

EXPLORING LANGUAGE DEVELOPMENT IN RURAL GEORGIA: BENEFITS OF A DUAL LANGUAGE IMMERSION PROGRAM FOR ELEMENTARY AND MIDDLE GRADES STUDENTS

by

KAREN ANN HEWELL-THRASHER

(Under the Direction of Stacey Neuharth-Pritchett)

ABSTRACT

This is a quasi-experimental quantitative study that included 5,223 kindergarten through eighth grade student participants attending six public schools within one rural public school system in Georgia during the 2015-2016 school year. Children in the study participated in either the DL model of education (English-Spanish) or a traditional model of education (TEO-English only). EL students educated through the traditional model received subtractive ESL services including no primary language support. Comparison of state English Language Arts achievement scores among groups of EL and non-EL third through eighth grade students across six schools who participated in two different educational programs (DL or TEO) was made using a one-way analysis of variance (ANOVA) procedure to test for statistical significance. Results indicated native-English speaking and native-Spanish speaking DL program students performed statistically significantly better on tests of English Language Arts than TEO peers. Additionally, more years in the DL program was correlated with higher state achievement test scores.

INDEX WORDS: Two way immersion, dual language, bilingual education, achievement gap, biliteracy, native-English, native-Spanish

EXPLORING LANGUAGE DEVELOPMENT IN RURAL GEORGIA:
BENEFITS OF A DUAL LANGUAGE IMMERSION PROGRAM FOR
ELEMENTARY AND MIDDLE GRADES STUDENTS

by

KAREN ANN HEWELL-THRASHER

B.S. North Georgia College and State University, 1998

M.S. Georgia State University, 1999

Ed.S Georgia State University, 2001

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial
Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2017

© 2017

Karen Ann Hewell-Thrasher

All Rights Reserved

EXPLORING LANGUAGE DEVELOPMENT IN RURAL GEORGIA:
BENEFITS OF A DUAL LANGUAGE IMMERSION PROGRAM FOR
ELEMENTARY AND MIDDLE GRADES STUDENTS

by

KAREN ANN HEWELL-THRASHER

Major Professor:	Stacey Neuharth-Pritchett
Committee:	Martha Carr
	Zhenqiu Laura Lu

Electronic Version Approved:

Suzanne Barbour
Dean of the Graduate School
The University of Georgia
May 2017

DEDICATION

This dissertation is dedicated to my husband, David Thrasher. Without your love, support, and eager willingness to shoulder the majority of our responsibilities in order to see me succeed in this endeavor, it most certainly would have never happened.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my major professor, Stacey Neuharth-Pritchett, whose writing observations, statistical expertise, continual support, and general guidance provided the academic cornerstone for my work. Thank you most of all for identifying and keeping me focused upon the most important next steps throughout the process. I am also grateful to the other members of my dissertation committee, Martha Carr and John Dayton, for the many hours they spent supporting my work. I am eternally grateful to Zhenqiu (Laura) Lu for graciously participating as a member on my committee at a moment's notice. Your kindness made a difference in my life.

I want to thank the superintendent, associate superintendent, executive director of leadership, school administrators, and data specialist for the county in which the data for this research project was collected. Your willingness to work with me and entrust me with your data was humbling. To T.B., you are an incredible data specialist with an extraordinary mind for technology. Your work and responsiveness to my requests were above and beyond the call of duty and were absolutely paramount to this research.

I want to thank my parents, Jim Hewell and Linda Keys, for the thousands of ways they supported and encouraged me from my very first learning experiences throughout my childhood. My beloved father, Jim Hewell, gave me my first psychology text book when I was 8-years-old after he finished a college psychology course. The first word I remember him ever using to describe me was "curious". He was always proud of me and I know he would be proud to read every word of my dissertation if he were still alive. My mother, Linda Keys, sacrificed decades

of her life to make my life better. She has always believed I would succeed and helped in countless ways to make that happen. She was the prayer warrior who prayed me through the last year of my dissertation. My step-father, Jim Keys, is solely responsible for me taking my first step toward obtaining any degree beyond high school. He talked to me about it so frequently and thoroughly when I was in my mid-twenties that I finally agreed to attend one class for one semester. From then on I was hooked, just as he knew I would be. Thank you, Jim, for seeing in me what I could not see in myself. I want to thank my maternal grandparents, James and Ethel Skelton, who were always real life examples of unconditional love and God's mercy in my life. My maternal grandmother in particular invested countless hours playing memory and school games with me, always making me think I was good at discovering, learning, and remembering at a time in my life when I truly needed her. I am also grateful to my paternal grandparents, Jack and Kathleen Hewell, whose lives and examples showed me that hard work coupled with a supportive family network can take you as far in life as you want to go.

To my grandchildren, Jaycee, Emory, Isabella, Ashlyn, Reagan, Steele, Blake, Libby, and Storm, thank you for your innocent, whole-hearted belief in me. Not letting you guys down was the one thing that pushed me through many tough times. Always remember that you have a family who is dedicated to you and who is loved by God. He is a good, good Father. Together, we can face anything; we can achieve anything.

Lastly but most tenderly, I would like to thank my children. My love for children is what inspired me to begin this research yet being away from my own children and grandchildren while writing is what made finishing this dissertation so difficult. Sloane, Seth, Shawn, Kristin, Rylee, Phuong, Kyle, and Carlos, I want you to know that I started this dissertation for you and my love for you helped inspire me to finish. Thank you for being so energetically supportive of my work

when I replied to your invitations and requests with “I’m sorry but I can’t.” Thank you for your encouraging calls, texts, and even memes coming through at my most stressful moments of writing. Those unexpected gestures of love both touched my heart and made me laugh. I will never forget your support during those times.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	v
LIST OF TABLES	ix
CHAPTER ONE	
1 INTRODUCTION	1
Statement of the Problem.....	4
Purpose of the Study	18
Research Questions.....	18
Significance of the Study	19
CHAPTER TWO	
2 REVIEW OF LITERATURE	20
Key Components of Effective Dual Language Programs.....	21
Longitudinal Outcomes.....	23
Demographic Considerations.....	24
Economically Disadvantaged.....	25
Attendance	28
Students with Disabilities	29
ELs are at risk for incomplete acquisition of L1.....	30
Benefits of DL Programs to SWDs.....	30
Theoretical Framework.....	36

CHAPTER THREE

3	METHOD	39
	Purpose Statement.....	39
	Research Questions.....	39
	Research Design.....	40
	Participants.....	42
	Measures	44
	Procedures.....	46
	Descriptive Statistics.....	46

CHAPTER FOUR

4	RESULTS	48
	Analysis 1.....	48
	Analysis 2.....	49
	Analysis 3.....	51

CHAPTER FIVE

5	DISCUSSION.....	53
	Research Question One.....	53
	Research Question Two	54
	Research Question Three	55
	Limitations of This Study	56
	Implications for Future Research.....	57

REFERENCES	59
------------------	----

LIST OF TABLES

	Page
Table 1: Mean English Language Arts Achievement Scores of Children whose Primary Language is Spanish across Dual Language and Traditional English-Only School Programs	49
Table 2: Mean English Language Arts Achievement Scores of Children whose Primary Language is English across Dual Language and Traditional English-Only School Programs	50
Table 3: Differences in English Language Arts Achievement Scores of Children whose Primary Language is English across Dual Language and Traditional English-Only School Programs	50

CHAPTER 1

INTRODUCTION

The United States is virtually the only industrialized country in the world that does not afford language and literacy education in more than one language to its public school children (Crystal, 2008; Delvin, 2015; Long & Bolton, 2016; Ministry of National Education, 2012). Many U.S. schools offer foreign language classes in middle and high schools but those classes are not effective in, or even designed to, graduate public school students who are multilingual (GaDOE, 2007). In fact, even the methods of teaching non-native English speaking students have historically been based on English-only instruction, a goal of academic proficiency in only English, or both (Baker, 2011). Results of the United States' ratings on the Programme for International Student Assessment (PISA), an academic achievement test for 15-year-olds used by the vast majority of the world economy, indicates among approximately 70 countries, in 2015, the United States ranked under 25 countries including Singapore, Canada, Vietnam, Australia, Germany, and Japan when measured in science and reading and ranked behind 39 countries in math (Organisation for Economic Co-operation and Development, 2015). Some speculate the lowered achievement of United States' students is, in part, a bi-product of monolingual pedagogy (Berman, 2011; Mushi, 2012).

According to the 2010 United States Census, the percentage of people living in the United States and speaking a language other than English in their home has increased from 23 million in 1980 to over 60 million in 2010, which is a percentage increase from 11% to 21% over a 30 year span of time. In the United States, there were an estimated 4.7 million public school

students, or 9.8 percent of the public school student population, whose primary language was not English (English learners - ELs) in the 2010–11 school year which was an increase from 8.7 percent in the 2002-2003 school year (U.S. Department of Education, 2011). Results of state achievement testing across the country revealed that EL students consistently score below state norms (Kindler, 2002).

Education in the United States is largely monolingual for all students, non-native English speakers and native English speakers alike, even when the instruction is referred to as bilingual and is focused upon teaching English to non-native speakers. In the public debate regarding bilingual education in the United States, it is suggested by some there is as yet no convincing evidence bilingual education is effective at helping EL students achieve academically in English (Baker & de Kanter, 1981; Farver, Lonigan, & Eppe, 2009). Although there have been numerous studies evaluating the effectiveness of bilingual education, taken as a whole, reviews of bilingual education studies have presented conflicting evidence and have failed to provide the clear answers needed for decision making and policy change. Although some research indicates bilingual education to be ineffective, data from other studies indicate EL students in bilingual education programs achieve at significantly higher levels than EL students in traditional English-only programs (Greene, 1997; Rolstad, Mahoney, & Glass, 2008; Willig, 1985). However, critiques of these conflicting conclusions suggest core operational definitions as well as analyses that differ between research studies to a degree that significantly alter what the data from each study is measuring and subsequently, the interpretation, and comparability of the studies (Baker, 2011).

The term bilingual education is a broad term that can categorize many different programs that vary significantly in their core characteristics (Baker, 2011). Confusion is caused when the

term bilingual education is used as if it is precise enough to communicate a common and specific concept among readers. Important clarity is provided as researchers use more precise terminology when referring to a program that falls under the heading of bilingual education. To benefit from studying research on this topic, the reader must be aware of different models of bilingual education and avoid interpretations that combine data from dissimilar programs into a general category. When conducting or reading research on bilingual education, it is important for the reader to understand the goals of the program(s), which language(s) are used for the delivery of instruction, what percentage of instructional time each language is used, the length of time the first language (L1) is supported, achievement gap comparisons, and longitudinal achievement outcomes for all students.

Bilingual education program models include those that are subtractive, replacing the students' L1 with a second language (L2), and those that are additive, developing L1 along with L2. Within the category of subtractive, programs include those that are transitional, ranging from two to six years of L1 support to traditional English for Speakers of Other Languages programs (ESL) which provide no L1 support. An additive model of interest for the purposes of the current study is the two-way immersion model of dual language education and will be referred to in this paper as DL. The DL education model is one that delivers instruction to students whose primary language is one of the two languages through which academic instruction is presented and embedded. The goal of the DL model is bilingualism and biliteracy for all students. The most common form of DL education in the United States is based upon the target languages of English and Spanish. Understanding the difference between additive and subtractive approaches to bilingual education in the United States is important because studies on the outcomes of bilingual education have demonstrated that there is a positive difference in EL student achievement when

additive models of bilingual instruction, such as the DL model, are used as compared to programs with no goal of developing the EL student's primary language (Brisk, 1981).

The DL additive model of bilingual education is very different from programs many stakeholders think of as bilingual education. Despite being commonly categorized under programs of bilingual education, subtractive models of bilingual education such as ESOL actually have no goal of bilingualism (Baker, 2011). Instead the goal of subtractive models is to replace the students' L1, at least in the school environment, with the country's dominant language, which is English in the United States. There are many reasons for the popularity of the English-only model that are based on erroneous beliefs including the belief that the best way to acquire English language proficiency is to practice using solely English for all activities involving language (Chavez, 2002; Genesee, 2015) and that the resources used to develop bilingualism benefit only EL students, taking away those resources from native-English speaking students (García, 2009; Giles, 2010; Thomas & Collier, 2012).

In the United States, the dominant form of bilingual education for ELs has been a model by which students are pulled out of the general education classroom or the ESL teacher goes into the general education classroom to support English language development for as little as one-hour per day. Only English is used to support the EL student's English language development. Then, students return to receiving unsupported instruction in English and to perform academic tasks in English with no use of their native language (Thomas & Collier, 1998).

Statement of the Problem

In addition to the lowered achievement of U.S. students overall as evidenced by PISA world rankings mentioned previously, traditional programs implemented to educate students whose primary language is not English have failed to prove their effectiveness. Results of state

achievement testing across the country revealed that not only do EL students consistently score below state norms, there is a 36 point gap between EL students and non-EL students on 2009 fourth grade reading test scores, a 44 point gap in eighth grade reading scores, and a 50 point gap in twelfth grade reading scores. As students advance in grade levels, the achievement gap widens and these gaps were wider in 2009 than they were in 2003 (Kindler, 2002; Ross, et al., 2012). To summarize, English-only language education policies have failed to promote higher rankings of American students globally and unacceptably high numbers of native-English speaking students are failing to meet basic educational standards.

The practice of educating students in the United States whose primary language is not English and other at-risk groups whose primary language is English has undergone changes in approach, implementation, pedagogy, policy, and public perception since U.S. Congress passed Title VII of the Elementary and Secondary Education Act – The Bilingual Education Act in 1968. Policy trends of instructional programs specific to educating ELs have ranged from the absence of policy, the allowance and funding then the forbidding of such programs, and the creation of policy which delineates required components of programs funded. Other sections of ESEA have been continually modified over the past decades in an effort to help children from poor families, children who have disabilities, and children from minority groups experience better academic success. Current policy emphasizes accountability for all students through progress toward academic standards as measured by state achievement testing (Hampden-Thompson & Johnston, 2006; García, 2009). But how are these academic standards to be reached?

Current ESL instruction in most school districts and states across the United States provide only a few hours a week for actual English language instruction to ESL students

(Thomas & Collier, 1998). Despite poor outcomes associated with traditional ESL instruction, it is the most frequently used model in the United States (Thomas & Collier, 1998; Thomas & Collier, 2011). Under the ESL model, students are largely expected to learn English by being in classrooms with English speaking students and only using English for all academic learning and most social interaction, especially when the social interaction is with adults. The goal of ESL programs is to develop the English skills of non-native English speakers, while essentially ignoring development or usage of their native languages (Thomas & Collier, 2011).

