against%20bilingual%20education)

Education Commission to the United States. (2014). How is an “English Language Learner” defined in state policy.

<https://ecs.secure.force.com/mbdata/mbquestNB2?rep=ELL1402>

Encyclopedia Britannica (2021, August 27). *Bilingual education act*.

<https://www.britannica.com/topic/Bilingual-Education-Act>

Eurostat. (2018). What proportion of students learn two or more languages?

https://ec.europa.eu/eurostat/statisticsexplained/images/a/a0/Students_studying_two_or_more_foreign_languages_2018data.JPG.

Ford, K., & Palacios, R. (2015). Early literacy in Spanish: Teaching the beginning reader.

<https://www.colorincolorado.org/article/early-literacy-instruction-spanish-teaching-beginning-reader>

Freeman, R. (1998). *Bilingual education and social change*. Multilingual Matters.

Geva, E. (2006). *Learning to read in a second language: Research, implications, and recommendations for services*. Encyclopedia on Early Childhood Development.

<http://www.child-encyclopedia.com/documents/GevaANGxp.pdf>

Girden, E. (1992). *ANOVA: Repeated measures*. Sage.

<https://www.datanovia.com/en/lessons/mauchlys-test-of-sphericity-in-r/>

Grant, P. (2017). How to know if something is significant in SPSS.

<https://sciencing.com/something-significant-using-spss-8751680.html>

Greene, J. P. (1998). A meta-analysis of the Rossell and Baker review of bilingual research. *Bilingual Research Journal*, 21(1) 1–18.

Hanover.edu. (n.d.). Quasi experimental designs. Hanover University, IN.

https://vault.hanover.edu/~altermattw/courses/220/readings/Quasi_experimental_designs.pdf

Heinrichs, C. (2016). Exploring the influence of 21st century skills in a dual language program: A case study. *International Journal of Teacher Leadership*, 7(1), 37-56.

History, Art & Archives, U.S. House of Representatives. (2021, September 18). National Defense Education Act. https://history.house.gov/Records-and-Research/Listing/lfp_006/

History.com Editors. (2019). U.S. Immigration since 1965.

<https://www.history.com/topics/immigration/us-immigration-since-1965>

History.com Editors. (2020). President Coolidge signs immigration act of 1924.

<https://www.history.com/this-day-in-history/coolidge-signs-stringent-immigration-law>

History.com Editors. (2021). *14th Amendment*. <https://www.history.com/topics/black-history/fourteenth-amendment>

History.com Staff. (2021). Chinese exclusion act.

<https://www.history.com/topics/immigration/chinese-exclusion-act-1882>

History Free Essays. (2019). History of American education timeline.

<https://essaysworld.net/essays/history-essays/history-of-american-education-timeline>

Hobbs, F., & Stoops, N. (2002). *Demographic trends in the 20th century: Census 2000 special reports. Series CENSR-4*. U.S. Government Printing Office.

Holobow, N., Genesee, F., Lambert, W., Gastright, J., & Met, M. (1987). Effectiveness of partial French immersion for children from different social class and ethnic backgrounds. *Applied Psycholinguistics*, 8(2), 137-152.
<https://doi.org/10.1017/S0142716400000175>

H.R. 40 - 93rd Congress (1973-1974): Equal Educational Opportunities Act. (1973, January 3). <https://www.congress.gov/bill/93rd-congress/house-bill/40>

Humes, K. R., Jones, N. A., & Ramirez, R. R. (2011). *Overview of race and Hispanic origin: 2010 (2010 Census Briefs No. C2010BR-02)*. U.S. Census Bureau.
<http://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf>

Husser, W., & Bailey, T. (2020, May). Projections of education statistics to 2028. National Center for Education Statistics.
<https://nces.ed.gov/programs/PES/section-1.asp>

Immigration and Ethnic History Society. (2019). *People v. Hall*. The University of Texas at Austin. <https://immigrationhistory.org/item/people-v-hall/>

Jimenez-Silva, M., Bernstein, K. A., & Baca, E. C. (2016). An analysis of how restrictive language policies are interpreted by Arizona's Department of Education and three individual school districts' websites. *Education Policy Analysis Archives*, 24(105). <http://dx.doi.org/10.14507/epaa.24.2291>

Johnson, R. K., & Swain, M. (1997). *Immersion education: International perspectives*. Cambridge University Press.

