THE EFFECTS OF THE IMPLEMENTATION OF NCLB ON THE ACHIEVEMENT GAP BETWEEN AFRICAN AMERICAN AND WHITE STUDENTS IN GEORGIA MIDDLE SCHOOLS

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The Effects of the Implementation of NCLB on the Achievement Gap Between African American and White Students in Georgia Middle Schools

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Abstract

Stacey L. Benson. THE EFFECTS OF THE IMPLEMENTATION OF NCLB ON THE ACHIEVMENT GAP BETWEEN AFRICAN AMERICAN AND WHITE STUDENTS IN GEORGIA MIDDLE SCHOOLS. (Under the direction of Dr. Michelle Goodwin) School of Education, January 2010.

This study examined the relationship between the implementation of No Child Left Behind and the achievement gap between African American and white students' eighth-grade math scores on the yearly-standardized test (Criterion Referenced Competency Test – CRCT) in Georgia. A descriptive research design was utilized to examine data obtained from the Georgia Adequate Yearly Progress (AYP) report cards for each school. The research population was 50 randomly selected middle schools in the state of Georgia. The study found the following: 1) there was an achievement gap between eighth-grade African American and white students' math CRCT scores before the implementation of NCLB and it remained over a six-year period from 2001 to 2007; 2) academic achievement was higher for white students before NCLB was implemented and over a six-year period from 2001 to 2007; 3) both African American and white students exhibited an increase in academic achievement after the implementation of NCLB; 4) the achievement gap did not change over a six-year period from 2001 to 2007; therefore, NCLB did not seem to have any effect on the achievement gap between African American and white students.

Keywords: achievement gap, NCLB, student achievement, CRCT

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Chapter 1: Introduction

This research study examined the impact of Georgia educational requirements implemented due to the legislative components of No Child Left Behind (NCLB) on the achievement gap between African American and white student achievement. NCLB is one of the major reform initiatives that has guided education since 2002. Through this reform movement much emphasis has been placed on the achievement gap between African American and white students. The first chapter of this dissertation introduces the study, providing background information, a statement of the problem, the research questions, the hypotheses, and definitions of key terms.

Background of the Study

African American students are one of the minority groups that have shown academic gaps in student achievement in the United States. Throughout history major changes aimed at improving educational outcomes for African American students have taken place. Brown vs. Board Of Education was one of the major catalysts that began the change process in the education of African American students. This 1954 landmark ruling of the U.S. Supreme Court held that racial segregation in public schools was unconstitutional. This major decision overruled the Plessy vs. Ferguson decision of 1896, which authorized the segregation of African Americans in public schools (Ravitch, 2007). The major historical issues of legally sanctioned exclusion and discrimination, coupled with unequal outcomes and racism, have had a significant impact on the educational achievement of African American adolescents (Pine & Hilliard, 1990). In the 70s and 80s there seemed to be a narrowing of the gap as white student achievement

remained stable and African American student achievement rose (Rothman, 2001/02). However, this trend did not gain the momentum it needed, but rather stalled in the late 1980s.

Today's global society expects employees to be educated and ready for work at hire and does not expect to provide new hires remedial attention to prepare them for the job (Roman, 2009). According to Roman, the world markets are exploding with the entry of over 2 billion people in China and India, which requires industry to be ready for action and society to be prepared to contribute in a specialized, highly educated manner. David Zach, a futurist, summed it up by stating that the future will be lost if you are not educated (Reese, 2009). This sentiment is also seen in a deep social consensus that all students must graduate from high school prepared for postsecondary education and specialized training (Balfanz, 2009). The National Center for Educational Statistics (NCES) (1998) stated that African American 17-year olds had an average reading proficiency that was equal to that of white 13-year olds. In 1995, the percentage of African American high school status dropouts was 11.4%, while white high schools status dropouts was 8.4%. Approximately 10% of the African American students who drop out of high school have less than a 9th-grade education, and about 25% have less than a 10th-grade education (NCES, 1997).

According to Sanders (1999), a researcher from Johns Hopkin University, African American students' academic achievement is significantly below that of their white counterparts. This achievement gap will significantly impact the future of America, as it will require more than just non-minority achievement to maintain world power status in the United States. History provides numerous examples of nations that assumed status as

a world power only to be replaced by a nation prepared to take on a new role defined by innovation and change. According to the United States Consensus Bureau, in 2006 28% of the population in the United States had a four-year degree or higher. However, the Georgia Department of Education (2005) has pointed out that the younger generations are producing fewer college graduates at a time when the United States needs more college graduates to compete globally in the information/digital age. Other nations will surpass the United States educationally and thus take over the global job market if education does not improve in America. For example, China's educational plan is for 15-20% of their population to obtain a college degree. With a population of 1.3 billion people, they will have more college graduates than the total population in the United States, and these individuals will also be graduating with degrees in areas that feed the growing demand created by a global economy. In 2005, 60% of the total degrees earned in China were bachelor degrees in science and engineering compared to 5% in the United States (Daggett, 2005). In addition to this fact, nearly one-half of the students enrolled in these types of programs are non-U.S. citizens. These facts are among the many that have driven leaders to strategize and develop a plan for ensuring that minority and non-minority students have access to and succeed with regard to education and learning. According to Daggett (2005), the President of the International Center for Leadership in Education, the cyclical nature of such historical transitions and the frenetic pace at which society is changing at the global level make it imperative for the U.S. to consider what actions must be taken to remain a viable world presence. The U.S. seems to be losing ground, which greatly impacts the future of the citizens of the U.S.

There are different theories about the reason for the achievement gap. According to

Payne (2005), generational poverty is the main factor influencing the lives of low performing students. She defined *generational poverty* as poverty that spans generations. She contrasts this with situational poverty, which is defined as poverty that is caused by a situation such as death or medical hardship. Payne also brings to light what she coins the "hidden rules of society" and the "hidden rules of school" (2005, p.9). This concept is developed around the idea that schools are a middle class phenomenon, and therefore students who do not have a middle class mindset do not achieve in public schools.

John Ogbu has a different perspective, regarding the achievement gap that focuses on a cultural perspective which states that

> the difference in performance of ethnic minority groups is due to their "cultural frame of reference." Ogbu argues that there are different types of minority status, which bring with them differences in the cultural frame of reference based on experiences and encounters with the dominant majority. A major distinction that he makes, based on his research, is that there are significant differences in voluntary and involuntary or caste-like minorities. Involuntary minorities are "people who were originally brought into the United States or any other society more or less permanently against their will, through slavery, conquest, colonization or forced labor". Voluntary minorities moved to the United States or other societies by choice. Their purpose for moving was usually associated with the belief that they would experience better economic conditions, better treatment and, in many cases, greater political freedom, even if they had to start at the bottom of the economic ladder. (Fries-Britt, p. 487)

NCLB, the education reform that was proposed by President George W. Bush and

passed into law by Congress in January of 2002, seeks to decrease the achievement gap between minority groups (USDOE, n.d.). NCLB is based on four principles: accountability for results, more choices for parents, greater local control and flexibility, and an emphasis on scientific research. NCLB requires all schools to make Adequate Yearly Progress (AYP), be measured by the same state-specific standards, provide highly qualified teachers, and utilize scientific research to increase educational gains for all students. NCLB gives states the flexibility to determine how to meet the demands of the initiative; however, it does require that all groups of students achieve proficiency within 12 years (USDOE, n.d.). The passage of NCLB marked a shift from compliance driven to performance-based accountability in education (Wong, 2008).

As noted above, adequate performance outlined by NCLB applies to all groups of students. Historically minority students, economically disadvantaged, and students with disabilities have not made the same academic gains as the majority. NCLB states as a priority the

> closing (of) the achievement gap between high- and low- performing children, especially the achievement gaps between minority and nonminority students, and between disadvantaged children and their more advantaged peers; holding schools, local educational agencies, and States accountable for improving the academic achievement of all students; and identifying and turning around low-performing schools that have failed to provide a high-quality education to their students, while providing alternatives to students in such schools to enable the students to receive a high-quality education. (USDOE, n.d., Sec. 1001, #4)

NCLB requires districts to disseminate annual report cards on performance in

meeting or failing to meet *AYP* (USDOE, n.d). These annual report cards highlight the achievement gaps between minority and non-minority groups of students. According to the United States Department of Education (USDOE), schools that do not take the necessary steps to increase and make adequate gains for all students will be under Needs Improvement and subject to various outlined consequences. States are required to provide assistance, and the government will impose sanctions on schools and school districts, with regard to AYP and adequate academic gains, in order to receive federal aid. These adequate academic gains are measured by standardized tests.

In Georgia, this criterion-referenced standardized test is called the CRCT (Criterion-Referenced Competency Test) (GADOE, 2005). In 2000, the CRCT was implemented in Georgia schools in grades four, six, and eight in the areas of reading, language arts, and math. Currently, Georgia schools are required to administer this test in grades three through eight on a yearly basis. Although the CRCT measures reading, math, language arts, social studies, and science, only reading/language arts and math are used to determine AYP status. In 2000, Georgia mandated a schedule to determine when certain grade levels would implement the new Georgia performance standards across different subjects and grades. From the 2000-2001 to the 2006-2007 school years, the objectives for eighth-grade math and the CRCT have remained constant. Georgia also added the accountability component of the CRCT, which is the promotion component. The results of the test in reading and math impact whether or not the student is promoted to the next grade in grades 3, 5, and 8.

There are various conflicting views as to whether or not NCLB is impacting education in a positive light. Susan Newman, a former top Bush education official, wrote

that the purpose of NCLB was to shame schools into improvement (Jehlen, 2009). According to the 39th Annual Phi Delta Kappa (PDK)/Gallup Poll, dissatisfaction with NCLB is growing; 41 percent of people feel that NCLB is making no difference in student achievement (PDK, 2007). However, a national survey conducted by the Winston Group indicated that public support of NCLB is on the rise (Ewing, 2007). The nation seems to be divided with little evidence of the impact of NCLB to guide their decisions.

Statement of the Problem

Minority students do not perform as well academically as their non-minority peers (Haycock, 2006). One of the major goals of NCLB is to increase student achievement of minority students, thus decreasing the achievement gap between minority and non-minority students. There is insufficient evidence of the effectiveness of NCLB on decreasing the achievement gap between African American students and white students. Understanding the relationship between implementation and the achievement gap is an essential piece in determining the likelihood of achieving this NCLB goal.

Research Questions and Hypotheses

The purpose of the study was to examine the relationship between NCLB and the achievement gap between eighth-grade African American and white students' math scores on the yearly-standardized test (Criterion Referenced Competency Test – CRCT) in Georgia. The specific research questions and hypotheses that guided this research are as follows:

Research Question #1: Is there evidence of an achievement gap related to Georgia's implementation of NCLB-based on educational requirements, as measured by

performance of eighth-grade white and African American students on the math CRCT?

Null Hypothesis #1-H_{01}: There is no significant difference between the proportion of passing math CRCT scores between eighth-grade African American and white students as Georgia increases state educational requirements based on the legislative components of NCLB; thus no achievement gap exists between African-American and white students' math CRCT scores.

Research Question #2: Is there evidence of an increase in overall white and African American students' academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the performance of eighth-grade white and African American students on the math CRCT?

Null Hypothesis #2-H_{02}: There is no significant difference over time in the proportion of eighth-grade white and African American students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Research Question #3: Is there evidence of an increase in white students' academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the performance of eighth-grade white students on the math CRCT?

Null Hypothesis #3-H_{03}: There is no significant difference over time in the proportion of eighth-grade white students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Research Question #4: Is there evidence of an increase in African American students academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the performance of eighth-grade African

American students on the math CRCT?

Null Hypothesis #4-H_{04}: There is no significant difference over time in the proportion of eighth-grade African American students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Research Question #5: Is there evidence of a decreasing achievement gap related to Georgia's implementation of NCLB-based educational requirements, as measured by performance of eighth-grade white and African American students on the math CRCT?

Null Hypothesis #5-H_{05}: The achievement gap between eighth–grade African American and white students' math CRCT scores remains consistent over time as Georgia increases state educational requirements based on the legislative components of NCLB.

Professional Significance of the Study

One of the major goals of NCLB was to decrease the achievement gap between African American and white students (USDOE, n.d). Decreasing the achievement gap between African American and white students is crucial to fostering citizens who are prepared to compete in a global market. This research study provides leaders, educators, parents, and community members with data to help determine whether current educational practices in Georgia are positively impacting the achievement gap between African American and white students. If student achievement is not impacted, educators must revisit current educational practices and the current reform initiatives (NCLB) and begin the change process. Educators cannot continue to utilize ineffective practices or work within the framework of an ineffective reform movement if the goal is to see positive student achievement outcomes. On the other hand, if student achievement is positively impacted, then educators need to be cognizant of this so they can continue to

improve academic achievement in a strategic way. The impact that NCLB is having on education, specifically African American students, is very pertinent to continued educational reform. Educators and leaders need to know how this initiative that has led education reform over the last several years has impacted education for students. As policymakers seek to refine the various components of NCLB, they need data, with regard to the specific components of NCLB, to drive their decisions.

Overview of the Methodology

This research study utilized descriptive research with a correlational research design to investigate the problem, examining the relationship between the implementation of NCLB over time and (a) African American student achievement (b) white student achievement and (c) the achievement gap between African American and white students' eighth-grade math scores on the yearly standardized test (Criterion Referenced Competency Test – CRCT) in Georgia. The research population was 50 middle schools in the state of Georgia with the following characteristics: (a) the school qualified for a subgroup of African-American, white, special education, and economically disadvantaged students (40 or more students in each category) and (b) the school had been in existence since the 2001-2002 school year. These schools were randomly selected.

The research relied on AYP report cards obtained for each school. These report cards listed the percentage of white and African American students who the minimum passing score on the eighth-grade math Georgia CRCT. The report cards were public domain information and readily available.

Quantitative, non-experimental statistical methods were utilized to evaluate the

collected data. The researcher conducted descriptive statistics to examine the data and then, a mixed design analysis of variance (ANOVA) was utilized to determine whether the achievement gap between white and African American proportions of students passing the exam was significantly different across the school years.

Definition of Key Terms

Achievement Disparity/ Achievement Gap: The idea that minority and economically disadvantaged students tend to lag behind their white counterparts in achievement on standardized assessments (Lee, 2006).

Adequate Yearly Progress (AYP): Annual status check of identified data elements to determine whether schools and school districts are meeting state progress goals (Smith, 2005).

CRCT: The Criterion Referenced Competency Test that is used in Georgia to measure whether or not schools have made Adequate Yearly Progress.

No Child Left Behind Act (NCLB): President George W. Bush's education reform bill enacted in January 2002, which states that all states across the U.S. will reach proficiency in reading and mathematics by 2013-2014.

Annual Measurable Objectives (AMO): The Georgia Department of Education (n.d.) defines AMO as the following:

> Each school, as a whole, and each student group meeting the minimum group size must meet or exceed the State's Annual Measurable Objectives (AMO) regarding the percentage of students scoring proficient or advanced on State assessments in Reading/English Language Arts and Mathematics. For AMO, the minimum group size is 40 or 10% of the students enrolled in AYP grades, whichever is greater (with

a 75 student cap). (para. 3)

Georgia Performance Standards (GPS): The revised standards for the state of Georgia that were implemented in response to NCLB. These standards outline what the student should be able to do at the end of each academic year (Georgia Department of Education [GDOE], n.d.).

Quality Core Curriculum (QCC): The standards that each student should master at the end of each grade level. These standards were utilized prior to the GPS (GDOE, n.d.).

Subgroup: A subgroup is defined as a group of a minimum of 40 students with the same characteristics (race, economic status, disability) (GDOE, n.d.).

Summary

Chapter One provided a brief background of the study and its purpose with regard to NCLB and the achievement gap between African American and white students. With the goal of decreasing the achievement gap between subgroups, NCLB is the current reform movement that is driving education. Historically, educational reform movements have put various amounts of focus on minority students and their academic achievement; however, the achievement gap still remains. This investigation looked specifically at the achievement gap between African American and white students. Chapter Two discusses the theoretical basis for NCLB and presents current literature regarding NCLB and the influence it has had on student achievement, achievement gaps, educator perception, and curriculum. Chapter Three outlines the methodology that was used to evaluate the impact of NCLB on the achievement gap between African American and white students' eighth-grade CRCT math scores. Chapters Four and Five present the data analysis and

conclusions.

Chapter 2: Review of the Literature

Chapter Two provides a comprehensive review of the literature describing the achievement gap between African American and white students and it's relationship to NCLB. The discussion begins with an introduction describing NCLB and it's impact on the current political arena. Next, the researcher outlines the history of federal education initiatives in the United States and the progression that led to the development of NCLB. The theoretical basis behind NCLB guides the next section of the Review of the Literature describing how various educational theories contribute to the major components of NCLB. Finally, Chapter Two presents current research regarding NCLB and the achievement gap between African American and white students, factors that reflect the major components of NCLB and contribute to the achievement gap, other factors that contribute to the achievement gap, and the influence that NCLB has had on student achievement, educator perception, and curriculum.

Introduction

The purpose of NCLB is to improve the performance of all students in America. It is designed to provide states with the flexibility to create and implement accountability measures within their schools. States are required to establish guidelines, goals, and standardized testing to determine Adequate Yearly Progress (AYP) status on standardized tests. In the state of Georgia, the CRCT is the criterion-referenced test that all students are required to take on a yearly basis to determine AYP status. According to NCLB, all students should be making adequate academic progress, as measured by standardized tests, within 12 year

The controversy surrounding NCLB continues to build across the United States in educational, political, and public arenas. The Washington Post reported, “Rarely has such a gulf existed between the authors of a major piece of federal legislation and its executors -- in this case, the 90,000 public schools across the country” (Mathews, 2003, p. 1). Scripps Howard News Service and Ohio University conducted a survey and reported that two-thirds of American adults would like Congress to re-write or abolish NCLB (Hargrove & Stempell, 2007). They also noted that opposition to NCLB is highest among individuals familiar with the law. However, many Washington lawmakers feel that NCLB is what education needs (Mathews, 2003). The U.S. Education Secretary Rodrick R. Paige voiced his support of NCLB and its’ high expectations in the Washington Post stating, "If expectations are high, then [students] will thrive. If expectations are low, then they will come to believe they are hopeless causes and they will surrender" (Mathews, 2003, p. 1).