Conversely, an additive model of bilingual instruction is one that delivers instruction to two groups of students differing in their primary language through both languages with the goal of bilingualism and biliteracy for all students, native-English speaking and EL students alike. Cloud, Genesee, and Hamayan (2000) elaborate on the definition of the additive model of bilingual education describing it as a process by which individuals develop proficiency in a second language subsequent to or simultaneously with the development of proficiency in the primary language, without loss of the primary language – where the first language and culture are not replaced or displaced.

Students who have been schooled through additive bilingual programs have the advantages of bilingualism and biliteracy with no evidence of any negative impact upon English academic achievement (Marian, Shook, & Schroeder, 2013; Thomas & Collier, 1997). Dual language (DL) education is one such additive model of bilingual education that is based upon the developmental needs and educational benefits of enrichment for all children and provides access to the L1 of all students. Judith Lessow-Hurley emphasizes the importance of recognizing the additive goal of the DL model saying this understanding “clarifies the need for both second-language instruction for students who speak only English and primary-language instruction for

students whose native language is not English” (1991, p. 22). Developmental considerations of DL include those related to the social/emotional, cognitive, and linguistic needs of all children, EL and native-English speakers alike (Baker, 2011; Thomas & Collier, 1997; Thomas & Collier, 2012). Dual language programs involve teaching all students, both ESL students and English-speaking students in the same classroom in an integrated manner so that instruction is provided in two languages (Thomas & Collier, 2011). In a DL classroom, the native-Spanish speaking student and the native-English speaking student is able to learn a second language while also using and developing his or her native language. This model of education does not segregate students, quite the opposite. DL students learn a second language in part by communicating with peers who are native speakers of the second language while socializing and through collaboration when problem-solving (Baker, 2011; Thomas & Collier, 1997; Thomas & Collier, 2012).

The DL model is a viable alternative to traditional monolingual and bilingual education in the U.S. that has been proven effective by research to not only produce bilingual and biliterate students but to produce EL and native-English speaking students from at-risk and non-at-risk groups who achieve higher on English-based statewide academic tests than peers being educated through traditional English-only programs. Research from numerous scholars (Genesee, 2008; Lindholm-Leary, 2001; Marian, Shook, & Schroder, 2013; Thomas & Collier, 2002) indicate that the DL model of education, described in detail in this paper, produces native English speaking students as well as non-native English speaking students that achieve academically and socially at levels that are quite high in comparison to peers receiving instruction in traditional English-only programs. For these reasons, DL education is being considered here as an

alternative education for *all students* with the primary goal of increased academic achievement in English and secondary benefits of bilingualism and biliteracy.

Positions for and against DL education

Although there are federal funds important to education, the United States Constitution gives responsibility of education to the states rather than to the federal government (Hess & McShane, 2013). Historically, education policies in the United States have been received more positively when they are perceived as giving more control to the parents and educators in local districts and less control to “big government” because these ideals are in alignment with our long established American culture. Bosso argues “The ideology of free-market capitalism and minimal government intervention is so potent that anyone who suggests real alternatives is labeled quickly a radical or dreamer, an image that ultimately exiles advocates to the margins of mainstream discourse” (as cited in Cooper, Fusarelli, & Randall, 2004, p. 74). Therefore, state and local boards of education have autonomy to independently create their own ideals which dictate what will and will not be taught to its students. State leaders have advocated for their independence in setting their own educational priorities based on their belief that each state’s needs and demands are unique; therefore, education within each state should be tailored to prepare students to meet those needs and demands.

Despite evidence produced by studies on the effectiveness of DL education, resistance to its implementation by government officials and other local stakeholders sometimes persists (Chavez, 2002; Giles, 2010; Kobayashi, 2009). Some of those reasons include social and political motivations, overwhelming logistical challenges, and the erroneous belief that educating children bilingually will have a negative impact upon students’ academic achievement in English.

Although not based upon evidence, patriotism and pride in American achievement as well as fear of the societal outcomes of diversity have been used as the basis of opposition to educating American children in multiple languages. In 1919, President Theodore Roosevelt said, “There can be no divided allegiance here. Any man who says he is an American, but something else also, isn't an American at all. We have room for but one flag, the American flag ... We have room for but one language here, and that is the English language ... and we have room for but one sole loyalty and that is a loyalty to the American people.” When speaking on using English-only for instruction in American schools, Roosevelt said, ““This is a nation — not a polyglot boarding house. There is not room in the country for any 50-50 American, nor can there be but one loyalty — to the Stars and Stripes.” This type of blind following of the “English equals American patriotism” idea is a powerful part of policy discourse based on issue framing and is nearly impossible to argue against. This phenomenon is described by Norton (1993) when he says “The force of a political idea lies in its capacity to transcend thought,” becoming “a set of principles unconsciously adhered to, a set of conventions so deeply held that they appear (when they appear at all) to be no more than common sense” (p.1, as cited in Cooper, Fusarelli, and Randall, 2004, p. 72). Many stakeholders today still form opinions and have reservations about multilingualism in education based on these myths while ignoring statistics indicating that DL student achievement in English (even for native-English speakers) is as high as, and many times higher, than monolingually educated peers.

Existing education policy was written to accommodate traditional English-only policies which creates the need for a great deal of complicated and time consuming bureaucratic navigation for public school systems which may want to implement a DL model. Taking a path that alternates from what many Americans believe constitutes the American-way to educate

requires professional skills in addition to tremendous motivation and ability of leaders to advocate for and effect public education policy changes. Critical theorists would argue that a societal rejection of the hard work required to change policies and practices related to the implementation of DL programs serves the purpose of promoting white dominance and related societal inequities including devaluing the languages and cultures of other racial and ethnic groups. When viewed through the lens of critical theory, controlling resources is one less visible way of ensuring that a dominant group's values take priority over those of other groups. However, one weakness of viewing the DL issue through the lens of critical theory is that this theory virtually ignores other goals and values of the community such as efficiency and practicalities of a large-scale implementation of such a program.

Complicating matters even further, not all critical theorists agree that EL students should be taught in their primary language or participate in DL programs. Some critical theorists believe using public funds to establish dual language programs is a way of using the Spanish language resource of poor and/or at-risk EL students to promote increased marketability of wealthy white children by making them bilingual and thus more marketable when competing for well paying positions of employment. Through this perspective, critical theorists believe that white dominant policy makers are attempting to keep EL students from learning by removing their opportunities to participate in English-only immersion programs. When billionaire Pat Stryker in Colorado gave \$3,000,000 to keep DL programs a part of public schools in her community and fight to defeat the requirement for English-only Immersion programs, Linda Chavez, Center for Equal Opportunity, wrote Stryker "thinks it would be nifty if her daughter became bilingual...If her child hears Spanish spoken for several hours each day and is able to practice speaking Spanish with her schoolmates, she stands a good chance of actually learning the language. In other words,

Stryker wants to immerse her child in Spanish because she knows that's the best way to learn a new language...Now Stryker is afraid that the English immersion ballot initiative might deprive her daughter of her classmate-tutors. It just won't be the same without all those cute little brown classmates helping her daughter trill her Rs properly or teaching her when to use 'tu' instead of 'usted'". Ms. Chavez argues that the reasons wealthy, white Americans want their children to be immersed in Spanish "are exactly the same reasons most immigrant parents want their children immersed in English. They know – even without the benefit of Ms. Stryker's college education – that children don't learn to speak a new language without being constantly exposed to it" (Chavez, 2002). Those agreeing with Chavez ask why public funds would not be used instead to provide EL students with a whole day every day at school learning in English and using social interactions with teachers and peers for practicing English syntax and grammar (Chavez, 2000). Some parents of EL students want their children to be bilingual but prefer an English-only model of education at school. In a California study, many parents of EL students expressed their view that their children can learn bilingualism at home but felt it was most important for their children to spend their time at school learning English because their mastery of English would largely predict future academic and occupational successes (Kobayashi, 2009).

There are more problematic societal conditions than can be numerated. Therefore, in the realm of public policy making, issues or conditions make it to the agenda of policy makers when they become problems. Conditions become problems once a community believes the condition should be addressed and a possible solution is attached to it. Cooper et al. explain that "conditions become defined as problems when policy makers have the technical ability and political will to address them" (p. 65). For a new policy to be set, a solution to a problem must be needed (Cooper, Fusarelli, and Randall, 2004). Defining the problem for which a solution is

needed is considered a critical stage of policy making. Rochefort and Cobb (1995) state that problem definition involves how public issues are defined and determines “how we think and talk about these concerns” (as cited in Cooper, Fusarelli, and Randall, 2004, p. 65). Moreover, they remark that the way a social problem is defined “can effect its rise or decline before government”. They further suggested actors on the stage of public policy making become powerful forces when they master successful ways of defining a social problem and subsequent agenda setting. Facilitating widespread implementation of DL programs would be well served if its properties that align with mainstream American values can be evidenced. Moreover, current common practices of education in the United States must be perceived by stakeholders as a condition needing a solution and DL programs must be perceived as a viable solution.

Logistical Challenges

Requirements for all public school systems, including those which implement dual language immersion programs, are set by the Georgia Department of Education and are common across all public schools. Student academic standards are set by the state department and student progress toward those standards is measured by statewide achievement tests written in English regardless of school or program type. Also, the state requires all schools to follow the same mandates for which assessments are given, which years assessments are given, how data from assessments will be interpreted and used, and what criteria constitutes eligibility for teacher certification.

Grade level state academic standards which are aligned with national Common Core Standards are the same across public school systems in Georgia regardless of school or program type. Progress for attainment of mastery for these standards is assessed through state mandated end of grade testing for third through eighth grades and is reflected in each school’s College and

Career Ready Performance Index (CCRPI) score which is a score calculated and used by the state department of education to determine which schools and systems are making adequate progress. Data, required and collected by the state department, are used to help quantify the effectiveness of teachers are obtained through student assessments in each academic subject. Student Growth Percentiles (SGP) are used to represent academic growth from year to year in subjects tested on common statewide assessments (i.e., CRCT or Georgia Milestones Assessment) and Student Learning Objectives (SLO) assessment data is used to represent academic growth in subjects/for grades not assessed by common statewide assessments. SLO assessments are common assessments given at the beginning of the school year and the end of the school year, and are developed by each Lead Educational Agency (LEA). Beginning of year and end of year SLO test scores of students are compared to see how much of state academic standards individual students mastered in a school year.

The type of data collected by government educational agencies and the way the data is interpreted is not always in alignment with DL best-practices. For example, DL kindergarten through grade 1 teachers of English Language Arts, which is taught only one 45-minute segment per day per classroom, SLO data may incorrectly indicate inadequate academic growth when compared to SLO data of non-DL students because the time students spend learning to read, write, and speak in English is quite limited in the kindergarten – first grade DL setting and the full academic benefit of bilingual education does not typically manifest in earlier grades (Genesee & Lambert, 1983; Lessow-Hurley, 2005; Lindholm-Leary & Howard, 2008; Thomas & Collier, 2002). English test scores for the DL student only begin to catch up with non-DL students around third grade and do not begin to surpass non-DL students' test scores until fourth grade. Therefore, using local kindergarten through third grade SLO scores and scores from state

assessments administered to third grade students of DL programs is premature and may lead to underestimating how fully DL students are mastering academic standards compared to peers in non-DL programs.

Another state requirement that conflicts with well-implemented DL programs involves teacher certification. Teachers in DL programs are required to have all of the same qualifications and certifications as teachers in other schools. For example, elementary school teachers in Georgia must have Early Childhood Certification; middle school math teachers must have Middle Grades Math Certification, etc. School Systems are responsible under the requirements of ESEA and Title II for making certain only teachers who meet the criteria of “Highly Qualified” are assigned to teaching positions. Part of the criteria for the “Highly Qualified” classification includes the requirement that each teacher’s classroom assignment matches the field listed on his or her Georgia teaching certificate. The teaching field listed is dependent upon the specific concentration of the teacher’s college degree (GaDOE, 2015). Another criterion for HQ is that the teacher must pass the Georgia Assessment for the Certification of Educators (GACE) in the field of specialty. It is not uncommon for education degrees awarded by major universities outside of the United States to be general education degrees without specific designation as to an area of education such as those awarded inside the United States (e.g., Early Childhood, Middle Grades Math, etc.). For this reason, an experienced bilingual primary grades teacher from Chile, for example, may not be certified to teach in the United States even in a Spanish-language based classroom within a DL program. Additionally, even when meeting degree requirements, all teachers must pass the GACE of their teaching field in English, no accommodations for language, no exceptions. For these reasons, it is difficult to find the employable, certified, bilingual teachers who are more likely to implement best practices for DL programs. Best-

practices of DL programs that are in conflict with these policies include those such as having native-Spanish speaking teachers who are highly educated, experienced, and proficient in Spanish to deliver Spanish-based instruction and implement Spanish-based interventions, providing significant and meaningful exposure of non-dominant cultures to students, delivering instruction to all students in grades kindergarten through first in Spanish for ninety percent of their school day, delivering instruction to all students in grades two through eight in Spanish for fifty percent of their school day and having teachers in each and every classroom who can scaffold academic and oral language in each student's primary and secondary languages. It is also crucial for DL programs to have enough certified teachers who are fully bilingual to operate at least five to six grade levels to provide the five to six years of DL education required to acquire oral and academic proficiency in a second language (Thomas & Collier, 1997). The DL educator profile clashes many times with requirements the state has deemed important. Consequently, there simply aren't enough teachers meeting both DL best practices criteria and state certification criteria to implement multiple DL programs on a large-scale basis. Due to these barriers, if we as a society, decided to put policy in place to fund and implement DL programs across the nation, or even the state of Georgia, without significant policy changes there is no indication that resources would be available for such an undertaking.

Concerns that DL education will hinder English language proficiency

In their work with native-English and native-Spanish populations, Thomas and Collier found that across the DL community, parents from both primary language groups were often worried that their children would struggle more to excel academically in English if required to become bilingual and biliterate in two languages instead of English only (1997). Is the

importance of mastering English a concept unique to the United States or does it have a broader base of support?

English is unquestionably the most widely spoken language in the world and its use continues to grow. English is the official language of 83 countries and English is spoken in an additional 101 countries (Ammon as cited by Noack & Gamio, 2015). These statistics are especially notable when considering that the United States is one of the countries whose citizens speak English but does not have English designated to be its official language. It is estimated that in addition to approximately 700 million native speakers of English, there are 3 or 4 times more people who speak English as a second language (Graddol, 1999). Whereas German and French have historically been the primary choice for scientific language, English has all but completely replaced those languages in communications of the scientific community and its work products (Ammon, 2015). There are more speakers of English in the world than German, French, and Spanish combined. Crystal (2003) reports the penetration of English into world politics, business, news, media and entertainment, education, and communication including the internet is deep, pervasive, growing, and provides the basis for English to be the world's lingua franca or global language. The worldwide movement of having a language common to all is gaining momentum and English appears to be the most obvious choice to many worldwide. Numerous industries rely heavily on English. For example, there are radio programs in English received in over 120 countries by 150 million people (Crystal, 2008). Many other industries, such as the industry of computer software, have become totally dependent upon English (Crystal, 2003; Danford & Lopez, 2005). Crystal states even though there are those who do not see the widespread distribution and use of English in a positive light, "the dominant view is certainly that a person is more likely to be in touch with the latest thinking and research in a subject by

learning English than by learning any other language” (p. 111). The importance of English on a global basis supports the commitment of parents to ensure their children’s mastery of English is not impeded, especially by educational policies. Consequently, research regarding the effectiveness of DL education to produce American students who are highly proficient in English is important.