- Kammer, J. (September, 2015). The Hart-Celler Immigration Act of 1964. Center for Immigratin Studies. <https://cis.org/Report/HartCeller-Immigration-Act-1965>
- Kinney, E. (2018). The controversial passage of Proposition 227. *Departmental Honors Projects*. 73. <https://digitalcommons.hamline.edu/dhp/73>
- Kober, N., & Renter, D. (2020). *History and evolution of public education in the US*. Center on Education Policy, George Washington University. <https://files.eric.ed.gov/fulltext/ED606970.pdf>
- Krashen, S. D., & Terrell, T. D. (1983). *The natural approach: Language acquisition in the classroom*. Alemany Press.
- Ladson-Billings, G. (Oct. 2006). Achievement gap to the education debt: Understanding achievement in U.S. schools. *Educational Researcher*, 35(7) 3-12. American Educational Research Association. <https://www.jstor.org/stable/3876731>
- LexisNexis. (2021). Meyer v. Nebraska - 262 U.S. 390, 43 S. Ct. 625 (1923). <https://www.lexisnexis.com/community/casebrief/p/casebrief-meyer-v-nebraska>
- Lindholm-Leary, K., Block, N. (2010). Achievement in predominantly low SES/Hispanic dual language schools. *International Journal of Bilingual Education and Bilingualism*, 13(1), 43-60.
- Little, B. (2018). *How boarding schools tried to 'kill the Indian' through assimilation. Native American tribes are still seeking the return of their children*. History.com. <https://www.history.com/news/how-boarding-schools-tried-to-kill-the-indian-through-assimilation>

Lopez, E. C., Lamar, D., & Demartini, D. (1997). The cognitive assessment of limited English-proficient children: Current problems and practical recommendations.

American Psychological Association, 3(2), 117–130.

Love, S. (2005). *Understanding mobile human-computer interaction*. Butterworth-Heinemann.

Lyons, D. (2020). What are the most spoken languages in the U.S.? *Babbel Magazine*.

<https://www.babbel.com/en/magazine/most-spoken-languages-in-the-us>

McLeod, S. A. (2019, May 20). *What a p-value tells you about statistical significance*.

Simply Psychology. www.simplypsychology.org/p-value.html

Menard, S. W. (2008). Introduction: Longitudinal research, design, and analysis. In S.

Menard (Ed.), *Handbook of longitudinal research: Design, measurement, and analysis* (pp. 3–12). Elsevier.

Merriam-Webster. (n.d.). Target language. In *Merriam-Webster.com dictionary*.

Retrieved March 3, 2022, from <https://www.merriam-webster.com/dictionary/target%20language>

Mitchell, C. (2017). Dual-language programs boost student achievement, study shows.

Education Week. <https://www.edweek.org/teaching-learning/dual-language-programs-boost-student-achievement-in-english-study-finds/2017/11>

National Center for Education Statistics. (2011). *Achievement gaps: How Hispanic and*

White students in public schools perform in mathematics and reading on the National Assessment of Educational Progress. Institute of Education Sciences.

<http://nces.ed.gov/nationsreportcard/pdf/studies/2011485.pdf>

National Center for Education Statistics. (2019). *Indicator 6: Elementary and secondary enrollment*. https://nces.ed.gov/programs/raceindicators/indicator_rbb.asp

Nieto, D. (2009). A brief history of the bilingual education in the Unites States. *Perspectives on Urban Education*, 6(1), 61–72.