Recently the Obama administration announced a proposal to overhaul the current No Child Left Behind legislation. President Obama has long been critical of NCLB, on the campaign trail he was very vocal, and proposed changes if elected. In a news report White (n.d.) quoted the president who claimed to agree with the goals of NCLB;

> Now, we all know that the goals of this law were the right ones. We know that making a promise to educate every child with an excellent teacher is right. We know that accountability and standards are right. We know that it's right to close the achievement gap that exists in too many cities and towns, and that it's right to focus on the inequitable distribution of resources and qualified teachers in our schools. We didn't need some words in a law to tell us this, we already knew it,

> and every one of us is still willing to do whatever it takes to make these goals a reality. (p.2)

The report continued to say that he also felt that funding is not appropriated correctly.

> But don't come up with this law called No Child Left Behind and then leave the money behind. Don't tell us that you'll put high-quality teachers in every classroom and then leave the support and the pay for those teachers behind. (p.2)

Recent reports claim that Obama plans to institute change to NCLB with regard to areas that are the most objectionable to educators such as how funds are appropriated and the binary pass or fail evaluation system for schools. The Obama proposal plans to allocate money based on academic progress rather than the percentage of low-income students in an area. In addition to this, schools would no longer be classified as successful or not, but rather be divided into levels (Fox News, 2010; Quaid, 2010). The Obama administration also addressed the 2014 deadline. According to Fox News (2010), "the 2014 deadline that was described as 'utopian' by Education Secretary Arne Duncan would be replaced with the goal that all students leave high school ready for college or a career" (p.1).

History of Federal Educational Initiatives

Historically, leaders have been implementing various educational initiatives to improve the state of education (Bracey, 2003). In the late 1800s the need for educational standardization became apparent, and a common vision and mission for education in the United States became the focus of The 1892 Committee of Ten that was formed by the National Education Association (Altenbaugh, 1999). According to the Center for the

Study of Mathematics Curriculum (2004), this Committee of Ten selected school and college teachers of various subjects to consider the following:

> The proper limits of each subject, the best methods of instruction, the most desirable allotment of time for the subject, and the best methods of testing the pupils' attainments. Thus, the primary purpose in convening the Committee of Ten was to provide a national force for standardizing the secondary school curricula. (p.1)

There were several major changes that the report from the Committee of Ten brought about in secondary schools. These changes are as follows:

> Reshaped the high school course offerings by proposing alternatives to the classic curriculum and put forth the notion that high schools should help prepare all students to do well in life.
>
> Recommended an 8-4 organization for elementary and secondary schools.
>
> Stimulated thoughtful discussion of the mathematics curriculum as it recommended deletion of some topics and more attention to others.
>
> Opened the way for subsequent modifications of the theory of mental discipline. More specifically, it did not associate the development of mental powers with any particular subject.
>
> Provided an orientation of instruction (e.g., concrete geometry, and rules should follow rather than precede a topic) that paved the way for learning that reflected an activist orientation.
>
> Although directed toward high schools, the report had direct relevance to the elementary school.

> Called for more highly trained teachers to introduce the recommended changes in both elementary and secondary school. (p.5)

The recommendations of the Committee of Ten were visionary and began the quest for educational reform in America.

A booming economy led to the belief that the government could solve many of society's problems. The Elementary and Secondary Education Act (ESEA), an education reform movement that focused on the academic success of disadvantaged students, was signed by President Johnson in 1965. This act provided additional resources and services such as Title I. Shortly after the ESEA was put into effect, the Civil Rights Movement of 1970 brought about the 1974 Equal Educational Opportunities Act (EEOA). The EEOA stated that no state could deny equal education opportunity based on race, color, sex, or national origin (Gettinger & Kalymon, 2005).

The economic stability of the 1960s gave way to an economic decline in the 1980s. This economic decline raised concerns regarding education and its ability to prepare students for a global economy. In 1981, President Reagan and Secretary of Education Terrell Bell summoned the National Commission on Excellence in Education to research the quality of education in America's schools (Armstrong, 2006). In 1983, the National Commission on Education released *A Nation at Risk,* which brought to the attention of many Americans the inadequacies of the education industry. According to Ravitch, "A Nation at Risk called on high schools to expect all students to complete a basic curriculum that included four years of English, three years of math and science, and three years of social studies" (2007). No major legislation was passed as a result of this report; however, it did spur action at the state and local levels and marked an important

juncture in the involvement of the federal government in education (Sanders, 1999). This also marked a slight shift from equity in education to increased focus on overall educational outcomes.

In 1992 the Chapter 1 Commission, the federally funded program for the disadvantaged, was formed by practitioners, researchers, and advocates for Title I. David Hornbeck, superintendent of the Philadelphia public schools, was chair of the Chapter 1 Commission. The 1992 report of the Commission supported the administration's shift away from a fiscal accountability approach (Borman, Stringfield, & Slavin, 1991). It challenged policy makers to develop a new accountability framework that focused on schools rather than programs (Wong, K. 2008). As the Commission explained in 1992:

> No matter how wonderful the staff in special programs or how terrific their materials and equipment, they cannot compensate in 25 minutes per day for the effects of watered-down instruction the rest of the school day and school year. And watered-down instruction is precisely what most poor children get. (Commission on Chapter 1, 1992, p. 7)

Nine years after the Chapter 1 Commission made its recommendation, policy makers began efforts to address educational inadequacies in the form of No Child Left Behind (NCLB). NCLB is the education reform that was proposed by President George W. Bush and passed into law by Congress in January of 2002 (USDOE, n.d.). NCLB is based on four principles: accountability for results, more choices for parents, greater local control and flexibility, and an emphasis on scientific research. NCLB requires all schools to make Adequate Yearly Progress (AYP), be measured by the same state-specific

standards, provide highly qualified teachers, and utilize scientific research to increase educational gains for all students. NCLB gives states the flexibility to determine how to meet the demands of the initiative; however, it does require that all groups of students achieve proficiency within 12 years (USDOE, n.d.). The passage of NCLB marked a shift from compliance-driven to performance-based accountability in education (Wong, 2008).

Theoretical Framework

Education reform. Education reform in the United States is grounded in social change (Walsh, 1996). In 1962 Lev Vygotsky, a Russian psychologist, published his first work on the social development theory. His social development theory, which is one of the foundations of constructivism, has three major themes. First, social interaction has a primary role in social development; specifically learning precedes development. This is a stark contrast to Jean Piaget's theory in which development precedes learning. The second theme relates to the More Knowledgeable Other (MKO), which refers to any individual who has a higher ability level and/or understanding than the learner. The third major theme centers around the Zone of Proximal Development (ZDP), the distance between the students ability to perform a task with peer or adult collaboration and the students ability to perform a task independently (Learning-theories, n.d.). Vygotsky's social development theory guides individual's desires to learn more in order to increase social interaction (Leanard, 2002). Social development theory is based on the premise that qualitative changes in the structure and functioning of society help society to better realize its aims and objectives (Jacobs & Cleveland, 1999). As society changes, it becomes more aware of its educational landscape, which fosters educational reform.

History continues to validate this theory as society grows and changes and seeks to improve education through various reform efforts such as NCLB.

No Child Left Behind. "Behaviorism is the belief that instruction is achieved by observable, measurable, and controllable objectives set by the instructor and met by the learners who elicit a specific set of responses based upon a controlled set of stimuli" (Leonard, 2002, p. 16). This theory, developed by B. F. Skinner in the 1930s, is based on external outputs, learning products, and behavioral change. Behaviorism can be seen in NCLB in its dependency upon external outputs and learning products (student achievement) to determine whether adequate learning (behavioral change) has occurred. NCLB builds on the idea that if external-stimuli are controlled behavioral change will occur. The external stimuli associated with NCLB are the components that schools are required to follow. These components include highly qualified teachers, standardized testing, AYP requirements, etc. (USDOE, n.d.).

Behaviorism surmises that the stimuli coupled with a reinforcement schedule will lead to behavioral change. The reinforcement schedule for NCLB is rooted in the accountability component of the legislation. A specific schedule of reinforcement is devised by the states, which imposes various sanctions associated with federal funding. Behavioral change is one of the fundamental components of Skinner's theory. The behavioral change on which NCLB relies is the idea that after the external stimulus is controlled and reinforcement is in place, all students will achieve academically. Therefore, theoretically, the implementation of NCLB should be increasing all student proficiency on academic achievement measures.

The Social Learning Theory developed by Julian B. Rotter provides a framework

for understanding the accountability aspect that encompasses all the components of NCLB (Rotter, 1982). This Social theory model predicts behavior through behavior potential, expectancy, reinforcement value, and the psychological situation. This theory predicts that individuals will increase expectations when the expectations and reinforcement are put into place. Higher expectations in education monitored by accountability coupled with reinforcement in the form of consequences and federal funding will increase student achievement. Numerous research studies support this theory with regard to education and high expectations (Jamar & Pits, 2005; Shen & Pedulla, 2000; Akey, 2006; Picucci, Brownson, Kahlert, & Sobel, 2002). The expectation and accountability component of the Social Learning Theory can be seen in Georgia's response to the accountability mandates of NCLB. NCLB requires a Single Statewide Accountability System (SSAS) applied to all public schools and local education agencies (LEA). Georgia's SSAS includes all public schools and LEAs, requires them to make AYP, provides schools with a report card based on the most current data disaggregated by subgroups, and has a specific reward and intervention/consequences plan in place associated with student performance (see Figure 1 and Table 1) (State of Georgia, 2009).

Award Structure: Performance Index Criteria

Performance Levels	AYP Status	Greatest Gain in Percentage of Students Meeting and Exceeding Standards	or	Highest Percentage of Students Meeting and Exceeding Standards
Platinum	**Yes (for last 3 years)**	**Top 2 Percent: 98th Percentile within Georgia (with at least 35% Exceeding Standards)**	**or**	**At least 98 Percent of Students (with at least 35% Exceeding Standards)**
Gold	**Yes (for last 2 years)**	**Top 3 Percent: 97th Percentile within Georgia (with at least 30% Exceeding Standards)**	**or**	**At least 97 Percent of Students (with at least 30% Exceeding Standards)**
Silver	**Yes (for last 2 years)**	**Top 4 Percent: 96th Percentile within Georgia (with at least 25% Exceeding Standards)**	**or**	**At least 96 Percent of Students (with at least 25% Exceeding Standards)**
Bronze	**Yes or No in current year - Not in Needs Improvement**	**Top 5 Percent: 95th Percentile within Georgia (with at least 20% Exceeding Standards)**	**or**	**At least 95 Percent of Students (with at least 20% Exceeding Standards)**
Awards are based on Full Academic Year (FAY) students, CRCT grad es 1-8 in Reading, ELA, Math, Social Studies, and Science, and GHSGT grade 11 first time test takers in Englis h Language Arts, Math, Science, and Social Studies.				

Figure 1. **Georgia Award Structure: Performance Index Criteria** (State of Georgia 2009, Appendix B)

Table 1

Schools: Table of Consequences/Interventions

Needs Improvement Status	Consequences/Interventions
Did Not Make AYP	No Consequences
Year 1	
NI 1	School Choice;
	Develop School Improvement Plan
NI 2	School Choice;
	Supplemental Services;
	Implement School Improvement Plan
NI 3	School Choice;
	Supplemental Services; Continue School Improvement
	Plan;
	Develop/Implement School Corrective Action Plan
NI 4	School Choice;
	Supplemental Services;
	Implement School Corrective Action Plan;
	Plan for Restructuring
NI 5	School Choice;
	Supplemental Services;
	Continue School Corrective Action;
	Implement School Restructuring Plan
NI 6	School Choice;
	Supplemental Services;
	Implement School Restructuring Plan;
	GDOE School Performance Review and Needs
	Assessment;

NI 7	Develop Improvement Contract School Choice; Supplemental Services; Implement Improvement Contract;
NI 8	Contract-Monitored School Year 1 School Choice; Supplemental Services; Contract-Monitored School Year 2; Update Improvement Contract; GDOE System Performance Review and Needs Assessment;
NI 9	Develop Management Contract School Choice; Supplemental Services; Implement Management Contract;
NI 10	Contract-Managed School Year 1 School Choice; Supplemental Services; Contract-Managed School Year 2; Update Management Contract

(State of Georgia 2009, Appendix C)

Current Research

Current research on NCLB is very limited due to the expansive nature of this educational reform movement. In an effort to control the variables associated with research regarding NCLB, this investigation targeted the achievement gap between African American and white students. Research regarding the achievement gap between African American and white students is presented in the current research as this issue has been the focus of various educational initiatives and school improvement plans.

NCLB and the achievement gap. NCLB requires student test scores to be desegregated by subgroups to ensure that all students are making adequate gains and no child falls behind (USDOE, n.d). According to an article published by the Center on Education Policy, more schools are beginning to pay closer attention to the achievement gaps of the various subgroups (CEP, November 1, 2006). The USDOE expects the achievement gap to lessen as more focus is placed on minority students (USDOE, n.d). Research supports the need for emphasis on disadvantaged students and their lower student achievement in comparison to their more advantaged peers (D'Amico, Harwell, Stein, & Van den Heuvel, 2001; Darling-Hammond, Hightower, Husbands, LaFors, & Young, 2002; Elmore & Burney, 1997).

In a study conducted by Jehlen (2009), results suggest that there has been a decrease in the achievement gap between African American and white students since NCLB was implemented. However, his research found that the achievement gap was decreasing at a higher rate before the implementation of NCLB. Jehlen evaluated the achievement gap between the NAEP scores of African American and white students from 1971 to 1988 and compared them to 1998-2007. According to Jehlen (2009), student scores may increase when high stakes are put on a test, regardless of what the student knows which is a phenomenon called Campbell's Law. For this reason he states that in order to evaluate the effectiveness of NCLB one must evaluate the scores of students on a test they do not prepare for. The National Assessment of Educational Progress (NAEP) is an assessment given to large random samples of students. The scores from the NAEP are calculated for the individual student rather than for an individual school. The achievement gap between African American and white students from 1971-1988

decreased as the years progressed. From 1998-2007, the achievement gap had only a slight decrease, less decrease than the previous years.

In June of 2007, the Center on Education Policy (CEP) published its research regarding student achievement and NCLB. The study found that over a five-year period the achievement gap between students has been narrowing. The main conclusions for the research were as follows:

> 1. In most states with three or more years of comparable test data, student achievement in reading and math has gone up since 2002, the year NCLB was enacted.
>
> 2. There is more evidence of achievement gaps between groups of students narrowing since 2002 than of gaps widening. Still, the magnitude of the gaps is often substantial.
>
> 3. In 9 of the 13 states with sufficient data to determine pre- and post-NCLB trends, average yearly gains in test scores were greater after NCLB took effect than before.
>
> 4. It is very difficult, if not impossible, to determine the extent to which these trends in test results have occurred *because* of NCLB. Since 2002, states, school districts and schools have simultaneously implemented many different but interconnected policies to raise achievement.
>
> 5. Although NCLB emphasizes public reporting of state test data, the data necessary to reach definitive conclusions about achievement were sometimes hard to find or unavailable, or had holes or discrepancies. More attention should be given to issues of the quality and transparency of state test data. (p.7)

This study went to great lengths to ensure that it was comprehensive and took into account as many variables as possible. These variables included current data, valid test results that could not be accounted for by other factors, such as a change in standardized test use, and a statistical measure used to give uniformity to the definition of proficiency as defined by different states. This study also took into account changes that were taking place in various states before NCLB was implemented. For these states, the study looked at the rate of achievement and whether or not the rate of achievement increased after the implementation of NCLB.

In contrast, Lee's (2006) research found that NCLB has not significantly narrowed the achievement gap. The key findings are as follows:

- NCLB did not have a significant impact on improving reading and math achievement across the nation and states. Based on the NAEP results, the national average achievement remains flat in reading and grows at the same pace in math after NCLB than before. In grade 4 math, there was a temporary improvement right after NCLB, but it was followed by a return to the pre-reform growth rate. Consequently, continuation of the current trend will leave the nation far behind the NCLB target of 100 percent proficiency by 2014. Only 24 to 34 percent of students will meet the NAEP proficiency by target in reading and 29 to 64 percent meeting that math proficiency target by 2014.
- NCLB has not helped the nation and states significantly narrow the achievement gap. The racial and socioeconomic achievement gap in the NAEP reading and math achievement persists after NCLB. Despite some

improvements in reducing the gap in math right after NCLB, the progress was not sustained. If the current trend continues, the proficiency gap between advantaged White and disadvantaged minority students will hardly close by 2014. The study predicts that by 2014, less than 25 percent of Poor and Black students will achieve NAEP proficiency in reading, and less than 50 percent will achieve proficiency in math.

- NCLB's attempt to scale up the alleged success of states that adopted test-driven accountability policy prior to NCLB, so-called first generation accountability states (e.g., Florida, North Carolina, Texas) did not work. It neither enhanced the first generation states' earlier academic improvement nor transferred the effects of a test-driven accountability system to states that adopted test-based accountability under NCLB, the second generation states failed to narrow NAEP reading and math achievement gaps after NCLB.
- NCLB's reliance on state assessment as the basis of school accountability is misleading since state-administered tests tend to significantly inflate proficiency levels and proficiency gains as well as deflate racial and social achievement gaps in the states. The higher the stakes of state assessments, the greater the discrepancies between NAEP and state assessment results. These discrepancies were particularly large for Poor, Black, and Hispanic students. (p.10-11)

Additional research has highlighted concerns regarding NCLB's test-based accountability and its AYP requirement, including its potential to make many issues such

as racial, economic, or geographic inequalities among schools worse (Kim & Sunderman, 2005; Lee, 2003; Lee, 2004; Linn, 2003; Sundermn, Kim, & Orfield, 2005). Northwest Evaluation Association conducted research, which found that student growth in ethnic groups has slightly decreased since the implementation of NCLB (NEA, 2005).

Although the research is mixed with regard to how NCLB is impacting the achievement gap; the truth remains that the achievement gap is very real and has been for quite some time. African American students are among one of the main minority groups that has been impacted by the achievement gap. NCLB is similar to other reform initiatives with respect to implementing various guidelines with the goal of decreasing the achievement gap between African American and white students. Researchers have found various reasons, of which many fall within the parameters of NCLB, for the achievement gap between African American and white students (Educational Research Service, 2005; Rabiner, Murray, Schmid, & Patrick, 2004).

Achievement gap: African American and white students. ***NCLB: research-based interventions and practices.*** One major component of NCLB is the use of research-based practices in the classroom (USDOE, n.d.). Current research has found that effective school and classroom practices are imperative to increasing student achievement and decreasing the achievement gap, which is consistent with the component requiring research-based practices found in NCLB (Flaxman, 2003; Bruce, Getch, & Zionek-Daigle, 2009; Geisler, Hessler, & Temple, 2009; Rabiner et al., 2004).

Geisler et al. (2009) studied the effects of differentiation, a research-based practice, in closing the writing performance gap between African American and majority students.