No social policy is ideologically neutral. Problem definition is driven by research data, opinions of professionals and non-professionals, cultural values, and advocacy on the behalf of specific groups (Cooper, et al., 2004; Rochefort & Cobb, 1995; Rosenau, 1993). Rosenau believes that a core purpose of problem definition is persuasion. The way a problem is framed may very well determine its likelihood of resulting in policy change. If a problem is perceived as divisive, its consideration can be diminished resulting in a fading of the problem from the policy makers’ agenda (Riker, 1986). Conversely, if the problem can be associated with a concept symbolic of national loyalty, generating deeply and widely shared social meaning, it has a much greater chance of rising on the policy making agenda (Cooper, et al.; Putnam & Conant, 1994). It is important for parents to see objective evidence that learning in two languages rather than one will not impede their children’s learning of English and will likely help their children to become even more proficient in English than they would if they were participating in a traditional English-only program.

Baker (2011) states that successfully promoting a multilingual program of education requires four elements which include (1) dissemination of research to all stakeholders including teachers, parents, and other members of the community so decisions can be made upon fact rather than fears or speculation; (2) remembering politics is an inherent part of education and the benefit of DL education for native speakers of English is a point that should be emphasized; (3)

evidence DL education is a viable way to raise academic achievement for all students and results in schooling outcomes that stakeholders deem important such as academic achievement as measured by statewide testing; and (4) promotion and marketing of research stakeholders will find meaningful in order to battle propaganda based upon prejudice or unfamiliarity.

Purpose of the Study

The purpose of this study is to add to existing knowledge about dual language (DL) education programs and inform stakeholders of effects associated with DL programs in a rural community that is invested in the development of biliterate children. The current study examined outcomes associated with academic performance among children enrolled in a DL academy and children enrolled in traditional English-only (TEO) public schools.

Research Questions

This study will be guided by the following questions:

1. To what extent do the Georgia Milestones English Language Arts scores of native speakers of Spanish differ based on student participation in a dual language program or a traditional English-only?
2. To what extent do the Georgia Milestones English Language Arts scores of native speakers of English differ based on student participation in a dual language program or a traditional English-only program?
3. To what extent do the achievement gaps between native English speakers and native Spanish speakers differ based on student participation in a dual language program or a traditional English-only program?

Significance of the Study

In 2008, a public school district in a rural area of Georgia started a DL program. Enrollment in the DL program was based on random lottery of submitted applications of enrollment. Seven elementary school zones within the district including four with a Title 1 designation were chosen by system administrators as priority zones for the DL program. Children living within priority zones were given preference in the application process and provided transportation between home and school daily. In a state where very few schools are implementing dual language programs for youth, data regarding academic achievement outcomes for students of this type of program need to be collected and analyzed to provide information to local stakeholders regarding implementation of the program and future plans for replication of the program. This study will contribute to the literature because although DL comparative studies in the United States have been conducted, research on DL learners has mostly been done within urban districts. The school for the current study is located in a rural district in Georgia which will add to the literature through a focus on a unique sample of students.

CHAPTER 2

LITERATURE REVIEW

In addition to the benefits of DL programs to EL students, research is clear that not only does participation in DL programs not impede English achievement in native-English speaking students, but student outcome achievement data is higher for native-English students of DL programs than their peers in traditional monolingual English settings. Research suggests, in regard to overall student achievement outcomes, dual language instruction methods not only are more beneficial for EL students than are traditional ESL programs, and are also more beneficial for native-English speaking students than traditional English-only instruction (Genesee, 1999; Genesee, 2015; Thomas & Collier, 1997; Thomas & Collier, 2011).

Marian, Shook, and Schroeder (2013) noted minority and majority language students in DL programs outperform their peers in traditional classrooms. They investigated the effects of instructional programs on reading and math achievement by comparing achievement scores of EL students and English speaking students across two elementary school programs, a DL program and a traditional English only program. Researchers found that EL students in the dual language program outperformed EL students in the traditional English-only program on reading and math scores. Moreover, the researchers also found that native-English speaking students in DL programs outperformed peers in traditional English-only classrooms. This research aligns with the work of Thomas and Collier, Genesee, and other researchers in the field of DL education supporting the claim that DL programs serve as programs of enrichment in addition to being an efficient way to teach English literacy, math, and oral language to EL students.

Key Components of Dual-Language Programs

DL programs have essential defining features in addition to the goal of the program being bilingualism and biliteracy for all students, including each of two languages being strategically chosen for the delivery of different areas of instruction at specified times of day, serving approximately equal proportions of native English and native Spanish speaking students, delivering instruction through Spanish to English ratios from 50:50 to 90:10, having only certified teachers who are fluent speakers of the language in which they are delivering instruction, and ensuring that the length of the program is provided to students for at least six years (Lindholm-Leary, 2005, 2010; Ramirez, 1991, Thomas & Collier, 1997, 2010). Support in both languages is available for most of the school day and importantly, neither language is treated as a “second” language. Understanding these key features of DL programs is important because studies on the outcomes of bilingual education have demonstrated that there is a significant positive difference in EL student achievement when these features are present. Additionally, many studies have shown that DL programs based on these criteria produce achievement scores for native speakers of English that are at least as good as, and often times better than, achievement scores of native speakers of English who attend traditional English-only educational programs (Brisk, 2006; Cloud, Genesee, & Hamayan, 2000; García & Nájuez, 2011; Genesee, 1999; Genesee, 2015; Thomas & Collier, 1997; Thomas & Collier, 2011; Marian, Shook, & Schroeder, 2013).

Determining which language(s) will be used for delivering which parts of instruction is an important component of DL program planning. DL programs can be effective when choosing to deliver instruction through Spanish to English ratios from 50:50 to 90:10. Research indicates 90:10 is the most effective distribution of languages for instruction for the first one to three years

(Baker, 2011; Genesee, 1987; Thomas & Collier, 2011). Thomas and Collier explain that the most intensive work in the community's non-dominant language is done in the earliest grades to build skills and vocabulary in, for example, Spanish. Gradually, students should move toward receiving instruction in Spanish and English through a 50:50 distribution of languages (Thomas & Collier, 2012). Although both languages are supported and developed in the DL model, there is a strict separation of languages with each language having its own designated subject and/or time creating an authentic need for teachers and students to use the target language. Both languages and cultures have equal importance.

One way of understanding the positive impact of receiving support in the development of L1 and L2 is reflected in studies on code-switching. Grosjean and Miller (1994) investigated code switching, or the use of words from the student's native language when speaking the second language to assist in engaging in conversation and meaning of the second language. They found that code switching was immediate, and occurred in a flexible manner when the student needed to use a word from his or her primary language in place of an English word or phrase they did not know. The researchers found that for these students to be able to operate in two languages during instructional time actually helped to facilitate the acquisition of the second language (English). They believed code-switching was beneficial and commonly used because both languages could be used to scaffold the students' overall understanding, usage, and practicing of the second language even when they were not quite ready to do so independently. Lessow-Hurley (2013) stated while acquiring a second language, "using first language knowledge and skills may produce errors that resemble interference but in fact are evidence of creative cognitive strategy for solving the new language puzzle" (p. 64). Research by Cloud, Genesee, and Hamayan (2000) suggests the availability of the use and support of the L1 of a child learning a

second language may be significant social-culturally and cognitively to that child's ability to acquire the second language. While the assumption is often made that language learners get confused by multiple languages and thus have a need to keep languages separate, current research has helped us understand that teaching and learning language is based upon a social interaction in which language acquisition is "an interaction process in which learners draw on all available linguistic resources" (Busch, 2011, p. 544).

Longitudinal Outcomes

Important research considerations of bilingual education program categorization are related to time including the duration of a program's L1 support, longitudinal outcomes for students of bilingual education, and the number of years students have been in the program at the time of data collection. (Baker, 2011; Thomas & Collier, 2011). Thomas and Collier's 2010 investigation of the impact of bilingual education on EL students in North Carolina included the amount of time students had been learning English as an added variable. The researchers measured student achievement using test score data provided by the North Carolina Department of Instruction for EL students and found that EL students who received DL instruction scored higher than EL students attending TEO schools. At the same time, EL students who received DL instruction actually exceeded state-wide average test scores for third through eighth grades. Finally, the amount of time in which the EL students received DL instruction significantly impacted their academic achievement. Dual language EL students in fifth through seventh grades had higher test scores in respect to peers than the dual language EL students in lower grades indicating that the full benefits of DL programs may not be seen in the first few years of a student's schooling and progress at the five to six year mark may be truncated with removal of L1 support.

Thomas and Collier (1997) also investigated the long-term performance of EL students based on several types of bilingual education instruction over the entire schooling period from kindergarten to twelfth grade. The researchers examined data from students across the United States to be able to make inferences about the long-term impact of bilingual instruction across the entire country. To measure student achievement, they used student performance on standardized English reading tests. Little difference in achievement for students based on the type of bilingual instructional method they received from kindergarten through about the third grade was found. However, after the third grade, achievement on standardized English reading tests began to differ dramatically. By the eleventh grade, the students who had received dual language bilingual instruction had average test scores that were higher than the EL students who had received types of ESL instruction. Interestingly, in comparison to the traditional ESL pullout instruction method, the students who received the DL instruction had an average English reading standardized test score that was 37 points higher than the students who had received the ESL pullout instruction. Furthermore, the students who received the DL instruction showed improvements in the standardized test scores each year, while students who received the traditional ESL pullout instruction showed declines in test scores from about the fifth to the eleventh grade.

Demographic Considerations

Many studies have demonstrated DL programs produce better outcomes for students than monolingual programs and being bilingual is associated with many benefits that monolingual individuals are not afforded (Bruck, 1982; Genesee, 1999; Lindholm-Leary, 2010; Paradis, 2007; Thomas & Collier, 2011). However, the United States is a largely monolingual society whose educational system is rooted in monolingual-English pedagogy. Developing a new DL program

in a school system requires a great deal of planning, professional learning, administrative and community support, reallocation of school resources, and implementation of practices and procedures that are largely contrary to the thinking of traditional American educators. Subgroups of students who typically have poor academic achievement outcomes such as students who are economically disadvantaged, students with poor attendance, and students with disabilities must be provided with schooling that is likely to produce better outcomes than those seen historically. Therefore, it is important to examine any potential harm or benefit that could be realized by such groups of students through the implementation of DL programs.

Economically Disadvantaged

Research indicates across the nation all student groups of economically disadvantaged students produce academic achievement scores that are lower than the scores of their same grade peers who are not economically disadvantaged (Alspaugh, 1991; Eamon, 2005; Hochschild, 2003; Jeynes, 2002; Klingele & Warrick, 1990; Majoribanks, 1996; McNeal, 2001; Seyfried, 1998; Whipple, Evans, Barry, & Maxwell, 2010). Beginning as early as infancy through the age of kindergarten, children from homes with limited economic resources display fewer school-related skills such as readiness for learning and background knowledge (Planty, Kena, & Hannes, 2009; Ross et al., 2012). In fact, students from low-income homes in grades K-12 perform academically at a level that is significantly lower than their more affluent peers and the high school completion rate is much lower for students who experience economic disadvantage (Eamon, 2005). Research suggests positive correlations between parental income and student Scholastic Aptitude Test scores indicating the effect of poverty follows students through their transition into post-secondary education (Mattern, Shaw, & Williams, 2008; Zwick & Green, 2007). Unfortunately, simply providing additional funding for schools with high percentages of

students with limited economic resources does not necessarily result in better outcomes. Sutton and Soderstrom (1999) found a strong negative correlation between family income level and student achievement and also determined that the lower academic achievement of low income students was not mitigated by how much teachers were paid or by the per-pupil expenditure amount (Sutton & Soderstrom, 1999).

This pattern of underachievement is also found when comparing EL students who are from low-income households to ELs who are non-economically disadvantaged (Kim, Curby, & Winsler, 2014). However, Hispanic children as a group may be at more risk because 32 percent of Hispanic students were living in poverty in 2011 while only 6 percent of White students were living in poverty (Ross et al., 2012) and after the variance attributable to income was controlled, the effect of ethnicity remains significant when examining achievement scores (Hannon, 2015). To provide objectivity and clarity, many studies simply define low-SES students as those students who are determined to be eligible for free or reduced priced meals through the National School Lunch Program. This funding is available to school children whose families have an income below 185% of the national poverty level (U.S. Department of Health and Human Services 2005). However, economically disadvantaged can be more of an elusive concept than a concrete term because having a low socioeconomic status (SES) is associated with a variety of other factors. Some researchers speculate such students typically score lower than their more affluent peers because when parents have limited financial resources, they are less able to access fundamental resources for their children and poverty is associated with additional strain at home such as additional family conflicts and higher risk for parental depression (Eamon, 2005; Jeynes, 2002; Majoribanks, 1996). Studies evidence a strong correlation between income and educational level (Kim, Tamborini, & Sakamoto, 2015; Wickrama, Simons, & Baltimore, 2012)

and parental level of education has been found to share much of SES's effect upon student achievement (Hernandez, 1999; Heyneman, Loxley, & World Bank, 1980; Mattern et al., 2008; Shavit, Yaish, & Bar-Haim, 2007).

Interestingly, DL programs have been found to significantly improve academic achievement for all students, including those students with limited economic resources. Some speculate that scores of students from low-income families in DL programs are higher in comparison with their non-DL peers because children whose parents actively choose a DL program for their children are more involved in their child's education. However, McNeal (2001) found poverty overrides the positive effects of parent involvement. Further research on achievement test scores of children in DL programs has demonstrated students from low-income communities which are predominantly Hispanic had significantly higher scores than peers participating in traditional English-only (Lindholm-Leary & Block, 2010; Lindholm-Leary, 2012).