North Carolina Department of Public Instruction. (2012). *Policy TEST-013: Multiple choice test development*.
<https://simbli.eboardsolutions.com/ePolicy/policy.aspx?PC=TEST-013&Sch=10399&S=10399&C=TEST&RevNo=1.12&T=A&Z=P&St=ADOPTED&PG=6&SN=true>

North Carolina Department of Public Instruction. (2014a). *Interpretive guide to the WinScan score reports for the North Carolina end of grade assessments*.
https://nanopdf.com/download/interpretive-guide-to-the-winscan-score-reports-for-the-assessments_pdf

North Carolina Department of Public Instruction. (2014b). *Understanding the five achievement levels*. <https://www.dpi.nc.gov/media/146/open>

North Carolina Department of Public Instruction. (2020). North Carolina school report cards. <https://ncreports.ondemand.sas.com/src/index?lng=en>

Oberg De La Garza, T., MacKinney, E., & Lavigne, A. L. (2015). Dual language instruction and achievement: A need and a void in the midwest. In P. Konkol & S. Stumme (Eds.), *Midwestern perspectives on bilingual education: Changing demographics and educational challenges and opportunities* [Special issue]. *Midwestern Educational Researcher*, 27(4), 363–382.

- Oller, D. K. (2002). Sequence of reading acquisition in bilinguals. In *Encyclopedia of Language and Literacy Development* (pp. 1–7). Canadian Language and Literacy Research Network.
- Omeka, (2021). Reinforcing immigration policies.
<http://projects.leadr.msu.edu/makingmodernus/exhibits/show/theodore-roosevelt--a-conflict/reinforcing-immigration-policies>
- Ovando, C. (2003). Bilingual education in the US: Historical development and current issues. *Bilingual Research Journal*, 27(1), 1–24.
- Paulston, C. B. (1992). *Linguistic and communicative competence: Topics in ESL*. Multilingual Matter.
- Preceden. (2021). *History of bilingual education in the United States*.
<https://www.preceden.com/timelines/59492-history-of-bilingual-education-in-the-united-states>
- Public Schools of North Carolina. (2020). Language diversity in North Carolina.
<https://drive.google.com/file/d/1dF3wbOT5tKyicsmRObCd6whIY6ST482/view>
- Reardon, S., & Galindo, C. (2009). The Hispanic-White achievement gap in math and reading in the elementary grades. *American Educational Research Journal*, 46(3), 853–891. <https://doi.org/10.3102/0002831209333184>
- Rega, M. (2015). *Reading and math outcomes of randomly selected majority culture students participating in an elective, parent choice, full academic content area Spanish immersion program* (Accession No. 3687022) [Doctoral dissertation, University of Nebraska]. ProQuest LLC.

- Rhodes, N. (1996). *Alternative assessment for immersion students: The student oral proficiency assessment (SOPA)*. Center for Applied Linguistics.
- Rhodes, N. C. (2010). Elementary school foreign language teaching: Lessons learned over three decades (1980-2010). *Foreign Language Annals*, 47(1), 115–131.
- Rivas, K. (2014). *4 reasons why learning a new language requires immersion*. Omniglot.
<http://www.omniglot.com/language/articles/languageimmersion.htm>
- Roberts, A. (2019). *Impact of language program model on third grade English language learners' proficiency in literacy* (Accession No. 22582732) [Doctoral dissertation, Gardner-Webb University]. ProQuest LLC.
- Rolstad, K., Mahoney, K., & Glass, G. V. (2005). The big picture: A meta-analysis of program effectiveness research on English language learners. *Educational Policy*, 19(4), 572–594. <https://doi.org/10.1177/0895904805278067>
- Salgado, H. (2016). *Teachers' perspectives on academic achievement and educational growth of US-born Hispanic students in a Midwestern Spanish language immersion program* (Accession No. 10123631) [Doctoral Dissertation, Lindenwood University]. Proquest LLC.
- Schütz, R. (1998). Stephen Krashen's theory of second language acquisition.
<https://www.sk.com.br/sk-krash-english.html>
- Skelton, C. (n.d.). Meyer v. Nebraska, 262 U.S. 390 (1923).
<https://supreme.justia.com/cases/federal/us/262/390/>
- Slavin, R., & Cheung, A. (2005). A synthesis of research on language of reading instruction for English language learners. *Review of Educational Research*, 75(2), 247–284.