Differentiated instruction in writing, which included self-counting the total number words written and self-monitoring the progress coupled with the use of synonym lists, was utilized for five first-grade African American students. All students in the study exhibited gains in writing, supporting the hypothesis that differentiated interventions for African American students will increase the likelihood of academic achievement, thus decreasing the achievement gap.

In a summary of two recent research studies, Flaxman (2003) discusses various explanations for the achievement gap and suggests ways to eliminate this gap between African American and white students. In the first study, Ferguson analyzed data collected by the Minority Student Achievement Network. The Network surveyed middle and high school students in 95 schools to better understand the experiences of different racial and economic group students and how the experiences affect their academic achievement and engagement. According to Flaxman, "the purpose of this quantitative study was to determine how the schools can be educationally productive in closing the achievement gap in their heterogeneous student bodies" (p.2). The second study, conducted by Ogbu, was an ethnographic study of students in Ohio schools.

> The ethnographers conducting the study observed 110 classrooms from the start to the finish of the lesson, in classes of (1) different racial makeup, (2) the same subject taught at different levels, (3) different subjects, (4) the same teachers teaching the same courses at different levels, (5) the same teachers teaching different courses, and (6) teachers of different races and genders. (p.2)

The purpose of this study was to evaluate how African American student's identity as an oppressed group impacts their academic achievement. The researchers conclusions,

which correlate to the research-based intervention component found in NCLB, were similar in nature; and differed only in emphasis. Ferguson found that the teacher and school must encourage the African American students by changing classroom practices to provide academic encouragement, which will change the student's self-concept and identity. Likewise, Ogbu found that the teacher and school played a major role in African American students achievement through caring practices in place; however, he found that an emphasis must be placed on modifying the student's collective identity that rejects school success. Thus the focus of instruction would be on the student's self-concept rather than academics.

A recent study conducted by Schellenberg & Grothaus (2009) agreed with the results noted by Flaxman (2003) which emphasized the importance of classroom and school practices in decreasing the achievement gap between African American and white students, and further agreed with Ogbu in the importance of self-concept in relation to cultural identity. Researchers examined the effects of a small group led by the counselor, which focused on reinforcing math and language arts content coupled with opportunities to appreciate the students' cultural backgrounds and strengths. The researchers defined this type of group as standards-blended. The small group met four times per week for 30-minutes each session. The results of the study indicated that academic achievement increased, as well as student self-esteem.

In a similar study Bruce et al. (2009) examined the impact of a specially designed group counseling intervention on the achievement gap between African American students and white students in a small, rural high school in Georgia. The group counseling sessions consisted of GA High School Graduation Test practice and

information on how to access additional practice via the web. The students participated in eight sessions. The results of the study were as follows:

> Twelve out of 15 students (80%) who participated in the intervention received passing scores on all four sections tested during the spring administration of the GHSGT. Further, all students who participated in the intervention received passing scores on the English Language Arts (ELA) and Math sections of the GHSGT. Although 100% of students who participated in the intervention received passing scores on the ELA and Math sections of the graduation tests, only 67% of students met the enhanced math score required to meet AYP measures. All students in the research group met AYP measures for the English Language Arts section. (para.19)

With regard to the achievement gap between African American and white students the research found the following:

> The results from this reporting period indicate that African-American students performed at comparable rates with their White peers on the English Language Arts section with 84.2% of African-American students meeting or exceeding minimum performance rates as compared to 84.3% of White students. Additionally, the achievement gap between African-American students and White students on the Enhanced Math narrowed during the 2007-2008 testing period, with 63.2% of African-American students achieving pass rates as compared to 70.5% of White students. African-American students increased their pass rate on the Enhanced Math 24.5 percentage points from the previous school year, which is a 63% increase. (para. 20)

The results indicate that school practices (NCLB research-based interventions) play a

significant role in decreasing the achievement gap.

Cohen, Garcia, & Purdie- Vaugns (2009) also found that self-perception played a significant role in the effectiveness of classroom interventions and students achievement. In a 2-year follow-up of a randomized field experiment, researchers found that an intervention consisting of writing assignments focused on students self-affirming values reduced the achievement gap between African American and white students. The study found that low-achieving African Americans benefited the most from this type of intervention. Their GPA improved 0.41 points on average and their rate of remediation dropped from 51% to 18%.

Research has also noted health issues that may be negatively impacting the achievement gap between African American and white students. Rabiner et al. (2004) explored the relationship between ethnicity, attention, and academic achievement. In the research study, 33 teachers rated 600 students (African American, white, and Hispanic) on achievement and inattentive behaviors. The results suggested that discrepancies in the achievement gaps of these groups of students may be related to differences in attention, with African American students showing higher rates of inattention and lower academic achievement. Due to the recent emphasis on Attention Deficit Disorder, there are many research-based interventions available for students with types of medical issues (Depaul & Eckert, 1997).

NCLB: highly qualified teachers

Another major component of NCLB is the requirement of highly qualified teachers. The premise behind the highly qualified portion of NCLB is that qualified teachers will be more effective in raising academic achievement (USDOE, n.d.). Research has shown

that schools are making progress in the area of highly qualified teachers as outlined by NCLB (CEP, 2006). However, school systems seem skeptical that this is positively impacting student achievement. Some of the current research has found that teacher qualification and effectiveness, specifically teacher expectation with the classroom, does positively impact student achievement and the achievement gap (Ferguson, 1998; Goldhaber & Brewer, 2000; Greenberg, 2004Rist, 1973; Weinstein, Gregory, & Strambler, 2004). McKonw and Weinstien (2007) conducted three separate studies and the results agreed that teacher effectiveness, teacher expectations and bias in the classroom, does influence African American student achievement. Pollard (1993) found that many African American male students perceive that their teachers don't have high expectations nor do they care about them. This negatively impacts the students' self-evaluation regarding their academic abilities.

Although the goal of NCLB is to improve the quality of teachers with the highly qualified component of the federal mandate, Tracey, Sunderman, and Orfield (2005) found that NCLB may actually be contributing to a decrease in the quality of teachers for at risk students. As schools become labeled in need of improvement, highly qualified teachers relocate to other schools and are replaced with less qualified teachers. In addition to this, some of the research contradicts this finding that teacher qualification does not indicate the ability, creativity, or teaching skills of an educator (Walsh, 2001).

Other factors contributing to the achievement gap. In contrast to the various studies that supports NCLB and it's components in decreasing the achievement gap, there is research that supports decreasing the achievement gap with interventions that do not correlate to the components of NCLB (Baker, 2005; Clark, 1991; Fryer, 2009; Martin, Martin, Gibson, & Wilkins, 2007; Pinkney, 2000). Factors such as the social environment, home life, economics, and family support are among the contributors that research has found regarding student achievement and the achievement gap. One study, which surveyed educators regarding their opinions about the role of NCLB, found that educators feel that NCLB will not improve achievement gaps because many of the variables impacting the gaps are not being addressed by NCLB (Carlyle, 2008).

Dobbie and Fryer (2009) conducted a study of the Harlem Children's Zone (HCZ), a New York City initiative combining charter schools with community services for low-income minority students and their families. The study showed dramatic academic gains that are effectively closing the achievement gap between African American and white students in math and language arts. The HCZ provides students with more than just academic interventions; it also provides community supports such as early-childhood programs, parenting workshops, and anti-obesity initiatives. Dobbie and Fryer note that it is not clear which component of the Harlem Children's Zone is fostering the decrease in the achievement gap. NCLB does not provide funding nor guidelines for programs and interventions that fall outside of the average school day and/or programs that incorporate community support (USDOE, n.d.). NCLB does allow states to determine their own way to decrease achievement gaps, but ultimately funding does not correspond

to these types of interventions.

In another study conducted by Martin et al. (2007) researchers found that additional services outside of the regular school day, which NCLB is not able to appropriately fund, provided to African American students increased their academic achievement.

> In this study, African American male students participated in an after-school program involving tutoring, group counseling, and various enrichment activities. All students were assessed regarding their behavioral changes using attendance, discipline referrals, suspensions, and expulsions reports. The Kaufman Brief Intelligence Test (KBIT) and the Kaufman Test of Educational Achievement (KTEA) were used to assess the adolescents' improvement in their skills in reading and mathematics. (p.1)

The results of the program, which lasted for two years, showed that the students' daily attendance increased, discipline referrals decreased, and they had no suspensions or expulsions. The students also demonstrated an average improvement of two grade levels. The researchers concluded that

> (a) there is a need to emphasize appropriate assessment prior to beginning a skill improvement program; (b) a need to emphasize the use of individualized learning plans and tutors; and (c) a need to further investigate the role of assessment and intervention in after-school programming in order to close the achievement gap. (p.1)

Other research highlights health issues that are negatively impacting the achievement gap in which NCLB has no impact on or correlation to. Miranda, Kim, Reiter, Overstreet, & Maxson (2009), found that environmental exposures, specifically

childhood lead, may be contributing to the achievement gap. They found that early childhood lead exposure is associated with lower performance in reading test scores. In addition to this they noted that parental educational attainment and family poverty status also impacted the test scores. With regard to African American children, they concluded that given the higher lead exposure experienced by these students in the United States, lead does account for part of the achievement gap.

Funding is a major reason educators feel they are not able to address some of the areas that seem to be impacting the achievement gap (Hamilton et al., 2007). NCLB requires many costly initiatives that few administrators feel they have adequate funding to implement, and a recent analysis of the funding agrees with this sentiment. NCLB imposes new requirements on states and provides additional funding for the requirements; however, the new federal funding is not sufficient for funding the high standards that NCLB requires (Duncombe, Lukemeyer, & Yinger, 2008). Duncombe et al. conducted an analysis for Kansas and Missouri with regard to the estimated required cost of education due to NCLB and compared it with the current available funding provided through NCLB. The results found that the current funding available through NCLB is only sufficient for lower standards; thus many states will most likely keep standards low to compensate for these discrepancies. Addressing additional issues contributing to the achievement gap that fall outside of the current educational arena is impossible with the current funding.

NCLB and overall student achievement. NCLB promotes high expectations and accountability for all students. Some of the research regarding NCLB has focused on overall student achievement rather than breaking it down into specific components. Several studies have indicated overall academic gains after the implementation of NCLB (CEP, 2007; CEP, 2006; Cole, 2006; Haycock, 2006; NEA, 2005; Research for Action, 2004; Zehr, 2009). The increase in academic gains can be seen across districts and across various types of communities. A study that utilized a district survey demonstrated that over 85% of schools in an urban district reported gains in student achievement (CEP, March 24, 2006). In 2004, the CEP conducted research on the effectiveness of NCLB on the 50 States. The results of the research indicated that many of the states reported increases on state test scores, but a higher percentage of the schools contributed this achievement to district policies and programs rather than NCLB (Center on Education Policy [CEP], March 24, 2006). However, research has also shown that many states have reported progress in implementing measures to meet the 40 requirements outlined by NCLB (Christie, 2003).

A more recent study conducted by Dee & Jacob (2009) found that NCLB has significantly increased math achievement, but no evidence supports that it has accomplished this in reading as well. Researchers examined the effects of NCLB on fourth-graders and eighth-graders on the National Assessment of Education Progress (NAEP). The results of the study revealed large increases in math for fourth-grade students and moderate gains for eighth-grade students. Much of the gains in math were with white and Hispanic students, economically disadvantaged students, and with all levels of performance. Reading did not reveal the same types of results. The sample size

for the study was approximately 40 states. The study differed from many of the previous research on NCLB due to the fact that it consisted of a control group and a treatment group of states. The control group, which consisted of states such as Illinois, North Carolina, and Texas, had accountability systems similar to NCLB before the law was passed in 2002. The accountability systems included testing students, reporting the data, and using sanctions. The treatment group, which included states such as Arizona, Colorado, Ohio, New Jersey, and Pennsylvania, were testing, and some were reporting data, but these states did not have sanctions in place. The results indicated that after 2002 student achievement in the treatment states demonstrated greater gains than in the control states.

Research regarding overall student achievement and NCLB has not all been in support of this educational reform movement. Researchers have found results that indicated NCLB is not effective in increasing overall student achievement (Great Lakes Center for Education Research and Practice, 2005; Report, 2006; Cavanagh, 2006). In a CA study, researchers found that student's reading test scores in grade 4 were stagnant and in some cases declining since the implementation of NCLB (Cavanagh, 2007).

There are various accountability consequences associated with a lack of progress in the area of student achievement and AYP. Restructuring takes place when a school does not meet AYP for a number of years. Ambrosio's study (2004) of a high school found that the various regulations and consequences imposed upon the school due to not meeting AYP were having serious negative effects on the school itself. The school was sinking with no real hope of improving due to what they felt were unfair regulations of NCLB (Ambrosio, 2004).

NCLB and educator impact. Other educational areas that NCLB is impacting include decision-making, teacher perception, curriculum, and teacher quality. NCLB and the highly qualified component, accountability, and increased expectations are among the areas that are impacting decisions that educators make. One area that NCLB is impacting school administrators is in the area of school improvement programs. When a school is not making AYP administrators must begin searching for research-based whole school improvement programs. This can be a very challenging task. Current research in this area has provided little support and guidance in selecting effective research-based school improvement plans. In a study conducted by Graczewski, Ruffin, Shambaugh, & Therriault (2007), researchers identified common themes that are reflected in choosing effective school improvement plans. These themes include "creating an improved and more cohesive school culture, increasing school and teacher capacity, using standards-based curriculum with effective teaching strategies, and influencing student outcomes" (p. 88).

NCLB is also impacting the direction of curriculum in today's schools. For example, research shows that many feel the mandates given to schools by NCLB have threatened arts education (CEP, 2006; Chapman, 2004; Meyer, 2005; Pedulla et al., 2003; Spohn,2008; & von Zastrow, 2004). Very little quantitative data is available to confirm how the arts education is being impacted (Ashford, 2004; Colwell, 2005; Mishook & Kornhaber, 2006). Spohn concluded the following in her research regarding arts education:

> Equity in education is the foundation from which NCLB was built. This philosophy is undermined with the emphasis on math, reading, and soon to be

> science that is forcing schools with limited resources to take away learning experiences and opportunities for students to succeed in other subjects as the arts. (p. 11)

Research has also shown that NCLB is negatively impacting how teachers feel about education and their role in the educational process (Pedulla et al. 2003; Faulkner & Cook, 2006). According to a study conducted by Pedulla et al., many teachers feel pressure to focus more on the test rather than content. They feel that the high stakes testing mandated by NCLB is requiring them to teach in ways that contradict sound instructional practices. The majority of the teachers felt that the testing was not worth the time or money spent on it. However, they did feel positive about the standards being implemented. Faulkner & Cook found the following:

> Many view the state assessment as their "driving force" causing them to "teach to the test," "focus on coverage" over in-depth study, limit their instruction to the topics on the assessment, change their instructional and assessment strategies, and even consider unethical behavior. (p.8)

Summary

The review of the literature examined the relationship between NCLB and the achievement gap between African American and white students. It also discussed the various components of NCLB and the effectiveness of these components in increasing the effectiveness of our nations educational system. The theoretical framework from which NCLB derives its initiatives are based on theories such as Vygotsky's social development theory, Skinner's theory of behaviorism, and Rotter's Social Learning Theory (Leanard, 2002; Rotter, 1982).

One of the major areas that NCLB targets is the achievement gap between subgroups and majority groups of students (USDOE, n.d.). Much of the research on NCLB and the achievement gap found that there is little evidence of a decrease in the gap between subgroups (Jehlen, 2009; Lee, 2006; NEA, 2005). There has been some research supporting the idea that since NCLB was implemented in 2002 the achievement gap between students has been narrowing (CEP, 2007; Jehlen, 2009; NEA, 2005). However, it seems that much of the research has had difficulty generalizing and contributing any decreases in the achievement gap to NCLB. Some of the research even found that NCLB has the potential to make issues associated with the achievement gap worse (Kim & Sunderman, 2005; Lee, 2003; Lee, 2004; Linn, 2003; Sundermn, Kim, & Orfield, 2005).

Although there is limited research regarding NCLB and its direct impact on the achievement gap; there is current research which suggests that in many cases NCLB should be effective in decreasing the achievement gap between African American and white students (Bruce,2009; Cohen et al., 2009; Depaul et al., 1997; Ferguson, 1998; Flaxman, 2003; Getch et al., 2009; Geisler et al., 2009; Goldhaber & Brewer, 2000; Greenberg, 2004; McKonw & Weinstien, 2007; Rist, 1973; Rabiner et al., 2004; Weinstein et al., 2004). There are many factors, such as classroom and school interventions, teacher perceptions and qualifications, economic status, family support, and health issues, that contribute to the achievement gap between African American and white students (Educational Research Service, 2005; Rabiner, Murray, Schmid, & Patrick, 2004). Many of these factors are accounted for the in the various components of NCLB; however, looking at the gaps from a more global perspective one is not able to see the results that are expected (Jehlen, 2009; Kim & Sunderman, 2005; Lee, 2003; Lee,

2004; Lee, 2005; Linn, 2003; NEA, 2005; Sundermn, et al., 2005).

There are many facets that contribute to complexity of NCLB, which make conclusions regarding its effectiveness less than simple. The question regarding whether or not NCLB is a worthwhile initiative continues to plague educators around the nation. While some of the research has shown that regulations states have imposed due to NCLB seemed to actually increase overall student achievement (CEP, September 20, 2006; CEP, March, 2007; CEP, March 1, 2007; Nesselrodt, 2007), other research claims it has not (Marco, Potter, & Ross, 2008a, 2008b; Potter, Ross, Munoz, et al,, 2007; Potter, Ross Paek, et al., 2006). Some of the research contributes increased student achievement to consistent reform efforts rather than one specific reform effort such as NCLB. In a recent study researchers reported on the relationship between math achievement growth and the number of years schools implemented either a whole-school reform model with National Science Foundation-supported mathematics curriculum or without it (Mac Iver, & Mac Iver, 2009). The researchers found that math achievement gains were positively related to the number of years the schools implemented a specific mathematics curricular reform. This and other current research supports the idea that student achievement is impacted by consistent school reform methods, rather than one specific method (Balfanz, Mac Iver, & Byrnes, 2006).

Student achievement is the foundation upon which education is built. Student achievement is the driving force behind NCLB (USDOE, n.d). The limited research regarding the effectiveness of NCLB, the current educational reform movement, varies as much as individual opinions regarding this matter. The research seems to be inconclusive at this time, which demonstrates a need for additional research to be conducted in this

area. This research seeks to contribute to the body of research regarding NCLB and its effectiveness in decreasing the achievement gap thus impacting student achievement for all students.