Research indicates that although all groups of EL and native-English speaking economically disadvantaged children across the state of North Carolina score almost one standard deviation lower in reading and math than their more affluent peers, EL *and* native-English children who are economically disadvantaged schooled through DL programs scored significantly higher in comparison (Thomas & Collier, 1997; 2002; 2011). In fact, students from low-income families while in grades five through seven scored higher in reading than low-income students in non-DL programs in the next grade level. For example, fifth grade low-income students in DL programs outscored sixth grade low-income students in non-DL programs. Additionally, researchers found that not only do ELs, native-English speakers, and economically disadvantaged groups score higher on statewide testing than their non-DL

counterparts, but Title 1 and African-American students in DL programs have higher scores than their peers in traditional monolingual education programs (Thomas & Collier, 2011).

Attendance

Consistency of program attendance, regardless of the type of program, is another established correlate of student achievement scores (Morrissey, Hutchison, & Winsler, 2014). Research by Chang and Romero (2008) indicated the number of days a student was present was highly correlated with academic achievement scores. Their study suggested chronic absences are associated with lowered academic achievement across ethnicity, SES, and gender. Latino children in this study who were chronically absent in kindergarten had significantly lower reading scores in first grade. Thomas and Collier (2011) found students who were absent for 20 days had academic achievement scores that were significantly lower than peers with 100 percent attendance. Further, a decrease of one-tenth of a point on the end-of-grade statewide testing scores for each day of a student's absence was found. It stands to reason that if school attendance is low for large numbers in a student group or even an entire school, that academic achievement scores for that group will be lower. Students participating in DL programs attended school approximately 3 days more per year than their peers even when both programs were implemented within the same school. Principals and teachers of DL programs reported their student participation for extracurricular school activities was better than in non-DL programs (Thomas & Collier, 2002; Xu, Hannaway, & D'Souza, 2009). In fact, Thomas and Collier (2002) found DL program students scored higher on their measure of school commitment than non-DL students. School commitment in their study was comprised of the drop-out, retention, and attendance rates. DL program students also attended school more (96.2 percent) than mainstream native-English speakers (93.6 percent). This data suggests perhaps higher attendance rates in DL

programs may, in-part, help to explain higher academic achievement scores for DL program students. Gutiérrez-Clellen (1999) theorizes the reason for higher attendance rates of children in DL programs is based on the inherent factors of additive bilingualism programs which promote school engagement. She points out that in these programs every “child’s home language is honored, encouraged, and maintained to promote bilingualism. The emphasis on monolingualism (as opposed to developing bilingualism) and suppression of the home language (which promotes subtractive bilingualism and ultimately language loss) may result in poorer language and academic outcomes” (p. 298).

Students With Disabilities

Students with disabilities (SWDs) tend to have lower academic achievement scores than peers without disabilities (Albus & Thurlow, 2013; Thomas & Collier, 2011). Disabilities that clearly affect academic achievement in students include language impairments (LIm) and developmental disorders (DD) highly associated with language impairments such as autism and Down Syndrome (DS). Within the group of students with language impairments and/or developmental disorders, ELs face additional risks associated with having a primary language other than English such as those associated with a truncated development of L1 and the inaccessibility to needed instructional resources.

One reason for lower academic achievement in students with LIm and/or DD is related to the strong relationship between oral language abilities and academic achievement (McGrew & Wendling, 2010; Nys, Content, & Leybaert, 2013; Stanovich, 1986; Taub, Keith, Floyd, & McGrew, 2008). Language development, including vocabulary knowledge, is a significant predictor for academic achievement in the areas of math and reading (McGrew & Wendling, 2010). Math calculation abilities have also been associated with oral language abilities (Nys et

al., 2013).

ELs are at risk for incomplete acquisition of L1

Because the development of a child's primary language is quite important to the subsequent development of a second language (Cummins, 1979; Kan & Kohnert, 2012; Skutnabb-Kangas, 1979), it is important to explore factors that may help or hinder the complete development of L1. ELs in American schools are at great risk of truncation and attrition of L1 development (Bird et al., 2005; Gutierrez-Clellen, Simon-Cereijido, & Wagner, 2008; Kohnert, Yim, Nett, Kan, & Duran, 2005; Lessow-Hurley, 2005; Restrepo, Morgan, Thompson, & Oetting, 2013). In fact, EL students who do not participate in DL programs quite frequently begin to lose and never fully develop their L1 (Duursma et al., 2007; Fillmore, 1991; Merino, 1983). For example, Restrepo, et al., (2013), found that preschool children receiving only L2 instruction at school were already experiencing reduced L1 development.

Benefits of DL Programs to SWDs

It is often assumed that because of the cognitive demands of being bilingual, bilingualism is a detriment to children with language based disabilities and is a goal that should be set aside so cognitive resources can be focused upon acquiring the dominant language of the society in which the child lives (Busch, 2011). However, there is no evidence supporting this assumption. In fact, there is a great deal of evidence to the contrary (Carey & Cummins, 1984; Kan & Kohnert, 2012; Lugo-Neris, Jackson, & Goldstein, 2010; Roberts, 2008; Genesee, 2015). Gutierrez-Clellen et al., 2008, studied children with LIm and found being bilingual had no further negative impact upon the ability to learn language than presented by the LIm alone. Restrepo and colleagues (2003) does emphasize, though, that bilingual children with LIm are at a greater risk for the loss of L1 than their typically developing peers and have a real need for L1 instruction to experience

maintenance or growth in L1. That work further indicated that when compared to groups of EL students with LIm receiving academic instruction in English only, ELs with LIm receiving the same instruction in L1 in addition to L2 experienced significant gains in conceptual vocabulary. Similar results were observed by Perozzi and Sanchez (1992) when they provided vocabulary instruction for two groups of LIm bilingual children whose primary language was Spanish. One group of children received instruction in English and the other in Spanish first then English. Students in the group that received instruction first in their L1 not only learned the words in Spanish but learned the English words twice as fast as students in the group that received English only instruction. In a comprehensive study, Bruck (1982) found DL programs were effective in teaching second language skills to children with typical language development and to children diagnosed with LIm. This and similar research results is not surprising because students with LIm require especially good communication that is understandable to them (Richards, 1994). This is a resource that is readily available in DL programs but not available in traditional English-only programs. Interventions conducted with incomprehensible input may not facilitate language development in L1 or L2 (Gutierrez-Clellen et al., 2008).

Studies also reveal that bilingualism does not appear to further impair children with developmental disorders which are typically comorbid with language delays. Bilingual children with Down Syndrome acquire the dominant language as well as monolingual children with Down Syndrome given supports found in good DL programs (Bird, et al., 2005). In studies of children with autism spectrum disorders (ASD), students with ASD in bilingual environments evidenced no delays of language development beyond those observed in students with ASD in monolingual environments indicating that bilingualism is not harmful to the language development of children with autism spectrum disorders (Hambly & Fombonne, 2012; Petersen,

Marinova-Todd, & Mirenda, 2012). Research indicates in general, DL SWDs actually perform as well as or better than non-DL SWDs on statewide reading and math achievement testing (Thomas & Collier, 2011; Hambly & Fombonne, 2012; Petersen et al., 2012).

EL students including those who have not been identified with a disability but who need rich instruction or intervention for successful mastery of an academic skill have also been found to benefit from instruction delivered in their primary language. Meaningful instruction in a student's L1 results in second language gains (Restrepo, et al., 2013). Kan and Kohert (2011) found a strong positive correlation between the L1 vocabulary level of a child and his or her ability to learn new L2 words. This data supports earlier studies by Hornberger (2003) in which she determined "the stronger the foundation and continuing development of L1, the greater potential for learning and enhanced development in L2" (p. 19). Gutiérrez-Clellen (1999) summarizes by saying interventions that are "designed to extend, rather than limit, the child's linguistic resources" (p. 300) appear to be most effective.

Why?

Importantly, Paradis (2007) points out advantages such as the environment afforded in DL education programs may help facilitate better target language acquisition for not only the bilingual child but for all children. Resources intrinsic to DL programs such as bilingual certified teachers, L1 and L2 instructional materials, L1 and L2 progress monitoring tools for academic achievement, and instructional leaders knowledgeable in using L1 strengths to promote L2 growth and in embedding vocabulary instruction in all school related activities/tasks are important components for implementing instructional best-practices for ELs but are not components that are always readily available to traditional programs of education for ELs (Carlo et al., 2004). Moreover, best-practices in early literacy instruction for all children require certain

practices and resources which are foundational to the DL program school environment. These components include resources needed for the implementation of research-based strategies such as teachers participating in rich and elaborate verbal interaction with students, providing new information in contexts that are meaningful for students, providing multiple readings of storybooks with opportunities for open-ended questions and answers, using personal conversations with students to build vocabulary, and providing didactic-interactional book reading (Beck, McKeown, & Omanson, 1987; McKeown, Beck, Omanson, & Pople, 1985; Meisinger, Schwanenflugel, Bradley, & Stahl, 2004; Schwanenflugel, Hamilton, Neuharth-Pritchett, Restrepo, Bradley, & Webb, 2010; Vaughn et al., 2006; Weizman & Snow, 2001). Children's learning opportunities should be rich with social interaction and scaffolding from language that is meaningful and comprehensible to the child (Genesee, 1999; Rosenshine & Meister, 1992; Vygotsky, 1978). Instruction accessible through the language a child understands is a mandatory resource for carrying out these methods of instruction and is the hub of DL education programs.

Another possible reason for better performance of students participating in DL programs than traditional programs may be related to cognitive factors linked to learning and using more than one language. In recent years, bilingualism has also been associated with cognitive benefits. Thomas and Collier (2011) speculate that mastering academic standards in multiple languages may provide additional cognitive stimulation that accounts for higher academic achievement of SWDs in DL programs. Executive function is involved in a wide range of cognitive activities (Barkley, 1997; Penn, Frankel, Watermeyer, & Russell, 2010). Using multiple languages for learning new information, making and maintaining social relationships, and other communicating requires years of bilateral cognitive processing and is associated with higher

academic achievement, abilities of memory encoding and retrieval, and third language acquisition abilities (Bartolotti & Marian, 2012, 2017; Bialystok, 2007; Bialystok, 2011). Executive functions such as selective attention are exercised and utilized on a continual basis over the course of a lifetime through the practice of bilingualism. This same level of executive functioning exertion is not experienced by the typical monolingual. Studies indicate attention and even social skills are better developed in bilingual children than monolinguals (Bialystok, 2000; Fan, Liberman, Keysar, & Kinzler, 2015). Fan, et al., 2015, found bilingualism to be associated with better social communication skills and less behaviors of egocentrism in children. Studies on bilingual adults have indicated these and other neurocognitive advantages are prolonged throughout adulthood (Bialystok, 2011; Bialystok, Craik, Klein, & Viswanathan, 2004; Bialystok, Shenfield, & Codd, 2000). In fact, it has been found that bilingual adults with Alzheimer's function more efficiently than their monolingual counterparts (Bialystok, 2000). Studies such as those by Bialystok & Viswanathan, 2009, Gutiérrez-Clellen, 1999, and Marian, Shook, and Schroeder, 2005, indicate the increase seen in executive function component systems in bilinguals during childhood such as perception, comparison, selective attention, inhibitory control, and task switching may be due to the bilingual individual's continual practice of creating and revising the structures of executive functioning related to language which facilitate the learning and organization of cognitive skills.

Years of research have indicated verbal or language abilities are largely predictive of academic achievement (August, Carlo, Dressler, & Snow, 2005; Barker, Torgesen, & Wagner, 1992; Bull, Espy, & Wiebe, 2008; Carlo et al., 2004; Evans, Floyd, McGrew & Leforgee, 2002; Floyd, Bergeron, & Alfonso, 2006; Park, 2015; McGrew & Wendling, 2010; NICHD, 2000) and that the purposeful strengthening of language skills is important to increasing academic

achievement (Collins, 2010; Connor, Alberto, Compton, & O'Connor, 2014; Schwanenflugel, Hamilton, Neuharth-Pritchett, Restrepo, Bradley, & Webb, 2010; Tam, Heward, & Heng, 2006). Research suggests under the conditions of DL programs, children can experience some aspects of accelerated cognitive growth compared to monolingual peers, possibly related to cognitive factors linked to learning and using more than one language (Bialystok, 2000; Gutiérrez-Clellen, 1999; Fan, et al., 2015) and that accelerated cognitive growth may play a part in increased academic achievement for DL students. Moreover, while achievement at levels that are equal to or better than students in traditional English-only programs, DL students have additive advantages of biliteracy and bilingualism.

Excluding children from opportunities for bilingualism and biliteracy is a weighty decision that is worthy of careful consideration because of its potential for life altering consequences. These consequences may be even more impactful to children whose families have a primary language other than the dominant language of the society in which they live. Excluding at-risk students from the opportunity to reap benefits of DL education based on unfounded myths is a mistake with the potential for harmful consequences. Without the support of evidence, many groups of children who are at-risk for lower achievement including those with poorly developed L1 skills and those with disabilities are determined to be poor candidates for DL programs. However, research cited here evidences that students within these at-risk groups perform at least as well as, if not better than, their non-DL counterparts. Moreover, while achieving at levels that are equal to or better than student levels of achievement in traditional English-only programs, very importantly, DL students have additive advantages of biliteracy and bilingualism.

Research has demonstrated DL is the only model that actually closes the achievement gap

between native English speaking and non-native English speaking groups while continuing to produce native-English speaking students whose achievement scores effectively compete with or exceed those of their monolingually educated peers. An individual who is bilingual experiences benefits that monolinguals do not. Bilingual students in DL programs not only have a better chance for closing the achievement gap between their minority group and the dominant culture group but they also have significantly more employment opportunities once reaching adulthood. Bilingual children tend to have better developed social skills and they are able to communicate with a more diverse range of people. Furthermore, bilingual individuals experience cognitive benefits such as those related to executive functioning use and exercise that begins in childhood and extends into adulthood.

Theoretical Framework

Vygotsky (1978) based sociocultural theory on children solving problems through an interaction between language, thought, and social experiences that are facilitated through social exchanges with others within the child's cultural group. These interactions which produce learning for the child, happen within a range of abilities between the child's current developmental level and his or her "level of potential development" through the "guidance or in collaboration with more capable peers", a process which is referred to as scaffolding (Vygotsky, 1978, p. 86). This range in between the child's current developmental level and his or her "level of potential development" was named the Zone of Proximal Development by Vygotsky. "Successful achievement of each developmental task leads to higher, more demanding levels; failure leads to difficulty with later related tasks" (Pérez and Torres-Guzmán, 1996, p. 30). Children's learning opportunities should be rich with social interaction and scaffolding from language that is meaningful and comprehensible to the child (Genesee, 1999; Rosenshine &

Meister, 1992; Vygotsky, 1978). Again, instruction accessible through the language a child understands is a mandatory resource for carrying out these methods of instruction and is the nucleus of DL education programs. Language rich classroom instructional practices that are inherent in the DL setting have been evidenced as academically beneficial for all students, EL and non-EL alike (Allington, 2002; Bromley, 2007; Feldman & Kinsella, 2003; Cazden, 2005; Neuman & Wright, 2014).