Steele, J., Slater, R., Zamarro, G., Miller, T., Li, J., Burkhauser, S., & Bacon, M. (2017).

Effects of dual-language immersion programs on student achievement: Evidence from lottery data. *American Educational Research Journal*, 54(1S), 282S–306S.

<https://doi.org/10.3102/0002831216634463>

Stipek, D., Ryan, R., & Alarcón, R. (2001). Bridging research and practice to develop a

two-way bilingual program. *Early Childhood Research Quarterly*, 16(1), 133–149.

Sugarman, S., & Widess, E. (1974, January). Equal protection for non-English-speaking

school children: Lau v. Nichols. *California Law Review*, 62(1).

<https://files.eric.ed.gov/fulltext/ED105720.pdf>

Taylor, B. (2016). *Parent motivation regarding dual language immersion programs*

(Accession No. 10119015) [Doctoral dissertation, Gardner-Webb University].

ProQuest LLC.

Tennessee State University. (n.d.) Facto Designs.pdf.

<https://www.tnstate.edu/eduadmin/Facto%20Designs.pdf>

Thomas, W. P., & Collier, V. (1997). *School effectiveness for language minority students*.

National Clearinghouse for Bilingual Education.

Thomas, W., & Collier, V. (2002). *A national study of school effectiveness for language*

minority students' long-term academic achievement. UC Berkeley: Center for

Research on Education, Diversity and Excellence.

<https://escholarship.org/uc/item/65j213pt>

Thomas, W., & Collier, V. (2004). The astounding effects of dual language education for

all. *NABE Journal of Research and Practice*, 2(1), 1-20.

Thomas, W., & Collier, V. P. (2012). *Dual language education for a transformed world*.

Dual Language Education of New Mexico Fuente Press.

Tran, N., Martinez-Cruz, A., Behseta, S., Ellis, M., & Contreras, J. (2015). The effects of Spanish English dual language immersion on student achievement in science and mathematics. *Journal of Education Policy, 2015 Special Edition*, 57-77.

https://in.nau.edu/wp-content/uploads/sites/135/2018/08/Tran_et_al-ek.pdf

Trevino, M. (2014). *Total immersion and partial immersion programs: Different models*.

Vista Higher Learning. <https://vhblog.vistahigherlearning.com/total-immersion-and-partial-immersion-programs-introductio-resources-for-your-spanish-classroom.html>

U.S. English, Inc. (2020). <https://www.usenglish.org/>

USA Facts. (2021). *Population*. <https://usafacts.org/data/topics/people-society/population-and-demographics/population-data/population/>

Uzzell, E. M., & Ayscue, J. B. (2021). Racial integration through two-way dual language immersion: A case study. *Education Policy Analysis Archives*, 29(48).

<https://doi.org/10.14507/epaa.29.5949>

Valentino, R., & Reardon, S. (2014). *Effectiveness of four instructional programs*

designed to serve English language learners: Variation by ethnicity and initial English proficiency. Stanford University Graduate School of Education.

https://cepa.stanford.edu/sites/default/files/Valentino_Reardon_EL%20Programs_14_0319.pdf

Vega, L. (2014). *Effects of an elementary two-way bilingual Spanish-English immersion program on junior high and high school achievement* (Accession No. 3624396)

[Doctoral dissertation, Colorado State University]. ProQuest LLC.

Watzinger-Tharp, J., Swenson, K., & Mayne, Z. (2016). Academic achievement of students in dual language immersion. *International Journal of Bilingual Education and Bilingualism*, 21(8), 913-928.

<https://12trec.utah.edu/research/IJBEBWatzinger-Tharp2016.pdf>

Willig, A. C. (1985). A meta-analysis of selected studies on the effectiveness of bilingual education. *Review of Educational Research*, 55(3), 269–317.

<https://doi.org/10.3102/00346543055003269>