Chapter 3: Methodology

Overview

Ex post facto and descriptive research with a correlational research design was utilized to investigate the problem, examining the relationship between the implementation of NCLB over time and (a) African American student achievement (b) white student achievement and (c) and the achievement gap between African American and white students' eighth-grade math scores on the yearly standardized test (Criterion Referenced Competency Test – CRCT) in Georgia. "Ex post facto research is conducted after variation in the variable of interest has already been determined in the natural course of events" (Ary et al, 2006, p.155). No variables were manipulated. Data used to test the hypotheses was obtained from the Georgia AYP report cards for each school. Further discussion on the methodology in this chapter will include the research context, research participants, the research instrument, research procedures, and data analysis.

Research Context

Georgia is located in the southeast region of the United States of America. Information provided by the US Census Bureau Quick Facts (2009) indicates racial diversity and a lower graduation rate in the state of Georgia as compared to the United States, which makes Georgia an ideal study site for investigating achievement gaps (see Table 2). The racial diversity within the state of Georgia, specifically between African American and white students, has contributed to the educational inequities historically seen in Georgia. As with the rest of the nation, Georgia has continued to implement various educational reform initiatives to improve the educational outcomes of all

students. The commitment to improving education for all students is yet another factor that contributes to the importance of researching the state of Georgia in the current study.

Table 2

Georgia Quick Facts Compared to the USA

Facts	**Georgia**	**USA**
Population, 2008 estimate	9,685,744	304,059,724
White persons, percent, 2007	65.6%	80.0%
Black persons, percent, 2007	30.0%	12.8%
American Indian and Alaska Native persons, percent, 2007	0.3%	1.0%
Asian persons, percent, 2007	2.8%	4.4%
Native Hawaiian and Other Pacific Islander, percent, 2007	0.1%	0.2%
Persons reporting two or more races, percent, 2007	1.2%	1.6%
Persons of Hispanic or Latino origin, percent, 2007	7.8%	15.1%
White persons not Hispanic, percent, 2007	58.5%	66.0%
Language other than English spoken at home	9.9%	17.9%
High school graduates, percent of persons age 25+, 2000	78.6%	80.4%
Bachelor's degree or higher, pct of persons age 25+, 2000	24.3%	24.4%
Per capita money income, 1999	$21,154	$21,587
Persons below poverty, percent, 2007	14.3%	13.0%
Persons per square mile, 2000	141.4	79.6

(US Bureau Quick Facts, 2009)

Access to pertinent information was readily available due to the NCLB requirement of states to provide report cards with AYP status and academic achievement measured by criterion-referenced tests.

Qualifications of the Researcher

At the time of the study, the researcher was a candidate for the degree of Doctor of Education at Liberty University, with a concentration in higher education. The researcher was employed by a rural school district in Georgia as an Assistant Principal for an elementary School. The researcher has been in education for over ten years and presented at various state and national conferences on educational issues such as increasing the graduation rate, the use of portfolios in the classroom, and Response To Intervention (RTI). School reform and educational outcomes are a career focus for the researcher.

Research Participants

The research population for the current research was 50 middle schools in the state of Georgia with the following characteristics: (a) the school qualified for a subgroup of African American, white, special education, and economically disadvantaged students (40 or more students in each category) and (b) the school had been in existence since the 2001-2002 school year. Qualifying for a subgroup of African American and white students ensured that schools with little or no diversity were not included in the study; therefore, the results of the study would be less likely due to a lack of diversity between the two groups of students. Excluding schools without a subgroup in special education and/or economically disadvantaged students increased the likelihood that the schools were similar in nature, with regard to demographics, and that the results of the study were not influenced heavily by differing variables associated with ability and/or economic reasons. The schools also had to be in existence since 2001-2002 so all research schools would have the same number of years with regard to testing information

available. Simple random sampling was utilized to choose research participants from the research population.

A power analysis between four random middle schools in Georgia was conducted to determine an adequate sample size. The analysis looked at the effects of "school," "ethnicity," "time," and the interaction of "ethnicity" and "time." In this analysis, "time" was actually a within-subjects factor. The rationale was that students who take the math test are different individuals across the years. The results of this analysis led the researcher to randomly select a sample size of 50 schools to participate in the study.

Research Instruments

The Georgia CRCT was the instrument used to quantify and evaluate student achievement. From 2001-2007, the Georgia CRCT was the standardized testing method utilized to measure how well the students mastered the math Quality Core Curriculum objectives required for students in the eighth-grade. The new performance standards for eighth-grade math were not implemented until the 2007-2008 school year. Therefore, the standards and test have remained constant. According to the Georgia Department of Education (2005), the CRCT has been through rigorous evaluations to ensure that the test was valid and reliable.

> The test development process that Georgia employs follows national professional standards. The technical qualities of the programs are reviewed frequently by the Testing Division and TAC. Additionally, Georgia's programs are submitted for review by the federal government through a process known as Peer Review…The technical qualities of Georgia's programs are documented annually through a Technical Report. (p.3)

Reliability for the CRCT was measured by statistical methods. Test reliabilities ranged from .79 to .86 for Reading, .85 to .89 for English/Language Arts, .87 to .91 for Mathematics, .89 to .90 for Science, and .88 to .98 for Social Studies.

Georgia's AYP report card, which is considered public domain, contains information regarding accountability (SSAS), Georgia Tests, National Tests, school performance indicators, student and school demographics, and personnel and fiscal information. The AYP report cards were utilized to obtain the following CRCT information for this study: the number of students in white and African American subgroups, percentage of white students who met the minimum passing score on the CRCT, and the percentage of African American students who met the minimum passing score on the CRCT.

Research Questions and Hypotheses

Research Question #1: Is there evidence of an achievement gap related to Georgia's implementation of NCLB-based on educational requirements, as measured by performance of eighth-grade white and African American students on the math CRCT?

Null Hypothesis #1-H_{01}: There is no significant difference between the proportion of passing math CRCT scores between eighth-grade African American and white students as Georgia increases state educational requirements based on the legislative components of NCLB; thus no achievement gap exists between African-American and white students' math CRCT scores.

Research Question #2: Is there evidence of an increase in overall white and African American students' academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the performance of eighth-

grade white and African American students on the math CRCT?

Null Hypothesis #2-H_{02}: There is no significant difference over time in the proportion of eighth-grade white and African American students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Research Question #3: Is there evidence of an increase in white students academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the performance of eighth-grade white students on the math CRCT?

Null Hypothesis #3-H_{03}: There is no significant difference over time in the proportion of eighth-grade white students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Research Question #4: Is there evidence of an increase in African American students' academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the performance of eighth-grade African American students on the math CRCT?

Null Hypothesis #4-H_{04}: There is no significant difference over time in the proportion of eighth-grade African American students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Research Question #5: Is there evidence of a decreasing achievement gap related to Georgia's implementation of NCLB-based educational requirements, as measured by performance of eighth-grade white and African American students on the math CRCT?

Null Hypothesis #5-H_{05}: The achievement gap between eighth–grade African American and white students' math CRCT scores remains consistent over time as Georgia increases

state educational requirements based on the legislative components of NCLB.

Research Procedures

Approval process. Liberty University (LU) required an approval for the research by the LU Institutional Review Board. The researcher submitted the study proposal to Liberty Universities Institutional Review Board, which approved the research. Due to the nature of the study, Ex Post Facto research, no other approvals were required.

Sample size. A power analysis between four random middle schools in Georgia was conducted to determine an adequate sample size. The analysis looked at the effects of "school," "ethnicity," "time," and the interaction of "ethnicity" and "time." In this analysis, "time" was actually a within-subjects factor. The rationale was that students who take the math test are different individuals across the years. The results found in Table 3 indicated that the effect of "school" was significant, $F(3, 33) = 47.11$, $p < 0.01$.

Table 3

Tests of Between-Subjects Effects with the Dependent Variable: Response

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power[b]
Corrected Model	2.49[a]	14	.18	35.44	.00	496.13	1.00
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power[b]
Intercept	26.24	1	26.24	5232.16	0	5232.16	1.00
School	.71	3	.24	47.11	.00	141.34	1.00
Ethnicity	1.34	1	1.34	267.86	.00	267.86	1.00
Time	.43	5	.09	16.99	.00	84.93	1.00
Ethnicity/ Time	.01	5	<.01	.40	.84	2.01	.14
Error	.17	33	.01				
Total	28.90	48					
Corrected Total	2.65	47					

a. R Squared = .94 (Adjusted R Squared = .91)

b. Computed using alpha = .05

The observed power was 1.00 (very high). This showed that the proportions passing were different among the four schools in the data (see Table 4).

Table 4

School Proportions Passing with the Dependent Variable: Response

School	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	.87	.02	.83	.91
2	.55	.02	.51	.59
3	.73	.02	.69	.77
4	.81	.02	.77	.85

The effect of "ethnicity" was significant, $F(1, 33) = 267.86$, $p < 0.01$. The observed power was 1.00 (very high). The means for white and African American students (see Table 5) indicated that overall, an increased number of white students were passing the Georgia CRCT as compared to African American students. The effect of "time" was also significant, $F(5, 33) = 16.99$, $p < 0.01$. The observed power is 1.00 (very high).

Table 5

Ethnicity Means with the Dependent Variable: Response

			95% Confidence Interval	
Ethnicity	Mean	Std. Error	Lower Bound	Upper Bound
White	.91	.01	.86	.94
Black	.57	.01	.54	.60

The means (see Table 6) demonstrated an overall trend that indicated an increasing number of students were passing as time went by. The interaction of "ethnicity" and "time" was non-significant, $F(5, 33) = 0.40$, $p = 0.84$. The observed power was 0.14 (low).

Table 6

Time Means with the Dependent Variable Response

			95% Confidence Interval	
Time	Mean	Std. Error	Lower Bound	Upper Bound
				.
1	.68	.03	.63	.73
2	.64	.03	.59	.69
3	.69	.03	.64	.74
4	.69	.03	.64	.74
5	.83	.03	.78	.89
6	.90	.03	.85	.95

The analysis suggested that the gap between the two ethnic groups remained roughly constant across the years (see Figure 2).

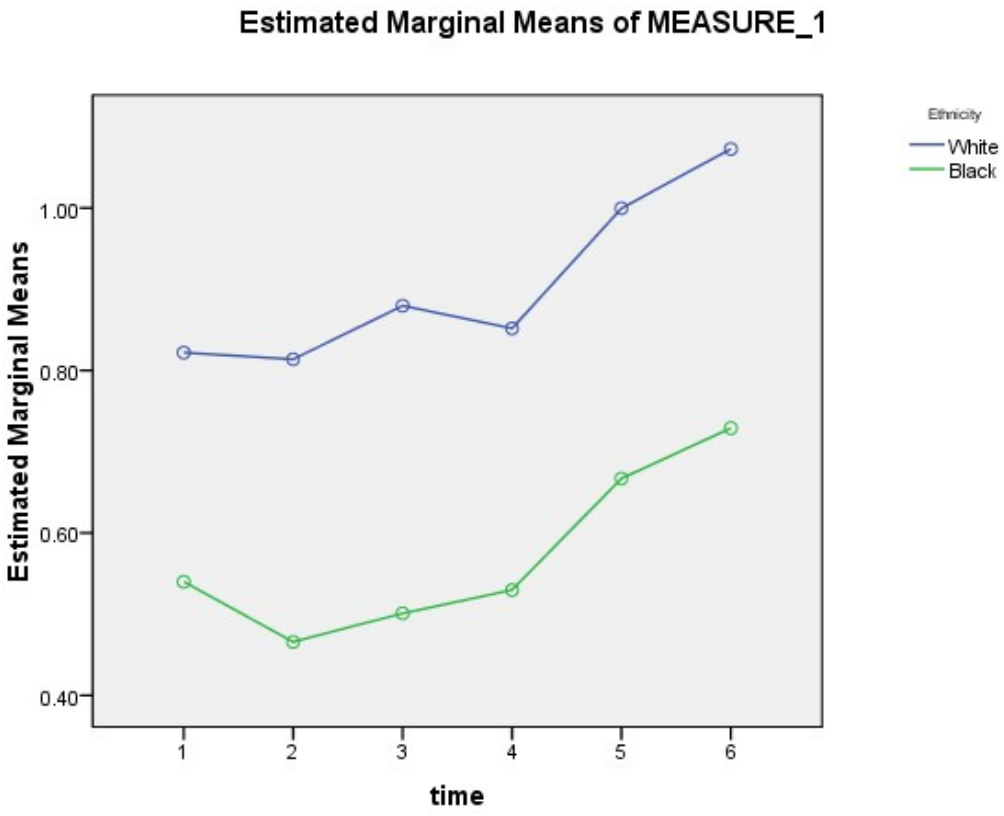

Figure 2. Gaps Between white and African American Student Scores Across Time

In conclusion, the sample data showed that the schools are different, there is an effect of time, and there is a gap between white and African-American students. The achievement gap seemed to be constant and it was determined that the results would most likely not be impacted by increasing the sample size. Therefore, the researcher randomly selected a sample size of 50 schools to participate in the study. The schools selected are listed in Appendix A. Each school in the research population was assigned a number, and then numbers were randomly chosen using Research Randomizer, an Internet tool for researchers.

Controlling confounding variables. Manipulation was applied to the confounding variables diversity, ability and economic status. These variables addressed the demographics of the schools with regard to the racial makeup, disabilities, and socio-economic status of the students within the school. The effects of the variables were reduced by requiring the schools to have a subgroup in white, African American, special education, and economically disadvantaged students; thus increasing the likelihood that the schools were similar in nature. Randomization was also utilized in selecting the middle schools that had qualifying subgroups. Randomization is another method of controlling for confounding variables as it causes the variables to be distributed evenly across all the groups.

Administering the instrument. The researcher then obtained school AYP report cards for the years 2001-2002 (before implementation of NCLB), 2002-2003, 2003-2004, 2005-2006, and 2006-2007 (after Georgia educational requirements were implemented due to NCLB). The AYP report cards are stored on the Georgia Department of Education site. The researcher downloaded the report cards into a PDF file and then transferred the information into a spreadsheet to maintain accurate records. The school report cards in Georgia list the percentage of students who met the standards in accordance with NCLB. The researcher collected and organized the information with regard to math and the percentage of white and African American students that passed the CRCT. The researcher then tested the hypotheses by evaluating the CRCT data in a manner similar to the power analysis that was conducted to determine the sample size.

Data Analysis

Data organization. The data collected on the individual research schools was listed in a table. This table included the following information regarding each research school: school name, school district name, percentage of white eighth-grade students who passed the math CRCT for years 2001-2002, 2003-2004, 2004-2005, and 2005-2006, percentage of African American eighth-grade students who passed the math CRCT for years 2001-2002, 2003-2004, 2004-2005, and 2005-2006, and the number of percentage gains or losses (gap) between the two subgroups. All statistical data was also collected an organized in tables and graphs.

Statistical procedures. Quantitative, non-experimental statistical methods were utilized to evaluate the collected data. The researcher conducted descriptive statistics to examine the data and then, a mixed design analysis of variance (ANOVA) was utilized to determine whether the achievement gap between white and African American proportions of students passing the exam was significantly different across the school years. In this analysis, each of the 50 schools was treated as subject. Because each school is measured for a total of six school-year periods, the analysis had one within-subjects factor "time" and one between-subjects factor "ethnicity." The mixed design ANOVA is utilized when the analysis has both within and between-subject factors. The null hypothesis of the ANOVA states that the mean proportions are the same for all school years (i.e., there is no trend) and the difference between ethnicity groups is consistent over time. The alternative hypothesis states that the mean proportions are different among some school years (i.e., there is some trend) and the difference between ethnicity groups is inconsistent over time.

The ANOVA assumes that the residuals are normality distributed, which implies,

in essence, that the data themselves are normally distributed. In the present study, however, data values are proportions, which are bounded below by 0 and bounded above by 1. Thus, this normality assumption was not be satisfied. As a remedy, an arcsine transformation was applied to the dependent variable. Let p be an observed proportion. The transformed value p' will then be:

$$p' = \sin^{-1}\left(\sqrt{p}\right)$$

This transformation also stabilized the variance.

Summary

This research study utilized descriptive research with a correlational research design to investigate the problem. The purpose of this study was to determine if a relationship exists between the implementation of NCLB over time and (a) ethnicity (b) African American student achievement (c) white student achievement and (d) the achievement gap between African American and white students' eighth-grade math scores on the yearly standardized test (Criterion Referenced Competency Test – CRCT) in Georgia.

The research population was 50 middle schools in the state of Georgia with the following characteristics: (a) the school qualified for a subgroup of African American, white, special education, and economically disadvantaged students (40 or more students in each category) and (b) the school had been in existence since the 2001-2002 school year. These schools were randomly selected. The research relied on AYP report cards obtained for each school. These report cards listed the percentage of white and African American students who met the minimum passing requirements for the eighth-grade math Georgia CRCT.

The research questions and hypotheses were addressed using quantitative, non-experimental statistical methods to evaluate the collected data. The researcher conducted descriptive statistics to examine the data and then, a mixed design analysis of variance (ANOVA) was utilized to determine whether the achievement gap between white and African American proportions of students passing the exam was significantly different across the school years. Chapter Four describes and explains the results of the statistical analysis.

The current study contributes new information to the current research on NCLB and the achievement gap. The results provide insight into the effectiveness of the current educational reform initiative NCLB.

Chapter 4: Results of the Study

Overview

As stated in Chapter One, the study reported here examined the impact of Georgia educational requirements implemented due to the legislative components of No Child Left Behind (NCLB) on the achievement gap between African American and white student achievement. This chapter is organized with regard to the research questions and hypotheses posed in Chapter One, which are as follows:

Research Question #1: Is there evidence of an achievement gap related to Georgia's implementation of NCLB-based on educational requirements, as measured by performance of eighth-grade white and African American students on the math CRCT?

Null Hypothesis #1-H_{01}: There is no significant difference between the proportion of passing math CRCT scores between eighth-grade African American and white students as Georgia increases state educational requirements based on the legislative components of NCLB; thus no achievement gap exists between African-American and white students' math CRCT scores.

Research Question #2: Is there evidence of an increase in overall white and African American students' academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the

performance of eighth-grade white and African American students on the math CRCT?

Null Hypothesis #2-H_{02}: There is no significant difference over time in the proportion of eighth-grade white and African American students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Research Question #3: Is there evidence of an increase in white students' academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the performance of eighth-grade white students on the math CRCT?

Null Hypothesis #3-H_{03}: There is no significant difference over time in the proportion of eighth-grade white students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Research Question #4: Is there evidence of an increase in African American students' academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the performance of eighth-grade African American students on the math CRCT?