Cummins (1986) notes bodies of research supporting greater cognitive growth in bilingual children and bodies of research supporting weaker cognitive growth in bilingual children differ in that the groups evidencing greater cognitive growth were comprised of students whose education in L2 was additive; it was added to the purposeful development of L1 rather than replacing L1. Additionally, when the student's L1 was culturally dominant and at no risk of being extinguished, development of an L2 proved to be cognitively advantageous. Conversely, when the education in the student's L2 was replacing a L1 minority language (subtractive), negative cognitive effects were realized. Investigation into these bodies of research led Cummins to formulate two hypotheses of language acquisition called the developmental interdependence hypothesis and the transfer hypothesis. Developmental interdependence is the theory that "the development of competence in a second language (L2) is partially a function of the type of competence already developed in L1 at the time when intensive exposure to L2 begins" (p. 27). The threshold hypothesis posits that before a child can realize the positive cognitive growth associated with bilingualism, he or she must reach a certain level of competency in L2. Cummins believes that much of the variance in bilingual education research results can be attributed to the failure of researchers to consider these two concepts when analyzing data. Cummins also states that "the lack of concern for the developmental interrelationships between language and thought

in the bilingual child is one of the major reasons why evaluations and research have provided so little data on the dynamics of the bilingual child's interaction with his/her educational environment” (p. 10).

Based on the theoretical framework of Vygotsky’s sociocultural theory and Cummins’ hypotheses of developmental interdependence and threshold, DL students should have higher statewide assessment scores than their non-DL peers. Moreover, benefits may not manifest in achievement test scores until competence in the student’s L2 has been reached, which should be around fifth grade (6 years – Pre-K through fifth grade).

CHAPTER 3

METHOD

Purpose Statement

The purpose of this study is to add to existing knowledge about dual language (DL) education programs and inform stakeholders of effects associated with DL programs in a community that is invested in the development of biliterate children. DL studies have been conducted in the United States for urban areas, there are fewer studies on DL programs in rural areas (Lindholm-Leary, 2010; Thomas & Collier, 2011). The current study examined outcomes associated with academic performance among children enrolled in a dual language program and children enrolled in a traditional English-only program within the same rural area public school system in Georgia. Georgia Milestones scores were used to compare the English Language (ELA) achievement of students enrolled in the DL program with the ELA achievement of students enrolled in traditional English-only (TEO) instructional programs.

Research Questions

To examine the differences in levels of achievement between students in a DL program of education and students of traditional programs of education within the same mid-size rural county in Georgia, a generalized linear model was used. A series of analysis of variance (ANOVA) tests were conducted in which each achievement score was the dependent variable and the educational program (DL or TEO) was the predictor. Demographic variables were also examined prior to the analyses and when differences were found, these variables were used as covariates in subsequent analyses. The research questions for this study were:

1. To what extent do the Georgia Milestones English Language Arts scores of native speakers of Spanish differ based on student participation in a dual language program or a traditional English-only program?
2. To what extent do the Georgia Milestones English Language Arts scores of native speakers of English differ based on student participation in a dual language program or a traditional English-only program?
3. To what extent do the achievement gaps between native English speakers and native Spanish speakers differ based on student participation in a dual language program or a traditional English-only program?

Research Design

The methodology employed in this study was a quantitative, causal comparative research design. Because children were enrolled in existing programs it was not possible to randomize the sample for the current study. No manipulation of any conditions were performed because children were either enrolled in a dual language program or a traditional English-only elementary or middle school curriculum. The comparison of scores between DL program students and students of TEO programs was made using a one-way analysis of variance (ANOVA) procedure to test for statistical significance.

This particular research design was selected because it allowed for a comparison of data including post-test only achievement scores among groups of EL and non-EL kindergarten through eighth grade students across six schools who participated in two different educational programs. Student achievement test scores were gathered at the end of the 2016 school year for children in grades three through eight to compare the English Language Arts achievement in English of ELs and non-ELs between the DL program and the TEO program.

Both the DL and TEO programs followed the same curriculum. There was a county-wide specified scope and sequence of units for each grade level across programs addressing the Georgia Standards of Excellence, and these units were assessed with common end-of-unit assessments and SLO assessments regardless of program type. In the DL program, both the minority- and majority-language students were taught reading, writing, math, science, social studies, art, physical education, and music in Spanish with one daily forty-five minute segment of English Language Arts and one weekly forty-five minute segment of a foreign language (Portuguese) for kindergarten through first grade. The kindergarten through first grade DL model was a 90/10 model in that ninety percent of student instruction was delivered in Spanish with no more than ten percent of instruction being delivered in English. Beginning in second grade and extending through eighth grade, DL students learned through a 50/50 model meaning half of their instruction was presented in Spanish and half in English. Both the minority- and majority-language TEO students were taught in only English one hundred percent of their school day. The minority-language students in the TEO program schools were provided support of English for Speakers of Other Languages (ESOL) services in English only when their language proficiency scores indicated a need according to the state of Georgia guidelines.

Across all programs, the teachers met state-mandated standards. All teachers had completed a state-approved educational program, fulfilled a student teaching requirement, and passed the necessary Georgia Assessments for the Certification of Educators (GACE) tests to obtain a Georgia Elementary Education teaching certificate.

Participants

Participants in this study were 5,223 kindergarten through eighth grade students attending six public schools within one rural public school system in Georgia during the 2015-2016 school year. Children in the study participated in either the DL model of education (English-Spanish) or a traditional monolingual-English model of education (TEO). EL students educated through the traditional English-only (TEO) model received subtractive ESL supplemental instruction designed to promote English acquisition but included no primary language support. Cross-sectional data from all 5,223 students enrolled in these six schools was obtained from the school district and presented to the researcher in a de-identified data file.

The DL school's records included in the data for this study included 907 initial applicants across nine admission cohorts. Because of having more applications than open spots available, a subset of the students whose parents entered the lottery was randomly selected to enroll in the DL program. Any parent living within the county's school district could apply for their child to attend the DL program but as is often the case, a number of applicants were considered priority applicants and were exempted from the lottery process. Additionally, it was the DL school's practice to not allow first-time enrollment for new students after first grade. Within the school district of this study, each home address is deemed to be within a designated school zone. However, the dual language elementary and middle schools were not designated school zones for any address within the district. Instead, children living within areas zoned for seven particular elementary schools within this county were given priority within the DL lottery and were also designated to receive transportation via school buses from home to the dual language school and back home daily. After studying demographics of the county and individual schools by county administrators, the population of students zoned for these seven schools was deemed

representative of the county as a whole and were subsequently chosen to be priority schools for the DL program lottery and transportation resource. Other criteria for qualifying as a “priority” applicant included being a child of current school staff or a sibling of a currently enrolled student.

In this study, students were not assigned to educational programs randomly upon school entry. To assign students to educational programs randomly would not have been feasible in this study and removing parental choice of educational program would present an ethical issue. Although some students not enrolled in the DL program might have benefitted from services, an initial lottery and parental school choice forces this study to be considered quasi-experimental in that the researcher is examining intact groups of students. There could be some bias present in that parents who advocated for their children to be included in the DL program might have differed from other parents who did not pursue this option for their children. Additionally, of the seven schools designated to have priority of enrollment, four schools had a Title I classification, so there might be an overrepresentation of students in the DL program based on this selection criterion.

Although this study was based upon a large sample, there were no pretest data available to provide a baseline for how students performed prior to school enrollment. Since this research is based upon intact groups or self- selection to groups with no pretest data, any differences in scores could be attributed to differences that were present prior to and aside from the school’s instructional program.

Participation in the DL program or TEO instructional program was the independent nominal variable used in this study, and academic achievement in English Language Arts as measured by the state’s achievement score was the dependent ratio variable. A description of the

Georgia Milestones Assessment is found below. Demographic variables included information such as free or reduced lunch status, race, years in educational program, level of attendance, special education eligibility status, history of retention and promotion, primary home language, and ACCESS score classification.

Measures

Georgia Milestones Assessments

In Spring 2015, the state of Georgia began administering the Georgia Milestones Assessment. The Georgia Milestones is a comprehensive assessment of how completely students have mastered knowledge and skills delineated by grade level standards and is administered yearly in Spring of third through eighth grades. Prior to implementation of the Georgia Milestones, extensive statistical analyses were conducted which concluded “the statistical models used to derive student scores were well estimated and functioning appropriately” (Georgia Department of Education, 2015). The Georgia Milestones was developed to closely align to national grade level achievement standards (Common Core Standards) which were adopted by the state of Georgia in recent years. In addition to multiple choice items that comprised previous Georgia state assessments for students, the Georgia Milestones also includes open-ended questions that require students to show or explain the reasoning behind their answers, and written expression of their thoughts. The Georgia Milestones scores are categorized in reports by four possible levels of performance. Cut off scores for each performance level differs by the subject being assessed and by the grade level. The Georgia Milestones levels of performance include Beginning Learner, Developing Learner, Proficient Learner, and Distinguished Learner. The Georgia Milestones also produces Lexile scores for students.

Criterion referenced assessment data such as those collected from administration of the Georgia Milestones are used to evaluate how much of the grade level academic standards individual students have mastered. Information gleaned from these scores are provided at the student, class, school, system, and state levels for various purposes including the identification of individual student strengths and weaknesses as well as to appraise the quality of education throughout the state of Georgia (Georgia Department of Education, 2014). Comparing criterion referenced assessment scores of similar peers across schools can provide information to stake holders regarding which educational programs appear to be most effectively helping students master grade level academic achievement standards.

Assessing Comprehension and Communication in English State to State for English Language Learners (ACCESS)

The federal government requires states to evaluate EL kindergarten through twelfth grade students every year for progress toward mastering English. ACCESS is the assessment used to meet this requirement in Georgia school systems. Like the Georgia Milestones assessment, ACCESS is a criterion referenced, standards-based assessment. ACCESS measures the level of proficiency at which students are using English in the school setting. Scores are divided into four sections or domains, Listening, Reading, Speaking, and Writing. Within these four domains, ELs' language skills related to social and academic proficiency in the English language are measured. The standards-based ACCESS instrument was designed to determine the English language proficiency level of students, provide information to districts that would assist in evaluating the effectiveness of their ESOL programs, guide decision making in efforts to enhance instruction and learning for programs designed to teach English to ELs, and provide

information regarding initial baseline and subsequent annual progress toward goals of English language proficiency of individual students (Georgia Department of Education, 2015).

Procedure

Participants were recruited from a rural school district in Georgia. The school district had invested resources in the development of a two-way immersion, dual language school that had been in operation for approximately 8 school years. A total of 5,223 students who attended the DL school as well as other elementary and middle schools in the district were recruited. These students represent six schools which include three elementary schools, two middle schools, and the DL school which was comprised of a K-5 primary campus and a 6-8 middle school campus. Data were collected with cooperation from the school district's comprehensive tracking system. Children in the TEO elementary schools represented 38.3 percent of the sample. The sample consisted of 44.3 percent TEO middle schoolers with the remaining 17.4 percent of students enrolled in kindergarten through eighth grade in the DL school.

Descriptive Statistics

Children with 16 primary languages were included in the sample. These languages included Amharic, Bosnian, Chinese, English, other than Standard American English, Filipino/Tagalog, French, Italian, Japanese, Korean, African, Polish, Romanian, Russian, Spanish, and Vietnamese. The children whose primary language was English comprised 63.8 percent of the sample ($n = 3,333$). Spanish was the primary language for 35.0 percent ($n = 1,827$). Sixty-three children spoke languages other than English or Spanish (1.2 percent). These 63 children were coded into one language group for the analyses presented in this study.

Other personal demographics included gender, race, special education status, engagement with free- or reduced-price lunch, and retention status. The overall sample was comprised of

2,541 females (48.7%) and 2,682 males (51.3%). Race was coded from school records and included Asian ($n = 63$; 1.2%), Black ($n = 231$; 4.4%), Hispanic ($n = 2,054$; 39.3%), Indian ($n = 7$; 0.1%), Multiracial ($n = 126$; 2.4%), Native Hawaiian or Other Pacific Islander ($n = 5$; 0.1%), and White ($n = 2,737$; 52.4%). Of the sample, 613 children (11.7%) were identified as eligible for special education services due to disabilities. Data on free- or reduced-price lunch was also provided with the following distribution: free ($n = 2,518$; 48.2%), reduced ($n = 378$; 7.2%), and paid ($n = 2,327$; 44.6%). Within the sample, 166 children (3.2%) had been retained at some point in their educational careers.

For subsequent analyses, the TEO elementary sample included 2,002 (38.3%) of the overall sample. The TEO middle-school sample was 2,314 children (44.3%) leaving 907 (17.4%) enrolled in the DL school. Chi-square analyses indicated a significant difference across the groupings of schools ($\chi^2(4) = 142.69, p < .001$). More primary Spanish speakers were enrolled at the DL school than at either the elementary or middle-school groupings. Specifically, the percentage of primary language of Spanish students was 46.9% at the DL school versus 25.9% at the elementary and 38.2% at the middle schools. Data from the ACCESS assessment for children whose primary language was Spanish were also tallied for the 425 children with scores who received services for language. These data indicate that among the children in the refined analyses, 13.2% ($n = 56$) were assessed as having the lowest level of English proficiency with 9.4% ($n = 40$) assessed with some literacy but not yet on grade level. Finally, approaching grade level in proficiency and would likely meet state exit criteria was assessed for 77.4% ($n = 329$) of the children.

CHAPTER 4

RESULTS

Analysis 1

The first research question examined differences in English Language Arts achievement between children whose primary language was Spanish based on student participation in a Dual Language program (DL) or a traditional program of education taught in English only (TEO). To assess this difference, children whose primary language was Spanish were selected from the overall sample. This number of children totaled 1,827 (34.98%) of the total sample. Additionally, 434 children were removed from this sample because children were in kindergarten, first grade, or second grade and did not participate in the state-wide achievement testing protocol. Therefore, there were 1,393 children included in the analyses for the first research question. The sample represented 285 children from TEO elementary schools, 225 children from the DL school, and 1,393 from TEO middle schools. An omnibus test was performed examining differences in English Language Arts achievement across all grade levels from grades three through eight and included an assessment of the homogeneity of variance. The overall main effect was significant ($F(2, 1,311) = 13.35, p < .001$) indicating that EL children at the DL school outperformed EL children at the combined TEO elementary schools and combined TEO middle schools. The homogeneity of variance test was also supported ($F(2, 1,311) = 1.70, p = .18$). Table 1 displays the mean scores and standard deviations of the three samples. Post-hoc analyses were also performed with the Scheffe test and indicated the 19.87 scale point difference between the DL

school and the elementary TEO school and the 18.11 scale point difference between the DL school and the TEO middle school were both statistically significant.