Null Hypothesis #4-H_{04}: There is no significant difference over time in the proportion of eighth-grade African American students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Research Question #5: Is there evidence of a decreasing achievement gap related

to Georgia's implementation of NCLB-based educational requirements, as measured by performance of eighth-grade white and African American students on the math CRCT?

Null Hypothesis #5-H_{05}: The achievement gap between eighth–grade African American and white students' math CRCT scores remains consistent over time as Georgia increases state educational requirements based on the legislative components of NCLB.

Statistical Procedures

Statistical procedures to address the research questions. Quantitative, non-experimental statistical methods were utilized to evaluate the collected data and address the research questions. The researcher conducted descriptive statistics to examine the data and then, a mixed design analysis of variance (ANOVA), which is utilized when analyzing both within-subject and between-subject effects, was utilized to determine whether the achievement gap between white and African American proportions of students passing the exam was significantly different across the school years.

An analysis of variance (ANOVA) was conducted to examine the change in proportion over time. In the analysis, an arcsine transformation was applied to the response variable. Specifically, letting p denote the original proportion, the transformed variable was $\sin^{-1}\sqrt{p}$. An arcsine transformation is a commonly used transformation for proportions. A significance level of 0.05 was used for the analysis.

The ANOVA model included the following effects:

(a) main effect of school (not of interest)

(b) main effect of ethnicity (white vs. African American)

(c) main effect of time (six school-year periods)

(d) interaction effect of time and ethnicity (of most interest)

Table 7 is a summary of the ANOVA.

Table 7

Tests of Between-Subjects Effects

Dependent Variable:Arcsine Proportion					
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	13.53[a]	60	.23	30.49	.00
Intercept	603.32	1	603.32	81542.47	.00
School	4.85	49	.10	13.39	.00
Ethnic	5.95	1	5.95	804.53	.00
Time	2.62	5	.53	70.92	.00
Ethnic * time	.10	5	.02	2.82	.02
Error	3.99	539	.01		
Total	620.85	600			
Corrected Total	17.52	599			

a. R Squared = .77 (Adjusted R Squared = .75)

The main effect of school was significant, $F(49, 539) = 13.39$, $p \approx 0.00$. This indicates heterogeneity in proportion among the 50 schools. Figure 4 shows the distribution of the arcsine proportions.

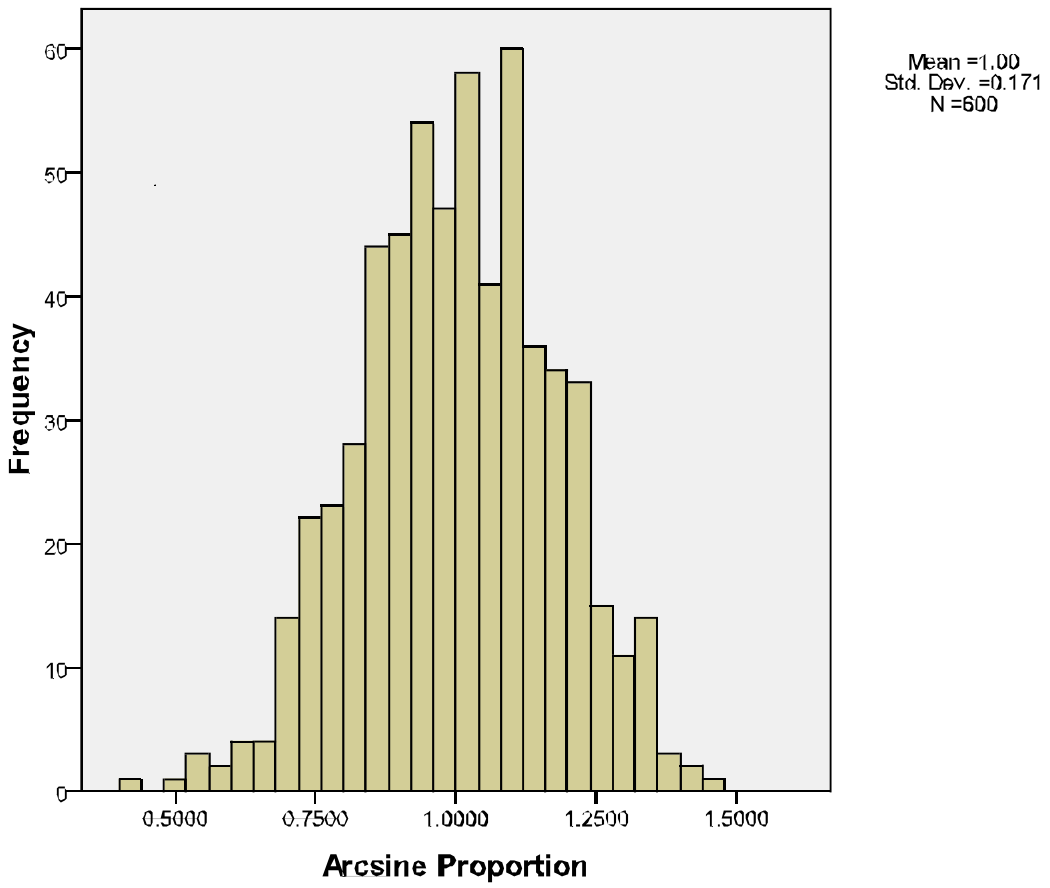

Figure 4. Distribution of the Arcsine Proportions

Table 8 shows the descriptive statistics for the arcsine proportions. The minimum value was 0.44 and the maximum was 1.47. The mean and standard deviation were 1.00 and 0.17, respectively.

Table 8

Descriptive Statistics Arcsine Proportion

	N	Minimum	Maximum	Mean	Std. Deviation
Arcsine Proportion	600	.44	1.47	1.00	.17
Valid N (listwise)	600				

Null hypothesis and research question one. The basis for the entire research was founded on the fact that an achievement gap between African American and white students exists; therefore, it was essential to the study that the first research question was addressed to establish this fundamental component of the research.

The first null hypothesis states that there is no significant difference between the proportion of passing math CRCT scores between eighth-grade African American and white students as Georgia increases state educational requirements based on the legislative components of NCLB; thus no achievement gap exists between African-American and white students math CRCT scores. Research question one asks is there evidence of an achievement gap related to Georgia's implementation of NCLB-based on educational requirements, as measured by performance of eighth-grade white and African American students on the math CRCT?

Descriptive statistics were utilized to evaluate the mean proportions of white and African American students that passed the eighth-grade math CRCT and compare them to one another in order to determine if a gap between the two groups existed. Table 9 and 10 display the means and standard deviations of the proportions, of data obtained from a

total of 50 schools, for the white and African American students over six school year periods (2001-2002 through 2006-2007).

Table 9

Descriptive Statistics White

	N	Mean	Std. Deviation
	White 01-02		
Proportion Passed	50	.75	.10
Valid N (listwise)	50		
	White 02-03		
Proportion Passed	50	.73	.11
Valid N (listwise)	50		
	White 03-04		
Proportion Passed	50	.78	.09
Valid N (listwise)	50		
	White 04-05		
Proportion Passed	50	.76	.11
Valid N (listwise)	50		
	White 05-06		

Table 9

Descriptive Statistics White

	N	Mean	Std. Deviation
	White 01-02		
Proportion Passed	50	.75	.10
Valid N (listwise)	50		
	White 02-03		
Proportion Passed	50	.73	.11
Valid N (listwise)	50		
	White 03-04		
Proportion Passed	50	.78	.09
Valid N (listwise)	50		
Proportion Passed	50	.84	.09
Valid N (listwise)	50		
	White 06-07		
Proportion Passed	50	.85	.08
Valid N (listwise)	50		

Table 10

Descriptive Statistics African American

	N	Mean	Std. Deviation
	African American 01-02		
Proportion Passed	50	.52	.13
Valid N (listwise)	50		
	African American 02-03		
Proportion Passed	50	.56	.13
Valid N (listwise)	50		
	African American 03-04		
Proportion Passed	50	.61	.11
Valid N (listwise)	50		
	African American 04-05		
Proportion Passed	50	.57	.11
Valid N (listwise)	50		
	African American 05-06		
Proportion Passed	50	.68	.10
Valid N (listwise)	50		
	African American 06-07		

Table 10

Descriptive Statistics African American

	N	Mean	Std. Deviation
	African American 01-02		
Proportion Passed	50	.52	.13
Valid N (listwise)	50		
	African American 02-03		
Proportion Passed	50	.56	.13
Valid N (listwise)	50		
	African American 03-04		
Proportion Passed	50	.61	.11
Valid N (listwise)	50		
Proportion Passed	50	.72	.10
Valid N (listwise)	50		

Figure 5 shows the box plots including the minimum, 25th percentile, 50th percentile (median), 75th percentile, and maximum calculated across the 50 schools for each of the six school-year periods. Outliers are presented by dots. Overall, the proportions were higher for the white students. These proportions somewhat declined in the 2004-2005 school-year period for both ethnic groups. Also, variability was larger among the schools for African American students.

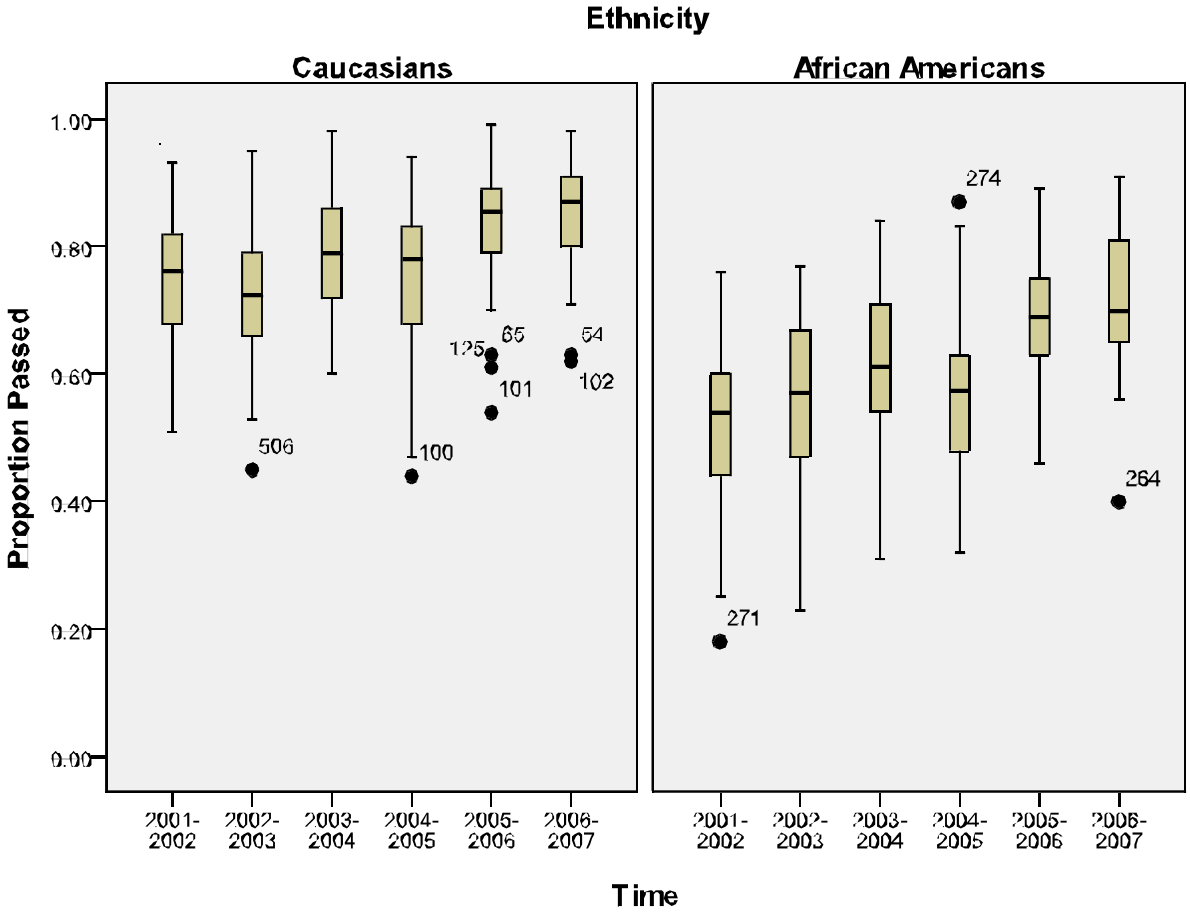

Figure 5. Proportions of Passing Scores Over Time

Inferential statistics were utilized to evaluate the significance of the achievement gap between white and African American students eighth-grade math CRCT test scores. An analysis of variance (ANOVA) is used to see if there is any difference between groups on some variable. An ANOVA was conducted to examine the proportions of African American and white students who passed the eighth-grade math CRCT, and further answer the research question. In the analysis, an arcsine transformation was applied to the response variable. Specifically, letting p denote the original proportion, the transformed variable was $\sin^{-1}\sqrt{p}$. An arcsine transformation is a commonly used

transformation for proportions. A significance level of 0.05 was used for the analysis.

For the null hypothesis and research question one, the researcher focused on the effect of ethnicity. Table 11 shows that the main effect of ethnicity was significant, F (1, 539) = 804.53, $p \approx 0.00$, which indicates a significant difference between white students and African American students in proportion.

Table 11

Tests of Between-Subjects Effects: Ethnicity

Dependent Variable:Arcsine Proportion					
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Intercept	603.32	1	603.32	81542.47	.00
Ethnic	5.95	1	5.95	804.53	.00

a. R Squared = .77 (Adjusted R Squared = .75)

The mean arcsine proportion for white and African American students was used to further establish that a significant gap exists between African American and white students. The means were 1.10 for white students and 0.90 for African American students. The standard error was 0.01 (see Table 12 and Figure 6).

Table 12

Dependent Variable: Arcsine Proportion Ethnicity

Ethnicity	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
White	1.10	.01	1.09	1.11
African American	.90	.01	.89	.91

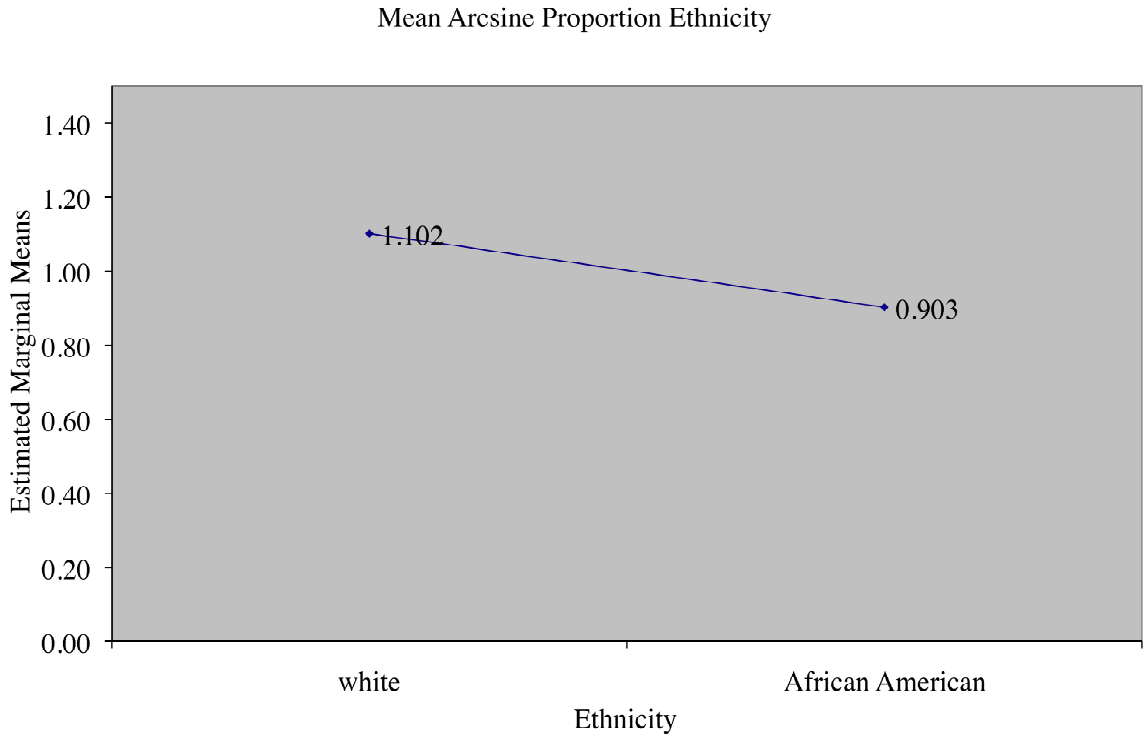

Figure 5. Mean Arcsine Proportions Ethnicity

The inferential statistics are consistent with the descriptive statistics and support hypothesis one, which states that there is a significant difference between the proportion of eighth-grade African American and white students' math CRCT scores as Georgia increases state educational requirements based on the legislative components of NCLB.

Null hypothesis and research question two. According to NCLB, all students should be making adequate academic progress, as measured by standardized tests, within 12 years (USDOE, n.d.). NCLB It is designed to provide states with the flexibility to create and implement accountability measures within their schools. States are required to establish guidelines, goals, and standardized testing to determine Adequate Yearly Progress (AYP) status on standardized tests. In Georgia the implementation of NCLB is taken in steps, which are designed to continuously improve student achievement for all

students. Theoretically, if NCLB is impacting achievement and the achievement gap between African American and white students, the effect of time should be significant to the proportion of African American and white students passing the eighth-grade math CRCT. Therefore, the next step in the research was to examine the effect of time on the proportion of both African American and white students passing the eighth-grade math CRCT, thus answering research question number two and researching the null hypothesis two.

The second null hypothesis states that there is no significant difference over time in the proportion of eighth-grade white and African American students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB. Research question two is as follows: Is there evidence of an increase in white students academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the performance of eighth-grade white students on the math CRCT?

First, the ANOVA was conducted to evaluate whether the effect of time was significant to the proportion of African American and white students passing the CRCT as Georgia implemented NCLB. The results found that the main effect of time was significant, $F(5, 539) = 70.92$, $p \approx 0.00$ (see Table 13).

Table 13

Tests of Between-Subjects Effects: Time

Dependent Variable:Arcsine Proportion					
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	13.53[a]	60	.23	30.49	.00
Intercept	603.32	1	603.32	81542.47	.00
Time	2.62	5	.53	70.92	.00

a. R Squared = .77 (Adjusted R Squared = .75)

The researcher compared the mean arcsine proportions for the school years to further evaluate if there were changes in proportion over time. The mean arcsine proportions for the six periods were 0.94, 0.94, 0.10, 0.96, 1.07, and 1.11, and the standard error was 0.01, which means that there were changes in proportion over time (see table 14).