Table 1

Mean English Language Arts Achievement Scores of Children whose Primary Language is Spanish across Dual Language and Traditional English-Only School Programs

	<i>n</i>	<i>M</i>	<i>Sd</i>	Range	<i>F</i>	<i>p</i>
English-Only Elementary	259	476.16	44.07	361-594	13.35	<.001
Dual Language	219	496.03	46.84	361-596		
English-Only Middle	836	477.92	50.47	301-669		

Analysis 2

Research question two focused on assessing differences among children whose primary language is English on English Language Arts achievement based on whether they attended DL or TEO programs. A sample of 2,425 children whose primary language was English was extracted from the sample. Of these children, 722 (29.8%) were enrolled in TEO elementary programs and 1,412 (58.2%) were enrolled in TEO middle grades programs. The remaining 291 children (12%) of children were enrolled in the DL school program.

An omnibus test was performed examining differences in English Language Arts achievement across all grade levels from grades three through eight and included an assessment of the homogeneity of variance. The overall main effect was significant ($F(2, 2,251) = 61.38, p < .001$) indicating that the DL school native-English speaking students had higher English Language Arts scores than native-English speaking children at the elementary or middle school TEO programs. The homogeneity of variance test was not supported ($F(2,2,251) = 14.97, p < .001$). Table 2 displays the mean scores and standard deviations of the three samples. It is likely

that the homogeneity of variance was not supported due to the difference in group sizes. The Dunnett's C is a conservative post-hoc test that corrects for the problem of not having homogeneity of variance (Toothaker, 1991), therefore, post-hoc analyses were performed with the Dunnett C test. Results after the Dunnett C correction indicated each group differed from one another at a level that was statistically significant ($p = .05$). These mean differences are displayed in Table 3.

Table 2

Mean English Language Arts Achievement Scores of Children whose Primary Language is English across Dual Language and Traditional English-Only School Programs

	<i>n</i>	<i>M</i>	<i>Sd</i>	Range	<i>F</i>	<i>p</i>
English-Only Elementary	660	503.78	51.28	371-685	61.38	<.001
Dual Language	290	543.97	41.13	419-690		
English-Only Middle	1,304	520.01	54.77	357-696		

Table 3

Differences in English Language Arts Achievement Scores of Children whose Primary Language is English across Dual Language and Traditional English-Only School Programs*

	English-Only Elementary	<i>Dual Language Magnet</i>	<i>English- Only Middle</i>
English-Only Elementary	---	-40.193	---
Dual Language		---	23.960
English-Only Middle			---

*All comparison were significant at the $p=.05$ level

Analysis 3

The third research question centered on assessing English Language Arts performance of children across their schools and languages. A 2 by 3 analysis of variance test was conducted to determine differences in primarily English and primarily Spanish speaking children within DL and TEO programs. There was an overall statistically significant effect based on language where children whose primary language was Spanish scored lower on the state English Language Arts assessment than did children whose primary language was English ($F(1, 3,568) = 52.04, p = .02$). The mean score of children whose primary language is English across grades three through eight was 518.34 ($Sd = 53.55$) and the mean score for children whose primary language is Spanish across grades three through eight was 480.59 ($Sd = 49.14$). Analysis of variance results based on educational program were not statistically significant ($F(1, 3,568) = 7.18, p = .12$). However, an interaction was found between primary language and language program where EL students in the DL program scored statistically significantly higher on the English Language Arts assessment ($F(2, 3,562) = 7.44, p = .001$) than the children in the traditional elementary and middle school programs. Overall, achievement scores differences on the English Language Arts assessment were computed. At the DL program site, a 47.94 scale score point gap was found between native-English speakers and native-Spanish speakers. At the elementary and middle-school traditional English-only schools, those point gaps were 27.62 and 42.09, respectively. Although the difference (achievement gap) between native-English and native-Spanish speaking students is wider at the DL school, native-Spanish speaking students at the DL site scored higher overall than native-Spanish speaking students at either the elementary TEO or middle school TEO sites. Furthermore, children whose primary language was English scored higher at the DL school than native-English speaking students at either the elementary TEO or middle school

TEO sites. This overall finding indicated students in the DL program regardless of scores within their primary language group, scored higher than their counterparts at the TEO sites.

Although not a central research question for this study, correlational analyses indicated the number of years in the DL program was statistically significantly related to a student's performance on the English Language Arts standardized state assessment ($r = .15, p < .01$). In addition, for current middle-school students who had experienced a minimum of five years of DL program services, a statistically significant correlation was also found indicating higher scores on the English Language Arts assessment ($r = .13, p < .01$).

Public state data reporting for the district in this study and its DL program scores indicate that the district's overall performance is higher than 57% of districts in the state while the DL program's overall performance is higher than 73% of schools in the state. 45.4% of the district's third grade students are reading at or above the grade level target while 64.9% of the DL third grade students are reading at or above the grade level target. 69.5% of the district's eighth grade students are reading at or above the grade level target while 89.5% of the DL school's eighth grade students are reading at or above the grade level target (Georgia Department of Education, 2016).

CHAPTER 5

DISCUSSION

In addition to the lowered achievement of U.S. students overall, traditional programs implemented to educate students whose primary language is not English have failed to prove their effectiveness. Results of state achievement testing across the country revealed that not only do EL students consistently score below state norms, there is a persistent gap between EL students and non-EL students evidenced by statewide achievement testing scores nationally. As students advance in grade levels, the achievement gap widens and these gaps were wider in 2009 than they were in 2003 (Kindler, 2002; Ross, et al., 2012). English-only language education policies have failed to promote higher rankings of American students globally and unacceptably high numbers of non-native-English speaking students are failing to meet basic educational standards. In consideration of different instructional programs, research has shown implementation of DL programs to be effective in raising achievement scores for native and non-native speakers of English.

Research Question One

In the current study, the purpose of research question one was to compare English Language Arts achievement scores of EL children across six schools to see if there were differences between scores of students that attended a DL program and those that attended a TEO program. Results indicated that EL children who participated in the DL program outperformed EL children in the TEO program at both the elementary and middle school sites at a level that was statistically significant (both $p < .001$, difference in mean for DL>TEO).

elementary grades=18.11, difference in mean for DL>TEO middle grades=19.87). These results are consistent with previous research (e.g., Collier & Thomas, 2011; Genesee, 1983; Lindholm-Leary, 2012; Marian, Shook, & Schroeder, 2005) and suggests that this dual language education program is more effective at helping EL elementary and middle school students achieve academically in English on tests of English Language Arts than the traditional English-only programs in the district. These outcomes support previous research findings that strengthening a child's L1 results in L2 gains (Kan and Kohert, 2011; Restrepo, et al., 2013). Results of the current study also support Vygotsky's Zone of Proximal Development Theory which is based upon the idea that learning for the child happens when he or she is afforded the opportunity to work within his or her Zone of Proximal Development (ZPD). Learning tasks within the ZPD, or the range of abilities between a child's current developmental level and his or her "level of potential development", must be coupled with the guidance of a more capable other who can communicate in a way that is meaningful and comprehensible to the child in order for the child to learn effectively. Instructional scaffolding accessible through the primary language of an EL child is a mandatory resource that is considered the nucleus of DL education programs but is a resource that is not available in English-only school programs.

Research Question Two

The purpose of research question two was to compare English Language Arts achievement scores of native-English speaking children across six schools to see if there were differences between scores of students that attended a DL program and those that attended a TEO program. Results indicated of the students whose primary language was English, those who participated in the DL program scored statistically significantly higher than their native-English speaking peers who attended TEO programs in the district (both $p < .05$, difference in mean for

DL>TEO elementary grades=40.193, difference in mean for DL>TEO middle grades=23.960).

These results are consistent with previous research results (Genesee, 1999; Genesee, 2015; Marian, Shook, & Schroeder, 2005; Thomas & Collier, 1997; Thomas & Collier, 2011) and indicate dual language education programs can benefit English academic performance in majority-language elementary and middle school children in addition to providing the added benefits of bilingualism and biliteracy outlined previously in this paper.

Research Question Three

Examination of the data concluded that in answer to the third and final research question, the achievement gap between native-English speaking students and EL students persists whether students attended a DL program or a TEO program. In fact, although there was no statistically significant difference in the size of the ranges between TEO-EL/TEO-non-EL scores and DL-EL/DL-non-EL scores, the range or gap between the DL program EL and non-EL scores was larger than the gap at the TEO sites. (DL non-EL>EL= 47.94; Elementary TEO non-EL>EL=27.62; Middle Grades TEO non-EL>EL=42.09). However, students participating in the DL program scored higher than peers participating in TEO programs at a level that is statistically significant regardless of whether their primary language was English or if they were an EL student. Therefore, although EL students in the DL program did not score as high as native English speakers in the DL program, they did outperform EL students in the TEO programs at both the elementary and middle school levels.

Correlational analyses were computed that concluded the number of years in the DL program was related to student performance on the English Language Arts state assessment meaning the longer a student participated in the DL program, the higher his or her ELA score was likely to be. Moreover, performance of students who had participated in the DL program for

five or more years was statistically significantly correlated with higher scores on the English Language Arts assessment ($r = .13, p < .01$).

The results of the present study indicate that dual language education is beneficial for both minority and majority language elementary and middle grades students. These results are consistent with previous research (e.g., Collier & Thomas, 2011; Lindholm-Leary & Howard, 2008; Marian, Shook, & Schroeder, 2013) and suggest that dual language immersion programs can benefit academic performance in elementary and middle school children.

Limitations of This Study

Limitations of this study include the lack of pre-test data with which baseline scores could be established. In order to establish meaningful baselines for this study before students were affected by instructional programs, scores would need to be obtained in kindergarten or even pre-kindergarten since public school programs in both the TEO and DL schools were offered to parents at the pre-kindergarten level as an option prior to the kindergarten year. 2009 ACCESS scores for current eighth grade students would have provided a first grade comparison point for students whose primary language was one other than English. Unfortunately, out of the 292 eighth grade students in the sample whose primary language was not English, only 200 had first grade ACCESS scores and only eighteen of those students were enrolled at the DL school. Therefore, the 2009 ACCESS data was not sufficient for analyses.

Another limitation of this study was the lack of availability to attrition and transience information from and between programs within the district. It is possible that parents removed students from programs in which they struggled or that students struggled to achieve because they were moved frequently.

Implications for Future Research

Researchers should consider gaining an early childhood score for middle grades students in this study. An early score on each student that could provide a baseline with which later scores could be compared would be beneficial. Since exposure to one of the two educational programs occurs early (pre-kindergarten – kindergarten), these scores should be obtained as early in the cohort's school career as possible.

Another important area for future research would include the investigation of long-term outcomes. Although the dual language program students' scores were statistically significantly higher than their traditional English-only program peers, even in middle grades, we do not know if the higher achievement will make any real-world difference on how the dual-language program students perform in high school or after high school. Since the dual language school in this district had been in operation eight years and students who started kindergarten the first year of operation were in seventh grade at the time of this study, high school scores were not yet available. However, when system-wide high school scores are obtained in a few years, those scores should be compared to data from the current study.

In future work, researchers should also consider the effects of DL education on features of cognitive functioning other than academic achievement as being educated to be biliterate and bilingual may produce childhood benefits that extend into adulthood and that are more extensive and impactful than academic achievement alone, especially in an isolated academic area such as was measured in this study. Gutiérrez-Clellen, 1999, Marian, Shook, and Schroeder, 2005, and Bialystok & Viswanathan, 2009, purported that bilingualism improves components of executive function systems in childhood such as selective attention, inhibitory control, abilities of memory encoding and retrieval, second and third language learning abilities, and task switching which

may be seen in dual language program students. These authors indicated the continuous practice of focusing on one language while simultaneously suppressing the other language and the shifting between two languages that is inherent in becoming bilingual increased skills of executive functioning in these bilingual children. Additionally, studies such as that of Fan, et al., 2015, suggest that bilingualism is associated with better social communication skills and less behaviors of egocentrism than monolingual peers. It is important to know if dual language education programs increase skills of executive functioning and social communication such as has been seen in studies of bilingual children since these skills are important to other aspects of life outcomes including skills of cognition, skills of social reasoning, and areas of academic achievement beyond English Language Arts (Bartolotti & Marian, 2012, 2017; Fan, et al., 2015).

REFERENCES

- Albus, D., Thurlow, M., National Center on, E. O., Council of Chief State, School Officers, & National Association of State Directors of Special Education. (2013). 2010-11 publicly reported assessment results for students with disabilities and ELs with disabilities. technical report 68National Center on Educational Outcomes.
- Allington, R. L. (2002). *What I've learned about effective reading instruction from a decade of studying exemplary elementary classroom teachers* Phi Delta Kappa Inc.
- Alspaugh, J. (1991). Out-of-school environmental factors and elementary-school achievement in mathematics and reading. *Journal of Research and Development in Education*, 24(3), 53-55.
- Ammon, U. (2015). Scientific babel: How science was done before and after global English / the language of science from the fall of Latin to the rise of English. *Language Problems & Language Planning*, 39(3), 312-318. doi:10.1075/lplp.39.3.07amm
- Ammon, U. (2010). English and other international languages under the impact of globalization. *Neuphilologische Mitteilungen*, 111(1) (2010), 9-28.
- Ashby, C. M., & US Government, A. O. (2010). K-12 education: Many challenges arise in educating students who change schools frequently. report to congressional requesters. GAO-11-40US Government Accountability Office.
- August, D., Carlo, M., Dressler, C., & Snow, C. (2005). The Critical Role of Vocabulary Development for English Language Learners. *Learning Disabilities Research And Practice*, 20(1), 50-57.

- Baker, C. (2011). *Foundations of Bilingual Education and Bilingualism*, 5th Edition. Multilingual Matters.
- Baker, K. A., & de Kanter, A. A., (1981). Effectiveness of bilingual education: A review of the literature. Department of Education, Washington, DC Office of Planning.
- Barker, T. A., Torgesen, J. K., & Wagner, R. K. (1992). The role of orthographic processing skills on five different reading tasks. *Reading Research Quarterly*, (4), 335.
- Barkley, R. A. (1997). *ADHD and the nature of self-control*. New York: Guilford.
- Bartolotti J, Marian V. Language learning and control in monolinguals and bilinguals. *Cognitive science*. 2012; 36(6):1129–1147. [PubMed: 22462514]
- Bartolotti, J., & Marian, V. (2017). Bilinguals' Existing Languages Benefit Vocabulary Learning in a Third Language. *Language Learning*, 67(1), 110-140.
- Beck, I. L., McKeown, M. G., & Omanson, R. C. (1987). The effects and uses of diverse vocabulary instructional techniques. In McKeown, M. G., Curtis, M. E. (Eds.), *The nature of vocabulary acquisition* (pp. 147-163). Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.
- Biederman, J., Monuteaux, M. C., Doyle, A. E., Seidman, L. J., Wilens, T. E., Ferrero, F., & ... Faraone, S. V. (2004). Impact of Executive Function Deficits and Attention-Deficit/Hyperactivity Disorder (ADHD) on Academic Outcomes in Children. *Journal Of Consulting And Clinical Psychology*, 72(5), 757-766.
- Berman, R., (2011, September-October). The Real Language Crisis. *Acadame*, 97(5). Retrieved from <https://www.aaup.org/article/real-language-crisis#.WNk33BiZOu4>
- Bialystok, E., & Viswanathan, M. (2009). Components of executive control with advantages for bilingual children in two cultures. *Cognition*, 112(3), 494-500.