Table 14

Dependent Variable: Arcsine Proportion Time

Time	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
2001-2002	.94	.01	.92	.95
2002-2003	.94	.01	.92	.96
2003-2004	.10	.01	.98	1.02
2004-2005	.96	.01	.95	.98
2005-2006	1.07	.01	1.06	1.09
2006-2007	1.11	.01	1.09	1.12

Figure 7 illustrates the data showing that there was an overall increasing trend in proportion, except, as mentioned earlier, there was a decline for the school-year period 2004-2005.

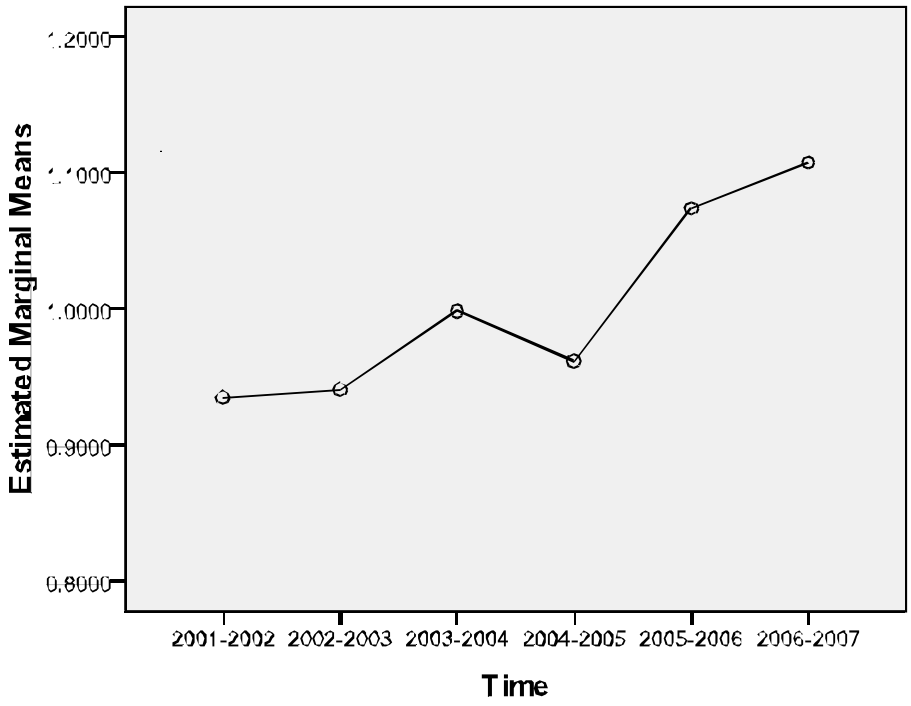

Figure 7. Proportion Over Time

The data indicates that there is a significant difference over time in the proportion of eighth-grade white and African American students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB, which agrees with the hypothesis for research question two.

Null hypothesis and research question three. The achievement gap is defined as the idea that minority and economically disadvantaged students tend to lag behind their white counterparts in achievement on standardized assessments (Lee, 2006). To gain a better understanding of how NCLB is impacting the achievement gap, the researcher broke down the data and analyzed first the effects of NCLB on white student achievement.

The null hypothesis associated with research question three is as follows: There is no significant difference over time in the proportion of eighth-grade white students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB. The third research question asks if there is evidence of an increase in white students academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the performance of eighth-grade white students on the math CRCT?

Descriptive statistics were utilized to determine the mean proportions of students passing the eighth-grade math CRCT over six consecutive school years for the 50 subject schools (see Table 15).

Table 15

Descriptive Statistics: Mean Proportion of White Students Passing the CRCT

School Year	Mean Proportion Passed
01-02	.75
02-03	.73
03-04	.78
04-05	.76
05-06	.84
06-07	.85

As seen in Figure 8, the data demonstrates an increasing trend in the mean proportion of white students passing the CRCT over the six consecutive school years.

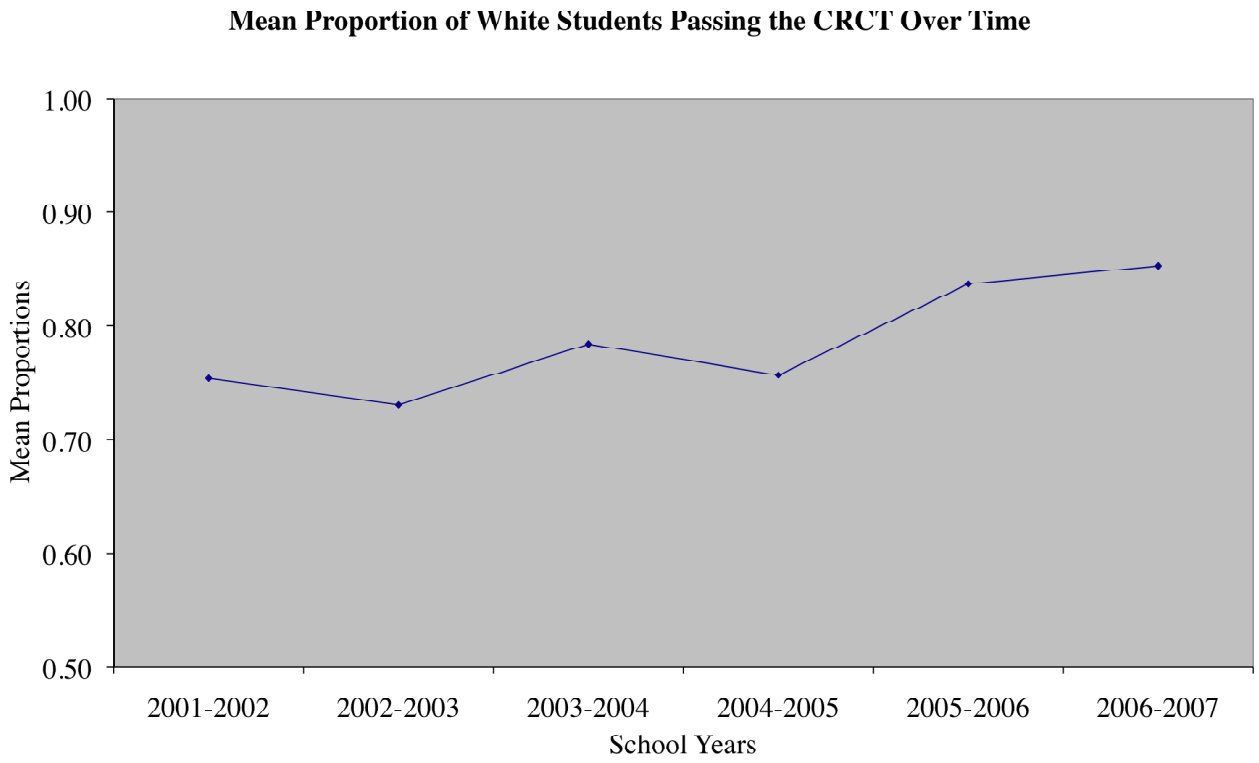

Figure 8. Mean Proportion of White Students Passing the CRCT Over Time

Change in proportions over the six school years was evaluated utilizing the mean arcsine proportion (see Table 16).

Table 16

White Mean Proportions for Successive School-Year Periods

	01-02 vs. 02-03	02-03 vs. 03-04	03-04 vs. 04-05	04-05 vs. 05-06	05-06 vs. 06-07
White	.11	< .00	.06	< .00	.22

Significant changes in mean arcsine proportion occurred between the 02-03 year and 03-04 year and, also, between the 04-05 year and 05-06 year for white students. The researcher concluded that overall the data does not support the null hypothesis three which states that there is not a significant difference over time in the proportion of eighth-grade white students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Null hypothesis and research question four. NCLB places a great deal of focus on increasing the achievement of non-minority students (USDOE, n.d.). Historically, African American student achievement has been below their white counterparts and considered less than adequate. African American student achievement was beginning to increase in the 1970s, but seemed to stall in the late 1980s (Rothman, 2001/02). As NCLB sought to increase the academic achievement of African American students over time, schools implemented various measures to increase the likelihood of student success.

The null hypothesis four states that there is no significant difference over time in the proportion of eighth-grade African American students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB. Research question four asks if there is evidence of an increase in African

American students' academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the performance of eighth-grade African American students on the math CRCT?

The researcher evaluated the effect of time on the mean proportions of African American students in order to then compare the white students to the African American students before beginning analyze the actual achievement gap. This information allowed the researcher to examine the effect of time, and thus the implementation of NCLB over time, on African American student achievement.

Descriptive statistics were utilized to determine the mean proportions of African American students passing the eighth-grade math CRCT over six consecutive school years for the 50 subject schools (see Table 17).

Table 17

Descriptive Statistics: Mean Proportion of African American Students Passing the CRCT

School Year	Mean Proportion Passed
01-02	.52
02-03	.56
03-04	.61
04-05	.57
05-06	.68
06-07	.72

As seen in Figure 9, the data illustrates an increasing trend in the proportion of African American students passing the CRCT over time.

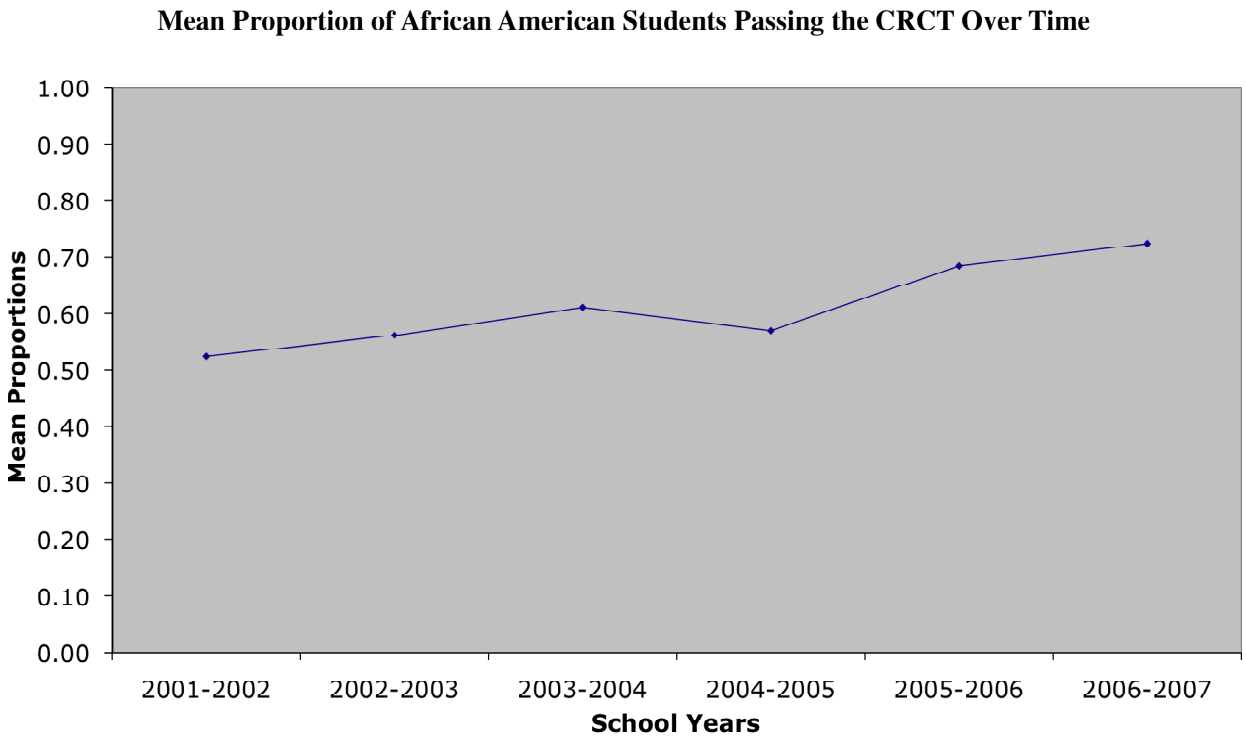

Figure 9. Mean Proportion of African American Students Passing the CRCT Over Time

The significance of the change in proportions over the six school years was evaluated utilizing the mean arcsine proportion (see Table 18).

Table 18

African American Mean Proportions for Successive School-Year Periods

	01-02 vs. 02-03	02-03 vs. 03-04	03-04 vs. 04-05	04-05 vs. 05-06	05-06 vs. 06-07
African American	.02	< .00	.02	< .00	.01

Changes in successive school-year periods were all significant for African American students. The researcher concluded that the data supports hypothesis four which states that there is a significant difference over time in the proportion of eighth-grade African American students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Null hypothesis and research question five. One of the major goals of NCLB is to decrease the achievement gap between African American and white students (USDOE, n.d). Decreasing the achievement gaps between African American and white students is crucial to fostering citizens who are prepared to compete in a global market. The impact that NCLB is having on education, specifically African American students and the achievement gap, is very pertinent and essential to continued educational reform. Educators and leaders need to know how this initiative that has led education reform over the last several years has impacted education for students. As policy makers seek to refine the various components of NCLB, they need data, with regard to the specific components of NCLB, to drive their decisions. The null hypothesis and research question five specifically addresses the achievement gap between white and African American students over time.

The final null hypothesis is as follows: The achievement gap between eighth–grade African American and white students' math CRCT scores remains consistent over time as Georgia increases state educational requirements based on the legislative components of NCLB. Research question five asks if there is evidence of a decreasing achievement gap related to Georgia's implementation of NCLB-based educational requirements, as measured by performance of eighth-grade white and African American students on the math CRCT?

The ANOVA was conducted to investigate the interaction of time and ethnicity. The data revealed that the interaction of time and ethnicity was significant, $F(5, 539) = 2.82$, $p = 0.02$, which indicates that the patterns of change in proportion over time were different for the two ethnic groups (see Table 19).

Table 19

Tests of Between-Subjects Effects: Time and Ethnicity

Dependent Variable:Arcsine Proportion					
Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	13.53[a]	60	.23	30.49	< .00
Intercept	603.32	1	603.32	81542.47	< .00
Ethnic * time	.10	5	.02	2.82	.02
Error	3.99	539	.01		

a. R Squared = .77 (Adjusted R Squared = .75)

Significance tests were conducted with an arcsine transformation of the response variable, p. Figure 10 shows the change in arcsine proportion over time for the two ethnic groups.

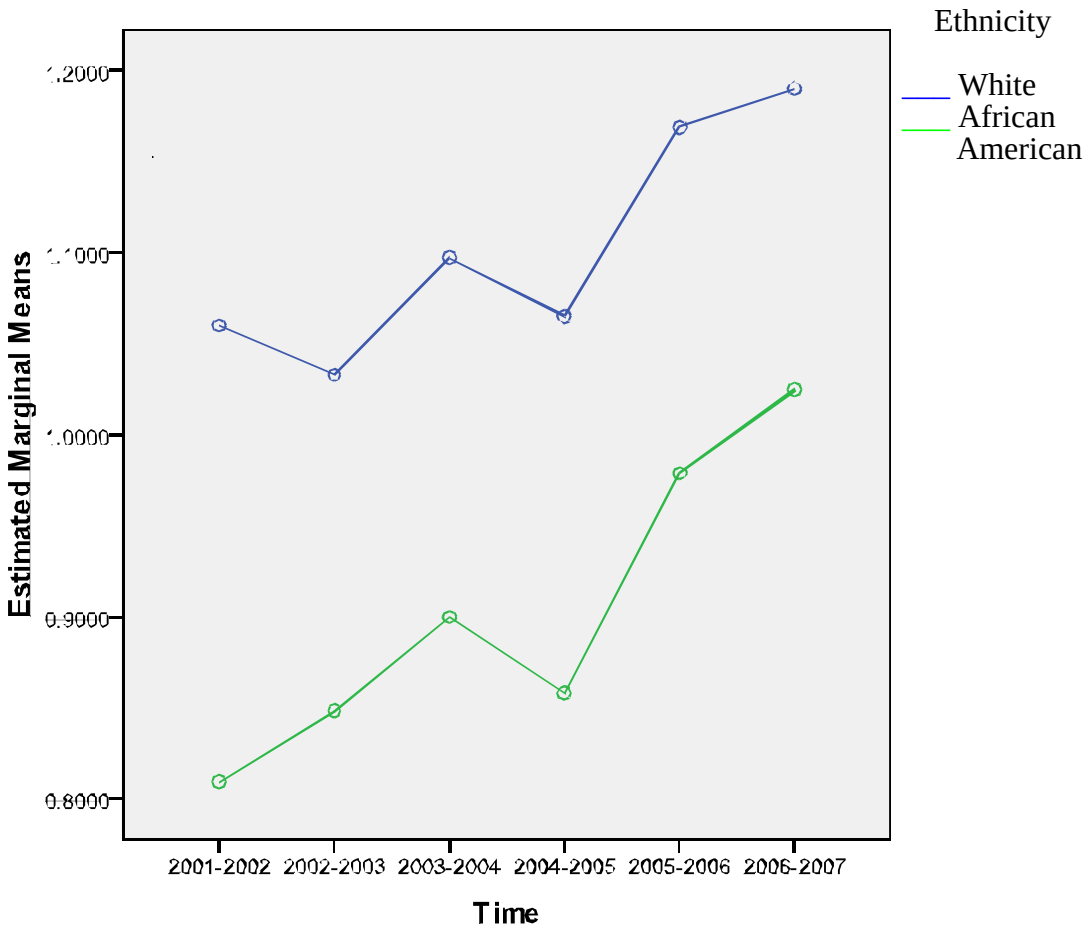

Figure 10. Change in Arcsine Proportion Over Time

One way to analyze the nature of interaction was to compare the mean proportions for successive school-year periods for each ethnic group separately. Table 20 shows the *p*-values for these comparisons.

Table 20

Mean Proportions for Successive School-Year Periods

	01-02 vs. 02-03	02-03 vs. 03-04	03-04 vs. 04-05	04-05 vs. 05-06	05-06 vs. 06-07
White	.11	< .00	.06	.00	.22
African American	.02	< .00	.02	.00	.01

Without adjusting the significance level (0.05) for the number of comparisons, significant changes in mean arcsine proportion occurred between the 02-03 year and 03-04 year and, also, between the 04-05 year and 05-06 year for white students, while the changes in successive school year periods were all significant for African American students.

Another way to analyze the interaction was to compare the mean proportions for white students and African American students for each school-year period. This method is more appropriate considering the research hypothesis, which focused on the change in gap between the two ethnic groups. The results of the six comparisons, however, were all significant (p-value ≈ .00). This implies that, the gap between the two groups has not changed significantly over time, which supports the null hypothesis five; there is no significant difference in the achievement gap between eighth-grade African American and white students' math CRCT scores over time as Georgia increases state educational requirements based on the legislative components of NCLB.