- Bialystok, E. (2011). Reshaping the mind: The benefits of bilingualism. *Canadian Journal of Experimental Psychology/Revue Canadienne De Psychologie Expérimentale*, 65(4), 229-235.
- Bialystok, E., Craik, F. I. M., Klein, R., & Viswanathan, M. (2004). Bilingualism, aging, and cognitive control: Evidence from the Simon Task. *Psychology and Aging*, 19(2), 290-303.
- Bialystok, E., Shenfield, T., & Codd, J. (2000). Languages, scripts, and the environment: Factors in developing concepts of print. *Developmental Psychology*, 36(1), 66-76.
- Bird, E. K., Cleave, P., Trudeau, N., Thordardottir, E., Sutton, A., & Thorpe, A. (2005). The language abilities of bilingual children with down syndrome. *American Journal of Speech-Language Pathology*, 14(3), 187-199 13p.
- Bollen, K. A., Glanville, J. L., & Stecklov, G. (2001). Socioeconomic status and class in studies of fertility and health in developing countries *Annual Reviews Inc.*
- Bromley, K. (2007). Nine things every teacher should know about words and vocabulary instruction. *Journal of Adolescent & Adult Literacy*, (7), 528.
- Brisk, M. E. A. (1981). Language policies in American education. *Journal of Education*, 163, 3-15.
- Bruck, M. (1982). Language disabled children: Performance in an additive bilingual education program. *Applied Psycholinguistics*, 3, 45–60.
- Bull, R., Espy, K. A., & Wiebe, S. A. (2008). Short-term memory, working memory, and executive functioning in preschoolers: Longitudinal predictors of mathematical achievement at age 7 years. *Developmental Neuropsychology*, 33(3), 205-228.
doi:10.1080/87565640801982312

- Busch, B. (2011). Trends and innovative practices in multilingual education in Europe: An overview. *International Review of Education / Internationale Zeitschrift für Erziehungswissenschaft / Revue Internationale de l'Education*, (5/6). 541.
- Carey, S. T., & Cummins, J. (1984). Communication skills in immersion programs. *Alberta Journal of Educational Research*, 30(4), 270-83.
- Carlo, M., August, D., McLaughlin, B., Snow, C., Dressler, C., Lippman, D. (2004). Closing the gap: Addressing the vocabulary needs of English language learners in bilingual and mainstream classrooms. *Reading Research Quarterly*, 39(2), 188-215.
- Carroll, J. B., Author. (1979). Psychometric approaches to the study of language abilities. *Individual Differences in Language Ability and Language Behavior / Ed.by Charles J. Fillmore- New York U.A.] : Academic Press*, 1979.
- Cazden, C. B. (2005). The value of conversations for language development and reading comprehension. *Literacy Teaching and Learning*, 9(1), 1-6.
- Chang, H. N., Romero, M., & National Center for Children in Poverty. (2008). Present, engaged, and accounted for: The critical importance of addressing chronic absence in the early grades, executive summary report. National Center for Children in Poverty.
- Chavez, L. (2000). Uneducated bilingualism. *Hispanic*, 13(10), 106.
- Chavez, L. (2002). Billionaire fights pro-English ballot initiative. *Human Events*, 58(38), 11.
- Cloud, N., Genesee, F., & Hamayan, E. V. (2000). Dual language instruction : A handbook for enriched education Boston, MA : Heinle & Heinle, c2000.
- Collins, M. F. (2010). ELL preschoolers' English vocabulary acquisition from storybook reading. *Early Childhood Research Quarterly*, 25(1), 84-97.

- Connor, C. M., Alberto, P. A., Compton, D. L., & O'Connor, R. E. (2014). *Improving reading outcomes for students with or at risk for reading disabilities: A synthesis of the contributions from the institute of education sciences research centers. NCSEER 2014-3000*. ().National Center for Special Education Research.
- Cooper, B. S., Fusarelli, L. D., & Randall, E. V. (2004). *Better policies, better schools : Theories and applications* Boston : Allyn and Bacon, c2004.
- Crystal, D. (2003). English as a global language. Cambridge, UK: Cambridge University Press.
- Crystal, D. (2008). Two thousand million? English Today: The International Review of the English Language, 24(1), 3-6.
- Cummins, J. (1979). Linguistic Interdependence and the Educational Development of Bilingual Children. Review of Educational Research, 222(2).
- Danford, N., & Lopez, A. (2005). How do you say 'growing pains' in Spanish? Publishers Weekly, 252(3), 28-32.
- Delvin, K. (2015). Pew Research Center. Washington, DC: Pew Research Center. Available: <http://www.pewresearch.org/fact-tank/2015/07/13/learning-a-foreign-language-a-must-in-europe-not-so-in-america/>
- Duran, R., & Powers, S. (1993). Reliabilities of the Iowa tests of basic skills for Hispanic- and Anglo-American students. Psychological Reports, 73(1), 64-66.
doi:10.2466/pr0.1993.73.1.64
- Duursma, E., Romero-Contreras, S., Szuber, A., Proctor, P., Snow, C., August, D., (2007). The role of home literacy and language environment on bilinguals' English and Spanish vocabulary development. Applied Psycholinguistics, 28(1), 171-190.

- Eamon, M. K. (2005). Social-demographic, school, neighborhood, and parenting influences on the academic achievement of Latino young adolescents. *Journal of Youth and Adolescence*, 34(2), 163.
- Evans, J. J., Floyd, R. G., McGrew, K. S., & Leforgee, M. H. (2002). The relations between measures of Cattell-Horn-Carroll (CHC) cognitive abilities and reading achievement during childhood and adolescence. *School Psychology Review*, 31(2), 246.
- Fan, S. P., Liberman, Z., Keysar, B., & Kinzler, K. D. (2015). The exposure advantage: Early exposure to a multilingual environment promotes effective communication. *Psychological Science*, 26(7), 1090-1097. doi:10.1177/0956797615574699
- Farver, J. A. M., Lonigan, C. J., & Eppe, S. (2009). Effective early literacy skill development for young Spanish-speaking English language learners: An experimental study of two methods. *Child Development*, 80(3), 703-719.
- Feldman, K., & Kinsella, K. (2003, 04). Closing the language gap: Strategies for vocabulary development. *Scholastic*, 8, 10-13.
- Fillmore, L. (1991). When learning a second language means losing the first. *Early Childhood Research Quarterly*, 6(3), 323-47.
- García, E., Náñez, J. (2011). Bilingualism and cognition: Informing research, pedagogy, and policy (pp. 57-77). Washington, DC, US: American Psychological Association, vi, 242 pp. doi: 10.1037/12324-003
- García, O. (2009). Bilingual education in the 21st century : A global perspective Malden, MA ; Oxford : Wiley-Blackwell Pub., 2009.
- Genesee, F. (1987). Second-language learning in bilingual schools. *Contemporary Psychology: APA Review of Books*, 32(5), 449-450.

- Genesee, Fred. (1999). Program Alternatives for Linguistically Diverse Students. *Center for Research on Education, Diversity & Excellence*. UC Berkeley: Center for Research on Education, Diversity and Excellence.
- Genesee, F., & Jared, D. (2008). Literacy development in early French immersion programs. *Canadian Psychology*, 49(2), 140-147. doi:10.1037/0708-5591.49.2.140
- Genesee, F. (2015). Myths about early childhood bilingualism. *Canadian Psychology/Psychologie Canadienne*, 56(1), 6-15.
- Genesee, F., & Lambert, W. E. (1983). Trilingual education for majority-language children. *Child Development*, 54, 105-114.
- Genesee, F., & Lindholm-Leary, K. (2013). Two case studies of content-based language education. *Journal Of Immersion & Content-Based Language Education*, 1(1), 3.
- Georgia Department of Education. (2007). Georgia Performance Standards for Modern Languages. Found at: <http://www.gadoe.org/Curriculum-Instruction-and-Assessment/Curriculum-and-Instruction/Documents/ModernLanguagesIntroductionNew.pdf>
- Georgia Department of Education. (2008). Standards, instruction and assessment testing: 2008 Testing Newsletter. Retrieved from http://www.doe.k12.ga.us/ci_testing.aspx
- Georgia Department of Education. (2009). 2009 Georgia criterion-referenced competency tests score interpretation guide - grades 1 through 8. Atlanta, GA: Georgia Department of Education.
- Georgia Department of Education. (2010). Validity and reliability for the 2010 criterion referenced competency tests. Atlanta, GA: Georgia Department of Education.

Georgia Department of Education. (2014). Georgia's Criterion-Referenced Competency Tests (CRCTs): Questions and Answers for Parents of Georgia Students in Grades 3–8.

Atlanta, GA: Georgia Department of Education.

Georgia Department of Education. (2015). CCRPI Indicators. Atlanta, GA: Georgia Department of Education. Found at: <http://www.gadoe.org/Curriculum-Instruction-and-Assessment/Accountability/Documents/Indicators%20and%20Targets/2016%20Indicators.pdf>

Georgia Department of Education. (2015). Assessing Comprehension and Communication in English State to State for English Language Learners (ACCESS for ELLs). Found at: <http://www.gadoe.org/Curriculum-Instruction-and-Assessment/Assessment/Pages/ACCESS-for-ELLs.aspx>

Georgia Department of Education. (2015). ESEA AND TITLE II, PART A. Atlanta, GA: Georgia Department of Education.

Georgia Department of Education. (2015). Leader Keys Effectiveness System. Atlanta, GA: Georgia Department of Education.

Georgia Department of Education, November, 2015, Georgia Department of Education Georgia Milestones Assessment System Mode Comparability Analyses - Executive Summary – found at: http://www.forsyth.k12.ga.us/cms/lib3/GA01000373/Centricity/Domain/22/Mode%20Comparability%20Executive%20Summary%20FINAL_3-3-16.pdf

Georgia Department of Education, 2016, English to Speakers of Other Languages (ESOL) found at: [http://www.gadoe.org/Curriculum-Instruction-and-Assessment/Curriculum-and-Instruction/Pages/English-to-Speakers-of-Other-Languages-\(ESOL\)-and-Title-III.aspx](http://www.gadoe.org/Curriculum-Instruction-and-Assessment/Curriculum-and-Instruction/Pages/English-to-Speakers-of-Other-Languages-(ESOL)-and-Title-III.aspx)

- Giles, D. P. (2010). " Uncharted" Territory: An Auto ethnographic Perspective on Establishing Georgia's First Public Two-way Immersion School (Doctoral dissertation, University of Georgia).
- Gottfried, A. W. (1985). Measures of socioeconomic status in child development research: Data and recommendations Wayne State University Press.
- Graddol, D. 1999. 'The decline of the native speaker.' In D. Graddol & U. H. Meinhof (Eds.), English in a Changing World (AILA Review 13), pp. 57–68.
- Greene, J. P. (1997). A meta-analysis of the Rossell and baker review of bilingual education research. *Bilingual Research Journal*, 21(2-3), 103-22.
- Grosjean, F., & Miller, J. L. (1994). Going in and out of languages: An example of bilingual flexibility. *Psychological Science*, 5(4), 201-206.
- Gutierrez-Clellen, V. (1999). Language choice in intervention with bilingual children. *American Journal of Speech-Language Pathology*, 8(4), 291-302.
- Gutierrez-Clellen, V., Simon-Cereijido, G., & Wagner, C. (2008). Bilingual children with language impairment: A comparison with monolinguals and second language learners. *Applied Psycholinguistics*, 29(1), 3-19.
- Hambly, C., & Fombonne, E. (2012). The impact of bilingual environments on language development in children with autism spectrum disorders. *Journal of Autism & Developmental Disorders*, 42(7), 1342-1352 11p.
- Hampden-Thompson, G., & Johnston, J. S. (2006). Variation in the relationship between non-school factors and student achievement on international assessments. statistics in brief. Institute of Educational Statistics, NCES 2006-014 National Center for Education Statistics.

- Hannon, B. (2015). Hispanics' SAT scores: The influences of level of parental education, performance-avoidance goals, and knowledge about learning. *Hispanic Journal of Behavioral Sciences*, 37(2), 204-222.
- Hauser, R. M. (1994). Measuring socioeconomic status in studies of child development. *Child Development*, 65(6), 1541-1545.
- Hauser, R. M., & Min-Hsiung Huang. (1997). Verbal ability and socioeconomic success: A trend analysis. *Social Science Research*, 26(3), 331-376.
- Hernandez, D. J., & Committee on the Health and Adjustment of Immigrant Children and Families. (1999). *Children of immigrants : Health, adjustment, and public assistance*. Washington, D.C.: National Academies Press.
- Hess, F., & McShane, M. (2013). *Common Core Meets Education Reform: What it all Means for Politics, Policy, and the Future of Schooling*. New York: Teachers College Press.
- Heyneman, S., Loxley, W. (1980). Influences on academic achievement across high and low income countries: A re-analysis of IEA data. World Bank, Washington, DC.
- Hochschild, J. L. (2003). Social class in public schools. *Journal of Social Issues*, 59(4), 821.
- Hornberger, N. H. (2003). *Continua of biliteracy. [electronic resource] : An ecological framework for educational policy, research, and practice in multilingual settings*. Clevedon, England ; Buffalo : Multilingual Matters, c2003.
- Jeynes, W. H. (2002). Examining the effects of parental absence on the academic achievement of adolescents: The challenge of controlling for family income. *Journal of Family and Economic Issues*, 23(2), 189-210.
- Johanne, P. (2007). Bilingual children with specific language impairment: Theoretical and applied issues. *Applied Psycholinguistics*, 28(3), 551-564.