Summary

Chapter Four has provided a detailed summary of the results of the study. The

results of eighth-grade CRCT math scores from 2001-2007 presented in Chapter Four indicate clearly that the achievement gap between white and African American students has not decreased over time. However, overall student achievement of both African American and white students has increased. A more detailed summary and a discussion of the findings are presented in the Chapter Five.

Chapter 5: Significance of the Study and Conclusions

This chapter briefly summarizes the current research study presented in the previous chapters and discusses the results. The chapter is divided into the following specific sections: (a) the purpose of the study and a restatement of the problem; (b) review of the methodology; (c) summary of the results; (d) discussion of the results which includes the relationship of the current studies finding to prior research; (e) implications; (f) limitations; (g) applications and recommendations; and (h) topics for future research.

Purpose of the Study

The purpose of the study was to examine the relationship between NCLB and the achievement gap between 8th-grade African American and white students' math scores on the yearly-standardized test (Criterion Referenced Competency Test – CRCT) in Georgia. The specific null hypotheses and research questions that guided this research are as follows:

Research Question #1: Is there evidence of an achievement gap related to Georgia's implementation of NCLB-based on educational requirements, as measured by performance of eighth-grade white and African American students on the math CRCT?

Null Hypothesis #1-H_{o1}: There is no significant difference between the proportion

of passing math CRCT scores between eighth-grade African American and white students as Georgia increases state educational requirements based on the legislative components of NCLB; thus no achievement gap exists between African-American and white students' math CRCT scores.

Research Question #2: Is there evidence of an increase in overall white and African American students' academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the performance of eighth-grade white and African American students on the math CRCT?

Null Hypothesis #2-H_{02}: There is no significant difference over time in the proportion of eighth-grade white and African American students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Research Question #3: Is there evidence of an increase in white students' academic achievement related to Georgia's implementation of NCLB-based on educational requirements, as measured by the performance of eighth-grade white students on the math CRCT?

Null Hypothesis #3-H_{03}: There is no significant difference over time in the proportion of eighth-grade white students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Research Question #4: Is there evidence of an increase in African American students' academic achievement related to Georgia's implementation of NCLB-

based on educational requirements, as measured by the performance of eighth-grade African American students on the math CRCT?

Null Hypothesis #4-H_{04}: There is no significant difference over time in the proportion of eighth-grade African American students passing the math CRCT as Georgia increases state educational requirements based on the legislative components of NCLB.

Research Question #5: Is there evidence of a decreasing achievement gap related to Georgia's implementation of NCLB-based educational requirements, as measured by performance of eighth-grade white and African American students on the math CRCT?

Null Hypothesis #5-H_{05}: The achievement gap between eighth–grade African American and white students' math CRCT scores remains consistent over time as Georgia increases state educational requirements based on the legislative components of NCLB.

Our nation is striving to compete in a global economy. Educators and politicians are searching for ways to increase the educational achievement of all individuals. The United States of America, coined the melting pot, has a serious challenge ahead of it as it seeks to provide adequate educational opportunities to varied groups of individuals. NCLB is a major initiative that has been set in motion to achieve this goal.

NCLB is based on four principles: accountability for results, more choices for parents, greater local control and flexibility, and an emphasis on scientific research. NCLB seeks to improve the educational experience for all students regardless of ethnicity, economic status, or disabilities. The goal is that all students will achieve

academic proficiency by 2014. This would naturally close or drastically reduce the achievement gap between minority and non-minority students. Since the implementation of NCLB overall achievement does seem to be increasing (Cavanaugh, 2006; CEP, 2007; CEP, 2006; Cole, 2006; Great Lakes Center for Education Research and Practice, 2005; Haycock, 2006; NEA, 2005; Research for Action, 2004). However, little research has been done to address the achievement gap, which is one of the major components, under accountability for results, of NCLB. This study sought to advance the literature on the effectiveness of NCLB on decreasing the achievement gap between white and African American students. The research differed from many of the previous studies due to the fact that it was able to measure achievement over a longer span of time and it focused on the achievement gap.

Restatement of the Problem

Historically, minority students do not perform as well academically as their non-minority peers (Davis, 1997). One of the major goals of NCLB is to increase student achievement of minority students, thus decreasing the achievement gap between minority and non-minority students. There is insufficient evidence of the effectiveness of NCLB on decreasing the achievement gap between African American students and white students. Understanding the relationship between implementation and the achievement gap is an essential piece in determining the likelihood of achieving this NCLB goal.

Review of Methodology

As explained in Chapter Three, the study reported here was a descriptive research study with a correlational design utilized to investigate the problem, examining the relationship between the implementation of NCLB over time and (a) ethnicity (b)

African American student achievement (c) white student achievement and (d) the achievement gap between African American and white students' eighth-grade math scores on the yearly standardized test (Criterion Referenced Competency Test – CRCT) in Georgia. The research population was 50 middle schools in the state of Georgia with the following characteristics: (a) the school qualified for a subgroup of African American, white, special education, and economically disadvantaged students (40 or more students in each category) and (b) the school had been in existence since the 2001-2002 school year. These schools were randomly selected.

The research relied on AYP report cards obtained for each school. These report cards listed the percentage of white and African American students who met the AMO on the eighth-grade math Georgia CRCT.

Quantitative, non-experimental statistical methods were utilized to evaluate the collected data. The researcher conducted descriptive statistics to examine the data and then, a mixed design analysis of variance (ANOVA) was utilized to determine whether the achievement gap between white and African American proportions of students passing the exam was significantly different across the school years.

Summary of the Results

The study found that the effect of school was significant, which indicated that the schools were heterogeneous in proportion among the 50 schools. This information allowed the researcher to conclude that the results of the study were based on an effective random sampling.

The null hypothesis and research question one addressed whether or not there was evidence of an achievement gap related to Georgia's implementation of NCLB-based on

educational requirements, as measured by performance of eighth-grade white and African American students on the math CRCT. Based on descriptive and inferential statistics the researcher found that a significant achievement gap existed between African American and white students on the math CRCT. The study found that the proportions of eighth-grade students passing the math CRCT, for six consecutive years, were higher for the white students than African American students. These proportions did somewhat decline in the 2004-2005 school-year period for both ethnic groups. Also, variability was larger among the schools for the African American students' test scores. According to the results of the inferential statistics, ethnicity was significant, which agreed with the descriptive statistics in identifying the gap between African American and white students. These combined results established that 1) there was an achievement gap between the African American and white students; and 2) white students exhibited higher academic achievement than the African American students.

The null hypothesis and research question two, three, and four dealt with the proportion of eighth-grade African American and white students passing the CRCT in math as Georgia implemented educational requirements due to NCLB. The study determined that time was significant, which indicates that over the six consecutive years, there was an increasing trend in the proportion of passing scores. The increasing trend in proportion demonstrated an increase in the number of eighth-grade students passing the math CRCT for both groups of students. Thus there was an increase in student achievement for both African American and white students over the six-year period, with the exception of the 2004-2005 school year, which had a slight decrease.

The final null hypothesis and research question focused on the achievement gap

between African American and white students and whether or not it was decreasing on eighth-grade CRCT math scores as Georgia implemented educational requirements due to NCLB. The results found that the main effect of time and ethnicity was significant, which indicates that the change in proportion (percentage of students passing the CRCT) was different for African American and white students. Upon further analysis, which compared the mean proportions for African American and white students, the results showed that the change in the achievement gap between the two groups was not significant over time. Therefore, the researcher concluded based on the data that the achievement gap did not change over time, but remained consistent.

The current study supports hypotheses one, two, three, and four which states that there was an achievement gap between African American and white students, and that the proportions/percentages of both groups did change over time. The results of this study support the null hypothesis five of this study, which states that the achievement gap between eighth–grade African American and white students' math CRCT scores remains consistent over time as Georgia increases state educational requirements based on the legislative components of NCLB.

In conclusion, based on the data the researcher found the following: 1) there was an achievement gap between eighth-grade African American and white students' math CRCT scores before the implementation of NCLB, and it remained over a six-year period from 2001 to 2007; 2) academic achievement was higher for white students than African American students before NCLB was implemented and over a six-year period from 2001 to 2007; 3) both African American and white students exhibited an increase in academic achievement after the implementation of NCLB; 4) the achievement gap did not change

over a six-year period from 2001 to 2007; therefore, NCLB did not seem to have any effect on the achievement gap between African American and white students.

Discussion of Results

Relationship of the current study to prior research. The USDOE expects the achievement gap to lessen as more focus is placed on minority students (USDOE, n.d). There is numerous research which supports the current research which identified that an achievement gaps exist between African American and white students (D'Amico, Harwell, Stein, & Van den Heuvel, 2001; Darling-Hammond, Hightower, Husbands, LaFors, & Young, 2002; Elmore & Burney, 1997).

The current study found that NCLB did not seem to decrease the achievement gap. These results support much of the prior research on NCLB and the achievement gap, which found that there is little evidence of a decrease in the gap between subgroups since the implementation of NCLB (Lee, 2006; Jehlen, 2009; NEA, 2005).

There has been some research supporting the idea that since NCLB was implemented in 2002 the achievement gap between students has been narrowing (CEP, 2007). However, it seems that much of the research has had difficulty generalizing and contributing any decreases in the achievement gap to NCLB.

Research in the area of overall student achievement has shown mixed results. The current research found that overall student achievement for both African American and white students increased after the implementation of NCLB and continued to increase over the six-year period. These results support prior research that has indicated that regulations states have imposed due to NCLB seemed to actually increase overall student achievement (CEP, September 20, 2006; CEP, March, 2007; CEP, March 1, 2007;

Nesselrodt, 2007).

Implications for practice. The results of the study indicate that all students are making academic gains at approximately the same rate. However, the results of this study also implicate that minority students are not on the same playing field academically as their white counterparts. This argument can be extended to deduce that current educational practices are aimed at increasing overall achievement, but not focused on filling in the gaps. Even as overall academic achievement increases, the gap between the two subgroups remains constant. If minority students are going to achieve at the same level, educators must simultaneously address the gaps with these students. Research practices and strategies that promote the understanding of missed educational concepts must be layered onto their current educational experience. The challenge associated with this will center on topics such as time and funding. These students cannot afford to miss the opportunities that are presented in the current educational setting; however, they need additional opportunities to focus on areas of weakness.

Education is about preparing all students for the future. If the current educational system continues to put all its efforts into educational reform that fosters a gap between groups, nothing will change. The same groups of individuals will continue to perform at the same levels and society will not advance to a higher level. Competing globally in the new world economy will take more than just white students succeeding.

The increase in accountability, qualified teachers, and research based strategies and practices have brought some very positive things to education. The increased accountability seems to be positively impacting overall achievement, and at the very least is forcing educators to take personal responsibility for student achievement. However, the

achievement gap is still not being impacted and minority students are still being left behind. To achieve something that has never been achieved before, one must do something that has never been done before. It is time for true systemic change.

Limitations. The study is limited in that schools may have implemented programs to increase student achievement and decrease the achievement gap between subgroups before the NCLB initiative. The study is also limited in that eighth-grade students in Georgia middle schools are the only focus; therefore, it cannot be determined whether NCLB has impacted other grade levels or other states' schools. Finally, this study is limited in that NCLB provides state flexibility with regard to testing and achievement; therefore, the standardized testing will vary depending upon the state, which makes student achievement more difficult to generalize.

Applications and recommendations. The theory behind NCLB is that increased accountability will increase educational outcomes. Increasing educational outcomes of all students is crucial in fostering citizens who are prepared to compete in a global market. This study provides leaders, educators, parents, and community members with data to evaluate how effective NCLB has been in achieving its goal of decreasing the achievement gap. This knowledge can help guide educators and leaders as they continue to seek ways to improve education for all students.

The impact that NCLB is having on education is very pertinent and essential to continued educational reform. Millions of dollars are being poured into NCLB but it is not producing completely sufficient results. Educators and leaders need to really evaluate this initiative that has led education reform over the last several years. As the results of this study indicate, NCLB is not meeting the needs of all students as it seeks to close the

achievement gap. It is time for policy makers to restructure the various components of NCLB.

As noted above research practices and strategies that promote the understanding of missed educational concepts must be layered onto underperforming students' current educational experience. Additional funding must be provided for programs such as after-school programs, family support programs, summer programs, etc. that provide students with research-based programs and interventions aimed at filling in the gaps.

Topics for future research. Further research needs to be conducted in the area of student achievement and NCLB. The results of this study indicate that overall achievement is increasing which is one of the goals of NCLB (USDOE, n.d.). However, a major goal of NCLB is to decrease in the achievement gap between various subgroups. According to this research, the achievement gap is not decreasing which indicates that there may be portions of NCLB that are effective while others remain ineffective. Research regarding the specific components of NCLB that are effective or ineffective in improving student achievement would be beneficial in further evaluating NCLB.

NCLB impacts students of all grade levels. The current study focused only on students in eighth-grade. Additional research utilizing other grade levels would be beneficial in determining how NCLB is impacting other grade levels.

All states are required to address NCLB, but are given flexibility in their approach. Standardized testing, strategies, and practices are just a few of the things that may vary between states. This study focused only on Georgia schools. To increase validity across states further research is needed in other states.

NCLB mandates that all children make adequate gains. There are many different

subgroups that fall under the umbrella of all children. While this study addressed the achievement gap between white and African American students, it did not address any of the other subgroups. Continued research comparing other subgroups is needed to evaluate the effect of NCLB on all students.

Both white students and African American students scores were increasing across the years. However, the continued gap may indicate that different instruction must take place for the culturally diverse populations. Further research on what type of instruction is taking place in the classrooms would allow educators to determine if the instruction varies for culturally diverse groups. It would also allow educators to begin making systemic changes to instruction and practices based on the research.

Finally, the current study indicated that the achievement gap is not closing. In order to begin closing the achievement gap, educators must determine which schools are making progress decreasing the achievement gap between subgroups. Research then needs to be conducted comparing those schools with schools that are not making progress to determine what is impacting the student achievement.

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Appendix A

Subject Schools

Subject Schools Percent Students Passing the CRCT and the Achievement Gap Between the Subgroups

Years	% Passed (White)	% Passed (African American)	Achievement Gap between White & Black
		School 1	
2001-2002	80%	63%	-17%
2002-2003	79%	57%	-22%
2003-2004	79%	56%	-23%
2004-2005	83%	62%	-21%
2005-2006	90%	69%	-21%
2006-2007	94%	87%	-7%
		School 2	
2001-2002	71%	47%	-24%
2002-2003	72%	59%	-13%
2003-2004	77%	55%	-22%
2004-2005	77%	62%	-15%
2005-2006	81%	71%	-10%
2006-2007	74%	70%	-4%
		School 3	
2001-2002	61%	59%	-2%
2002-2003	79%	59%	-20%
2003-2004	74%	58%	-16%
2004-2005	61%	48%	-13%
2005-2006	78%	75%	-3%
2006-2007	91%	70%	-21%
		School 4	
2001-2002	84%	62%	-22%
2002-2003	74%	68%	-6%
2003-2004	85%	65%	-20%
2004-2005	86%	62%	-24%
2005-2006	95%	87%	-8%
2006-2007	96%	81%	-15%

	School 5		
2001-2002	51%	36%	-15%
2002-2003	66%	61%	-5%
2003-2004	65%	46%	-19%
2004-2005	47%	32%	-15%
2005-2006	70%	74%	4%
2006-2007	63%	62%	-1%
	School 6		
2001-2002	85%	64%	-21%
2002-2003	85%	69%	-16%
2003-2004	91%	81%	-10%
2004-2005	84%	80%	-4%
2005-2006	63%	70%	7%
2006-2007	89%	85%	-4%
	School 7		
2001-2002	67%	59%	-8%
2002-2003	67%	56%	-11%
2003-2004	62%	53%	-9%
2004-2005	72%	51%	-21%
2005-2006	79%	62%	-17%
2006-2007	81%	75%	-6%
	School 8		
2001-2002	82%	42%	-40%
2002-2003	86%	77%	-9%
2003-2004	86%	63%	-23%
2004-2005	87%	66%	-21%
2005-2006	89%	76%	-13%
2006-2007	88%	81%	-7%
	School 9		
2001-2002	58%	53%	-5%
2002-2003	53%	40%	-13%
2003-2004	73%	54%	-19%
2004-2005	44%	48%	4%
2005-2006	54%	50%	-4%
2006-2007	62%	59%	-3%
	School 10		
2001-2002	71%	43%	-28%

2002-2003	86%	43%	-43%
2003-2004	69%	55%	-14%
2004-2005	72%	50%	-22%
2005-2006	78%	61%	-17%
2006-2007	92%	65%	-27%

School 11

2001-2002	77%	59%	-18%
2002-2003	56%	57%	1%
2003-2004	65%	64%	-1%
2004-2005	56%	48%	-8%
2005-2006	61%	61%	0%
2006-2007	76%	68%	-8%

School 12

2001-2002	79%	54%	-25%
2002-2003	72%	69%	-3%
2003-2004	85%	73%	-12%
2004-2005	83%	54%	-29%
2005-2006	94%	81%	-13%
2006-2007	95%	86%	-9%

School 13

2001-2002	74%	34%	-40%
2002-2003	65%	46%	-19%
2003-2004	71%	40%	-31%
2004-2005	70%	51%	-19%
2005-2006	79%	56%	-23%
2006-2007	89%	69%	-20%

School 14

2001-2002	78%	66%	-12%
2002-2003	79%	66%	-13%
2003-2004	90%	73%	-17%
2004-2005	82%	63%	-19%
2005-2006	86%	75%	-11%
2006-2007	94%	74%	-20%

School 15

2001-2002	82%	58%	-24%
2002-2003	71%	55%	-16%
2003-2004	72%	54%	-18%
2004-2005	83%	56%	-27%

2005-2006	91%	69%	-22%
2006-2007	91%	68%	-23%
		School 16	
2001-2002	93%	76%	-17%
2002-2003	95%	52%	-43%
2003-2004	98%	63%	-35%
2004-2005	92%	62%	-30%
2005-2006	99%	65%	-34%
2006-2007	95%	59%	-36%
		School 17	
2001-2002	79%	55%	-24%
2002-2003	73%	52%	-21%
2003-2004	73%	60%	-13%
2004-2005	76%	55%	-21%
2005-2006	86%	60%	-26%
2006-2007	80%	67%	-13%
		School 18	
2001-2002	80%	44%	-36%
2002-2003	77%	57%	-20%
2003-2004	83%	67%	-16%
2004-2005	87%	61%	-26%
2005-2006	86%	69%	-17%
2006-2007	89%	77%	-12%
		School 19	
2001-2002	87%	72%	-15%
2002-2003	81%	71%	-10%
2003-2004	88%	75%	-13%
2004-2005	89%	70%	-19%
2005-2006	94%	82%	-12%
2006-2007	94%	85%	-9%
		School 20	
2001-2002	90%	45%	-45%
2002-2003	88%	57%	-31%
2003-2004	86%	66%	-20%
2004-2005	91%	68%	-23%
2005-2006	88%	69%	-19%
2006-2007	87%	82%	-5%

	School 21		
2001-2002	93%	57%	-36%
2002-2003	92%	68%	-24%
2003-2004	93%	58%	-35%
2004-2005	92%	59%	-33%
2005-2006	96%	72%	-24%
2006-2007	95%	69%	-26%
	School 22		
2001-2002	62%	25%	-37%
2002-2003	59%	23%	-36%
2003-2004	67%	31%	-36%
2004-2005	62%	41%	-21%
2005-2006	77%	46%	-31%
2006-2007	78%	40%	-38%
	School 23		
2001-2002	69%	18%	-51%
2002-2003	78%	69%	-9%
2003-2004	79%	68%	-11%
2004-2005	76%	87%	11%
2005-2006	91%	62%	-29%
2006-2007	89%	79%	-10%
	School 24		
2001-2002	67%	38%	-29%
2002-2003	66%	58%	-8%
2003-2004	76%	53%	-23%
2004-2005	61%	42%	-19%
2005-2006	78%	68%	-10%
2006-2007	81%	62%	-19%
	School 25		
2001-2002	83%	69%	-14%
2002-2003	71%	65%	-6%
2003-2004	83%	62%	-21%
2004-2005	78%	61%	-17%
2005-2006	86%	65%	-21%
2006-2007	87%	71%	-16%
	School 26		
2001-2002	68%	58%	-10%
2002-2003	73%	47%	-26%

2003-2004	73%	55%	-18%
2004-2005	75%	42%	-33%
2005-2006	81%	65%	-16%
2006-2007	88%	59%	-29%

School 27

2001-2002	68%	37%	-31%
2002-2003	58%	25%	-33%
2003-2004	60%	49%	-11%
2004-2005	65%	47%	-18%
2005-2006	79%	63%	-16%
2006-2007	77%	64%	-13%

School 28

2001-2002	75%	40%	-35%
2002-2003	64%	46%	-18%
2003-2004	71%	35%	-36%
2004-2005	65%	37%	-28%
2005-2006	79%	54%	-25%
2006-2007	77%	64%	-13%

School 29

2001-2002	93%	74%	-19%
2002-2003	83%	77%	-6%
2003-2004	81%	72%	-9%
2004-2005	81%	46%	-35%
2005-2006	84%	65%	-19%
2006-2007	73%	64%	-9%

School 30

2001-2002	74%	45%	-29%
2002-2003	62%	42%	-20%
2003-2004	86%	56%	-30%
2004-2005	74%	65%	-9%
2005-2006	87%	74%	-13%
2006-2007	83%	66%	-17%

School 31

2001-2002	73%	51%	-22%
2002-2003	72%	46%	-26%
2003-2004	86%	75%	-11%
2004-2005	75%	50%	-25%
2005-2006	89%	75%	-14%

2006-2007	92%	86%	-6%
		School 32	
2001-2002	64%	27%	-37%
2002-2003	56%	46%	-10%
2003-2004	64%	47%	-17%
2004-2005	64%	59%	-5%
2005-2006	78%	69%	-9%
2006-2007	81%	69%	-12%
		School 33	
2001-2002	79%	59%	-20%
2002-2003	71%	67%	-4%
2003-2004	88%	72%	-16%
2004-2005	82%	63%	-19%
2005-2006	91%	76%	-15%
2006-2007	89%	80%	-9%
		School 34	
2001-2002	93%	75%	-18%
2002-2003	84%	68%	-16%
2003-2004	85%	84%	-1%
2004-2005	94%	83%	-11%
2005-2006	89%	85%	-4%
2006-2007	95%	91%	-4%
		School 35	
2001-2002	67%	43%	-24%
2002-2003	71%	50%	-21%
2003-2004	83%	58%	-25%
2004-2005	85%	61%	-24%
2005-2006	97%	89%	-8%
2006-2007	98%	89%	-9%
		School 36	
2001-2002	68%	53%	-15%
2002-2003	79%	45%	-34%
2003-2004	76%	71%	-5%
2004-2005	78%	66%	-12%
2005-2006	86%	70%	-16%
2006-2007	85%	82%	-3%
		School 37	

2001-2002	82%	65%	-17%
2002-2003	86%	72%	-14%
2003-2004	88%	80%	-8%
2004-2005	78%	72%	-6%
2005-2006	87%	74%	-13%
2006-2007	91%	90%	-1%
	School 38		
2001-2002	73%	60%	-13%
2002-2003	69%	50%	-19%
2003-2004	73%	59%	-14%
2004-2005	68%	48%	-20%
2005-2006	79%	66%	-13%
2006-2007	71%	68%	-3%
	School 39		
2001-2002	63%	33%	-30%
2002-2003	65%	64%	-1%
2003-2004	79%	49%	-30%
2004-2005	65%	46%	-19%
2005-2006	88%	79%	-9%
2006-2007	85%	56%	-29%
	School 40		
2001-2002	78%	55%	-23%
2002-2003	69%	55%	-14%
2003-2004	64%	68%	4%
2004-2005	75%	62%	-13%
2005-2006	94%	78%	-16%
2006-2007	85%	75%	-10%
	School 41		
2001-2002	71%	53%	-18%
2002-2003	78%	59%	-19%
2003-2004	84%	74%	-10%
2004-2005	78%	54%	-24%
2005-2006	82%	66%	-16%
2006-2007	82%	74%	-8%
	School 42		
2001-2002	84%	65%	-19%
2002-2003	82%	66%	-16%
2003-2004	90%	71%	-19%

2004-2005	82%	57%	-25%
2005-2006	94%	76%	-18%
2006-2007	92%	83%	-9%
	School 43		
2001-2002	63%	52%	-11%
2002-2003	45%	30%	-15%
2003-2004	69%	59%	-10%
2004-2005	67%	49%	-18%
2005-2006	76%	50%	-26%
2006-2007	77%	63%	-14%
	School 44		
2001-2002	73%	58%	-15%
2002-2003	69%	56%	-13%
2003-2004	87%	68%	-19%
2004-2005	86%	60%	-26%
2005-2006	84%	80%	-4%
2006-2007	90%	70%	-20%
	School 45		
2001-2002	83%	51%	-32%
2002-2003	76%	47%	-29%
2003-2004	73%	62%	-11%
2004-2005	81%	50%	-31%
2005-2006	76%	49%	-27%
2006-2007	75%	70%	-5%
	School 46		
2001-2002	65%	54%	-11%
2002-2003	85%	77%	-8%
2003-2004	72%	72%	0%
2004-2005	86%	58%	-28%
2005-2006	85%	68%	-17%
2006-2007	86%	78%	-8%
	School 47		
2001-2002	72%	45%	-27%
2002-2003	66%	43%	-23%
2003-2004	82%	52%	-30%
2004-2005	81%	64%	-17%
2005-2006	84%	68%	-16%
2006-2007	86%	63%	-23%

	School 48		
2001-2002	79%	46%	-33%
2002-2003	62%	48%	-14%
2003-2004	70%	57%	-13%
2004-2005	54%	41%	-13%
2005-2006	75%	52%	-23%
2006-2007	80%	69%	-11%
	School 49		
2001-2002	77%	65%	-12%
2002-2003	79%	75%	-4%
2003-2004	79%	65%	-14%
2004-2005	75%	74%	-1%
2005-2006	84%	70%	-14%
2006-2007	86%	83%	-3%
	School 50		
2001-2002	81%	57%	-24%
2002-2003	78%	51%	-27%
2003-2004	87%	49%	-38%
2004-2005	79%	56%	-23%
2005-2006	87%	66%	-21%
2006-2007	89%	73%	-16%

Average Percentage of all selected schools

2001-2002	75%	52%	-23%
2002-2003	73%	56%	-17%
2003-2004	78%	61%	-17%
2004-2005	76%	57%	-19%
2005-2006	84%	68%	-15%
2006-2007	85%	72%	-13%

Appendix B

IRB Application and Approval

9/07 **RESEARCH EXEMPTION REQUEST** Ref. # _____

Liberty University
Committee On The Use of Human Research Subjects

1. Project Title: THE EFFECTS OF THE IMPLEMENTATION OF NCLB ON STUDENT ACHIEVEMENT

2. Please list all sources of funding. If no outside funding is used, state "unfunded": unfunded

3a. Principal Investigator(s) *[Must be a Liberty faculty member or investigator authorized by the Chair of the Institutional Review Board. If a student is the principal investigator, the student must have a faculty sponsor. Include contact information for both the student and the faculty sponsor as appropriate]*:

Stacey L. Benson, Student, Department of Graduate Education, 706-988-4319, 364 Old Hendrys Church Rd., Canon, GA 30520

3b.Faculty Sponsor:
Faculty Advisor - Dr. Michelle B. Goodwin, Assistant Professor, Department of Graduate Education, TE 102-A, Phone (434) 582-2265, FAX (434)-582-2468, EMAIL mbgoodwin@liberty.edu

Anticipated Duration of Study: 7/1/2009 (From) 9/30/2009 (To)

4. Briefly describe the purpose of the study.

The purpose of the study is to examine the relationship between NCLB and the achievement gap between 8th-grade African American and white students' math scores on the yearly-standardized test (Criterion Referenced Competency Test – CRCT) in Georgia.

5. Provide a lay language description of the procedures of the study. Address ethical issues involved in the study (See the Avoiding Pitfalls in section of the IRB website for helpful suggestions) and how you will handle them. For example, consider issues such as how subject consent will be obtained (or explain why the study meets waiver guidelines for informed consent), how the data will be acquired, and how the data will be stored confidentially once it is collected. Please attach pertinent supporting

documents: all questionnaires, survey instruments, interview questions and/or data collection instruments, consent forms, and any research proposal submitted for funding.

A. PROPOSED RESEARCH RATIONALE:

There is insufficient evidence of the effectiveness of NCLB on decreasing the achievement gap between African American students and white students. Historically, minority students do not perform as well academically as their non-minority peers (Davis, 1997). One of the major goals of NCLB is to increase student achievement of minority students, thus decreasing the achievement gap between minority and non-minority students. Understanding the relationship between implementation and the achievement gap is an essential piece in determining the likelihood of achieving this NCLB goal.

The theory behind NCLB is that increased accountability will increase educational outcomes. Increasing educational outcomes of all students is crucial in fostering citizens who are prepared to compete in a global market. This study will provide leaders, educators, parents, and community members with data to help determine whether current educational practices in Georgia are positively impacting the achievement gap between African American and white students. If student achievement is not impacted, there is no educational justification for implementing this reform or any other reform of this type. If student achievement is positively impacted, then more research into how this reform or reforms of this type impact other areas of education should be conducted. This knowledge should help guide educators and leaders as they continue to seek ways to improve education for all students.

The hypothesis of this study states that the achievement gap between eighth–grade African American and white students' math CRCT scores is decreasing as Georgia increases state educational requirements based on the legislative components of NCLB. The null hypothesis of this study states that there is no difference in the achievement gap between eighth-grade African American and white students' math CRCT scores as Georgia increases state educational requirements based on the legislative components of NCLB.

B. SPECIFIC PROCEDURES TO BE FOLLOWED:

Ex Post Facto research will be utilized to investigate the problem, examining the relationship between the implementation of NCLB over time and (a) African-American student achievement (b) white student achievement and (c) the achievement gap between African-American and white students eighth-grade math scores on the yearly standardized test (Criterion Referenced Competency Test – CRCT) in Georgia. "Ex post facto research is conducted after variation in the variable of interest has already been determined in the natural course of events" (Ary et al, 2006, p.155). No variables will be manipulated. Data used to test the hypothesis will be obtained from the Georgia AYP report cards for each school. Access to pertinent information has been researched and is readily available due to the NCLB requirement of states to provide report cards with AYP status and academic achievement measured by criterion referenced tests.

The researcher will randomly select the research participants (middle schools). Each school in the research population will be assigned a number and then numbers will be randomly chosen using Research Randomizer, an Internet tool for researchers.

The researcher will then obtain school AYP report cards for the years 2001-2002 (before implementation of NCLB), 2002-2003, 2003-2004, 2005-2006, and 2006-2007 (after Georgia educational requirements were implemented due to NCLB). The school

report cards in Georgia list the percentage of students who met the standards in accordance with NCLB. The researcher will collect and organize information with regard to math and the percentage of white and African American students that passed the CRCT. The researcher will test the hypothesis by evaluating the CRCT data.

The data collected on the individual research schools will be listed in a table. This table will include the following information regarding each research school: school name, school district name, percentage of white eighth-grade students who passed the math CRCT for years 2001-2002, 2003-2004, 2004-2005, and 2005-2006, percentage of African-American eighth-grade students who passed the math CRCT for years 2001-2002, 2003-2004, 2004-2005, and 2005-2006, and the number of percentage gains or losses (gap) between the two subgroups. A table will be utilized to display statistical information regarding the schools data analysis.

Quantitative, non-experimental statistical methods will be utilized to evaluate the collected data. The researcher will first conduct descriptive statistics to examine the data and then, depending upon what is observed, will select the most reasonable procedure and, if necessary, transformation as well.

A mixed design analysis of variance (ANOVA) is being considered to determine whether the achievement gap between white and African American proportions of students passing the exam are significantly different across the school years. In this analysis, each of the 50 schools will be treated as subject. Because each school is measured for a total of six school-year periods, the analysis will have one between-subjects factor "time" and one between-subjects factor "ethnicity." The null hypothesis of the ANOVA states that the mean proportions are the same for all school years (i.e., there is no trend) and the difference between ethnicity groups is consistent over time. The alternative hypothesis states that the mean proportions are different among some school years (i.e., there is some trend) and the difference between ethnicity groups is inconsistent over time.

The ANOVA assumes that the residuals are normality distributed, which implies, in essence, that the data themselves are normally distributed. In the present study, however, data values are proportions, which are bounded below by 0 and bounded above by 1. Thus, this normality assumption will not be satisfied. As a remedy, an arcsine transformation will be applied to the dependent variable. Let p be an observed proportion. The transformed value p' will then be:

$$p' = \sin^{-1}\left(\sqrt{p}\right)$$

To obtain, for example, a mean proportion for a particular school year, after the ANOVA is completed, one will take the square of the sine of the computed value. In the event that the result of ANOVA is significant, multiple comparisons will be conducted.

6. Will subject's data be gathered anonymously? YES ☒ NO ☐

7. Please describe the subjects you intend to recruit. For example, minors under age 18, adults 18 and over, students, etc. Also, please describe your recruitment procedures. How will you find participants for your study? How will you contact them? Please be explicit.:

The research population for the current research is middle schools in the state of

Georgia with the following characteristics: (a) the school qualifies for a subgroup of African-American, white, special education, and economically disadvantaged students (40 or more students in each category) and (b) the school must have been in existence since the 2001-2002 school year. These qualifications will control some of the variable in the research by excluding schools with very little diversity. Simple random sampling will be utilized to choose fifty research participants from the research population. All pertinent information is part of public records.

I have read the Human Subjects *"Research Exemption Request Guidelines"*.
Stacey L Benson 6/9/09

_____ _____

Principal Investigator Signature(s) Date

_____ _____

Faculty Sponsor (If applicable) Date

See application instructions for each above item below. Email form and supporting materials to fgarzon@liberty.edu. Also, submit a hard copy of the form and supporting materials to: Dr. Fernando Garzon, IRB Chair, Campus North Suite 2400, 1971 University Blvd, Lynchburg, VA 24502

RESEARCH EXEMPTION REQUEST FORM INSTRUCTIONS FOR EACH ITEM

1. **Project Title.** Please use the project title that is used in the application for funding. Please remain consistent in your use of the project title. A future change in the project title will require a completed Revision of Protocol Form.
2. **Funding Source.** All sources of funding should be listed. If no outside funding is used, state "unfunded." Please note whether funding is pending. If you have submitted a federal grant application for funding for this project, a copy of the grant application must be attached to the original of the submitted application.
3. **3.a: Principal Investigator(s).** The principal investigator (PI) must be a Liberty faculty member or investigator authorized by the IRB Chair. If a student is the principal investigator, a faculty sponsor is required and should be listed in 3b. Please provide each PI's name and contact information. **3.b.:** As needed, list the faculty sponsor's name and contact information. Much of the Committee's contact with the PI will be through e-mail. As such, it is important that the information be legible.

4. **Purpose of the Study.** Please describe in nonscientific terms the purpose of this study. In other words, why are you wanting to do this study (excluding degree requirement)?
5. **Specific procedures to be followed.** This should be a lay language description of the procedures of the study. Address ethical issues involved in the study (See Design Tips for helpful suggestions) and how you will handle them. Focus on issues such as how subject consent will be obtained (or explain how the study meets waiver guidelines for informed consent), how the data will be acquired, and how the data will be maintained once it is collected. Please attach pertinent supporting documents: all questionnaires, survey instruments, interview questions and/or data collection instruments, consent forms, and any research proposal submitted for funding.
6. **Will subject's data be gathered anonymously?** Do not confuse anonymous with confidential. For a study to be anonymous, there must be no possibility for the PI or anyone else to ascertain the identity of the subject(s).
7. **Type of subjects to be employed and recruitment procedures.** Please describe the subjects you intend to recruit. For example, minors under age 18, adults 18 and over, students, etc. Also, please describe your recruitment procedures. How will you find participants for your study? How will you contact them? Please be explicit.

Submit the original Research Exemption Request plus supporting documents via email and hard copy. It is recommended that the researchers keep a copy of their request for themselves.

Appendix C

IRB Approval

Dear Stacey,

We are pleased to inform you that your above study has been approved by the Liberty IRB. This approval is extended to you for one year. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. Attached you'll find the forms for those cases.

Thank you for your cooperation with the IRB and we wish you well with your research project. We will be glad to send you a written memo from the Liberty IRB, as needed, upon request.

Sincerely,

Fernando Garzon, Psy.D.

IRB Chair, Liberty University

Center for Counseling and Family Studies Liberty University

1971 University Boulevard

Lynchburg, VA 24502-2269

(434) 592-4054

Fax: (434) 522-0477