- Kan, P. F., & Kohnert, K. (2012). A growth curve analysis of novel word learning by sequential bilingual preschool children. *Bilingualism: Language and Cognition*, 15(3), 452-469.
- Kindler, A. L. (2002). Survey of the states' limited English proficient students and available educational programs and services: 2000–2001 summary report. Washington, DC: National Clearinghouse for English Language Acquisition.
- Kim, C., Tamborini, C. R., & Sakamoto, A. (2015). Field of study in college and lifetime earnings in the united states
- Kim, Y. K., Curby, T. W., & Winsler, A. (2014). Child, family, and school characteristics related to English proficiency development among low-income, dual language learners. *Developmental Psychology*, 50(12), 2600-2613.
- Klingele, W. E., & Warrick, B. K. (1990). Influence of cost and demographic factors on reading achievement Heldref Publications.
- Kohnert, K., Yim, D. D., Nett, K., Kan, P. F., & Duran, L. (2005). Clinical forum. intervention with linguistically diverse preschool children: A focus on developing home language(s). *Language, Speech & Hearing Services in Schools*, 36(3), 251-274 20p.
- Kobayashi, H. (2009). Hispanic immigrants and bilingual education after proposition 227: A case study of attitudes about language and culture in American society. *Journal of Political Science & Sociology*, (10), 27-40.
- Lessow-Hurley, J. (1991). A Commonsense Guide to Bilingual Education. Association for Supervision and Curriculum Development, Alexandria, VA (Stock No. 611-91115).
- Lessow-Hurley, J. (2005). The foundations of dual language instruction Boston: Pearson/Allyn & Bacon, c2005; 4th ed.

- Lessow-Hurley, J. (2013). *The foundations of dual language instruction* Boston: Pearson, c2013; 6th ed.
- Lindholm-Leary, K. (2001). *Dual Language Education*. Clevedon, England: Multilingual Matters.
- Lindholm-Leary, K. (2005) *Review of Research and Best Practices on Effective Features of Dual Language Education Programs*, Center for Applied Linguistics and the National Clearinghouse for English Language Acquisition at The George Washington University, available at: http://www.lindholm-leary.com/resources/review_research.pdf
- Lindholm Leary, K. (2010). Achievement in predominantly low SES/Hispanic dual language schools. *International Journal of Bilingual Education and Bilingualism*, 13(1), 43-60.
- Lindholm-Leary, K. (2012). Success and challenges in dual language education. *Theory into Practice*, 51(4), 256-262.
- Lindholm-Leary, K., & Block, N., Author. (2010). Achievement in predominantly low SES/Hispanic dual language schools. *International Journal of Bilingual Education and Bilingualism*.- Abingdon] : Routledge, Taylor & Francis Group, 1.1998 (1)
- Lindholm-Leary, K., & Howard, E. Language development and academic achievement in two-way immersion programs. In: Fortune, TW.; Tedick, DJ., editors. *Pathways to Multilingualism: Evolving Perspectives on Immersion Education*. Oxford, UK: Blackwell; 2008. p. 177-200.
- Lobachev, S. (2008). Top languages in global information production. *Partnership: The Canadian Journal of Library & Information Practice & Research*, 3(2), 1-12.

- Long, R. and Bolton, P. (2016). Briefing paper: Language teaching in schools (England). (07388)10 June, 2016. House of Commons. Parliament, UK. Available: <http://researchbriefings.files.parliament.uk/documents/CBP-7388/CBP-7388.pdf>
- Lugo-Neris, M., Jackson, C. W., & Goldstein, H. (2010). Facilitating vocabulary acquisition of young English language learners. *Language, Speech & Hearing Services in Schools*, 41(3), 314-327.
- Majoribanks, K. (1996). Family learning environments and students' outcomes: A review. *Journal of Comparative Family Studies*, 27(2), 373-394.
- Marian, V., Shook, A., & Schroeder, S. R. (2013). Bilingual two-way immersion programs benefit academic achievement. *Bilingual research journal*, 36(2), 167-186.
- Mattern, K. D., Shaw, E. J., Williams, F. E., & College Board, Office of Research and Analysis. (2008). Examining the relationship between the SAT®, high school measures of academic performance, and socioeconomic status: Turning our attention to the unit of analysis. research notes. RN-36 College Board.
- McGrew, K. S., & Wendling, B. J. (2010). Cattell–Horn–Carroll cognitive-achievement relations: What we have learned from the past 20 years of research. *Psychology in the Schools*, 47(7), 651-675.
- McKeown, M. G., Beck, I. L., Omanson, R. C., & Pople, M. T. (1985). Some effects of the nature and frequency of vocabulary instruction on the knowledge and use of words. International Reading Association.
- McNeal, J., Ralph B. (2001). Differential effects of parental involvement on cognitive and behavioral outcomes by socioeconomic status. *Journal of Socio-Economics*, 30, 171-179.

- Meisinger, E. B., Schwanenflugel, P. J., Bradley, B. A., & Stahl, S. A. (2004). Interaction quality during partner reading. *Journal of Literacy Research*, 36(2), 111-140.
- Merino, B. J. (1983). Language loss in bilingual Chicano children. *Journal of Applied Developmental Psych.*, 4(3), 277-294.
- Moore, G.T., & Marans, R. W. (1997). In Moore G. T., Marans R. W. (Eds.), *Advances in environment, behavior, and design*, vol. 4: Toward the integration of theory, methods, research, and utilization. New York, NY, US; Edmond, OK, US: Plenum Press; Environmental Design Research Association.
- Ministry of National Education (2012). School education in France: Files on school education. Directorate General for Schools, European and International Relations Unit. Available: https://cache.media.eduscol.education.fr/file/dossiers/07/3/2013_School_Education_in_France_244073.pdf
- Morrissey, T. W., Hutchison, L., & Winsler, A. (2014). Family income, school attendance, and academic achievement in elementary school. *Developmental Psychology*, 50(3), 741-753.
- Mueller, C. W., & Parcel, T. L. (1981). Measures of socioeconomic status: Alternatives and recommendations. *Child Development*, 52(1), 13-20.
- Mushi, S. P. (2012). Multiple languages and the school curriculum: Experiences from Tanzania.
- Neuman, S. B., & Wright, T. S. (2014). The magic of words: Teaching vocabulary in the early childhood classroom. *American Educator*, 38(2), 4-13.
- Norton, A. (1993). *Republic of signs : Liberal theory and American popular culture* Chicago : University of Chicago Press, 1993.
- Nys, J., Content, A., & Leybaert, J. (2013). Impact of language abilities on exact and approximate number skills development: Evidence from children with specific language

- impairment. *Journal of Speech, Language, and Hearing Research: JSLHR*, 56(3), 956-970.
- Organisation for Economic Co-operation and Development OECD (2015), *Education at a Glance 2015: OECD Indicators*, OECD Publishing. <http://dx.doi.org/10.1787/eag-2015-en>
- Organisation for Economic Co-operation and Development OECD (2015), *Frequently Asked Questions*, OECD Publishing. <https://nces.ed.gov/surveys/pisa/faq.asp>
- Park, H., & Uno, A. (2015). Cognitive abilities underlying reading accuracy, fluency and spelling acquisition in Korean Hangul learners from grades 1 to 4: A cross-sectional study. *Dyslexia: An International Journal of Research and Practice*, 21(3), 235-253. doi:10.1002/dys.1500
- Penn, C., Frankel, T., Watermeyer, J., & Russell, N. (2010). Executive function and conversational strategies in bilingual aphasia. *Aphasiology*, 24(2), 288-308. doi:10.1080/02687030902958399
- Pérez, B., & Torres-Guzmán, M. E. (1996). *Learning in two worlds : An integrated Spanish/English biliteracy approach* White Plains, N.Y. : Longman, c1996; 2nd ed.
- Perozzi, J. A., & Sanchez, M. C. (1992). The effect of instruction in L1 on receptive acquisition of L2 for bilingual children with language delay. *Language, Speech, and Hearing Services in Schools*, 23(4), 348-352.
- Petersen, J., Marinova-Todd, S., & Mirenda, P. (2012). Brief report: An exploratory study of lexical skills in bilingual children with autism spectrum disorder. *Journal of Autism & Developmental Disorders*, 42(7), 1499-1503.

- Planty, M., Kena, G., Hannes, G., (2009). The condition of education 2009 in brief. NCES 2009. National Center for Education Statistics.
- Putnam, H., & Conant, J. (1994). Words and life Cambridge, Mass. : Harvard University Press, 1994.
- Ramirez, J. D., Aguirre International, San Mateo, CA., & Others, A. (1991). Longitudinal study of structured English immersion strategy, early-exit and late-exit transitional bilingual education programs for language-minority children. final report.
- Restrepo, M. A. (2003). Spanish language skills in bilingual children with specific language impairment. In S. Montrul, & F. Ordóñez (Eds.), *Linguistic Theory and Language Development in Hispanic Languages*, (pp. 365-374). Somerville, MA: Cascadilla.
- Restrepo, M. A., Morgan, G. P., Thompson, M. S., & Oetting, J. (2013). The efficacy of a vocabulary intervention for dual- language learners with language impairment. *Journal of Speech, Language & Hearing Research*, 56(2), 748-765.
- Richards, B. J. (1994). Child-directed speech and influences on language acquisition: Methodology and interpretation. Gallaway, B. J. Richards, C., (Eds.), *Input and interaction in language acquisition* (pp. 74-106). New York, NY, US: Cambridge University Press.
- Riker, W. H. (1986). *The art of political manipulation* New Haven : Yale University Press, c1986.
- Roberts, T. A. (2008). Home storybook reading in primary or second language with preschool children: Evidence of equal effectiveness for second-language vocabulary acquisition. *Reading Research Quarterly*, 43(2), 103-130.

- Rochefort, D. A., & Cobb, R. W. (1995). Problem Definition, Agenda Access, and Policy Choice. In R. C. Rist (Ed.), *Policy evaluation: Linking theory to practice* (pp. 249-264). Elgar Reference Collection. International Library of Comparative Public Policy, vol. 3.
- Rolstad, K., Mahoney, K., & Glass, G. V. (2005). The big picture: A meta-analysis of program effectiveness research on English language learners.
- Rosenau, P. V. (1993, May). Anticipating a post-modern policy current. *Policy Currents Newsletter of Public Policy, University of Arizona*, 3, 1.
- Rosenshine, B., & Meister, C. (1992). The use of scaffolds for teaching higher-level cognitive strategies. *Educational Leadership*, 49(7), 26.
- Ross, T., Kena, G., Rathbun, A., KewalRamani, A., Zhang, J., Kristapovich, P., and Manning, E. (2012). *Higher Education: Gaps in Access and Persistence Study* (NCES 2012-046). U.S. Department of Education, National Center for Education Statistics. Washington, DC: Government Printing Office.
- Schwanenflugel, P. J., Hamilton, C. E., Neuharth-Pritchett, S., Restrepo, M. A., Bradley, B. A., & Webb, M. (2010). PAVEd for success: An evaluation of a comprehensive preliteracy program for four-year-old children. *Journal of Literacy Research*, 42(3), 227-275.
- Seyfried, S. F. (1998). Academic achievement of African American preadolescents: The influence of teacher perceptions. *American Journal of Community Psychology*, 26(3), 381.
- Shah, S., & Lohar, S. A. (2016). The role of interactive media in the spread of English language in the world: A language policy perspective. *Language in India*, 16(6), 133-144.
- Shavit, Y., Yaish, M., & Bar-Haim, E. (2007). The persistence of persistent inequality. pp. 37-57.

- Skutnabb-Kangas, T., & National Clearinghouse for, B. E. (1979). Language in the process of cultural assimilation and structural incorporation of linguistic minorities
- Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, 21(4), 360-407.
- Sutton, A., & Soderstrom, I. (1999). Predicting elementary and secondary school achievement with school-related and demographic factors. Heldref Publications.
- Tam, K. Y., Heward, W. L., & Heng, M. A. (2006). A reading instruction intervention program for English Language Learners who are struggling readers. *Journal of Special Education*, 40(2), 79-93.
- Taub, G. E., Keith, T. Z., Floyd, R. G., & McGrew, K. S. (2008). Effects of general and broad cognitive abilities on mathematics achievement. *School Psychology Quarterly*, 23(2), 187-198. doi:10.1037/1045-3830.23.2.187
- Thomas, W. P., & Collier, V. (1997). School Effectiveness for Language Minority Students. NCBE Resource Collection Series, No. 9.
- Thomas, W. P., & Collier, V. P. (1998). Two languages are better than one. *Educational Leadership*, 55, 23-27.
- Thomas, W. P., & Collier, V. P. (2002). A national study of school effectiveness for language minority students' long-term academic achievement. Center for Research on Education, Diversity & Excellence, University of California, Santa Cruz.
- Thomas, W. P., Collier, V. P., & Collier, K. (2011). English learners in North Carolina, 2010. Fairfax, VA: George Mason University. A research report provided to North Carolina Department of Public Instruction. Retrieved from <http://p1cdn3static.sharpschool>.

com/UserFiles/Servers/Server_4502383/File/NC_EL_Study_Yr2_FinalReport_Jul27_2011.pdf.

Thomas, W.P., & Collier, V.P. (2012). *Dual Language Education For a Transformed World*.

Albuquerque, NM: Dual Language Education of New Mexico – Fuente Press.

Toothaker, L. E. (1991). *Multiple comparisons for researchers*. Newbury Park, Calif. : Sage Publications, c1991.

U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), Local Education Agency Universe Survey, 2002–2003 through 2010–2011.

Retrieved from <https://nces.ed.gov/ccd/pubagency.asp>

Vaughn, S., Mathes, P., Linan-Thompson, S., Cirino, P., Carlson, C., Pollard-Durodola, S., (2006). Effectiveness of an English intervention for first-grade English language learners at risk for reading problems. *The Elementary School Journal*, 107(2), 153-180.

Vygotsky, L. S. (1978). *Mind in society the development of higher psychological processes* Harvard University Press.

Weizman, Z. O., & Snow, C. E. (2001). Lexical output as related to children's vocabulary acquisition: Effects of sophisticated exposure and support for meaning. *Developmental Psychology*, 37(2), 265-279.

Whipple, S. S., Evans, G. W., Barry, R. L., & Maxwell, L. E. (2010). An ecological perspective on cumulative school and neighborhood risk factors related to achievement. *Journal of Applied Developmental Psychology*, 31(6-), 422-427.

Wickrama, K. A. S., Simons, L. G., & Baltimore, D. (2012). The influence of ethnicity and adverse life experiences during adolescence on young adult socioeconomic attainment: The moderating role of education. *Journal of Youth and Adolescence*, 41(11), 1472-1487.

- Willig, A. C. (1985). A meta-analysis of selected studies on the effectiveness of bilingual education. *Review of Educational Research*, 55(3), 269-317.
- World Views: The world's languages, in 7 maps and charts. Washington Post: Breaking News, World, US, DC News & Analysis,
- Xu, Z., Hannaway, J., D'Souza, S., (2009). Student transience in North Carolina: The effect of school mobility on student outcomes using longitudinal data. Urban Institute, National Center for Analysis of Longitudinal Data in, Education Research.
- Zwick, R., & Green, J. G. (2007). New perspectives on the correlation of SAT scores, high school grades, and socioeconomic factors Blackwell Publishing.