NO CHILD LEFT BEHIND ACT: THE IMPACT ON THE PERFORMANCE LEVELS OF GIFTED STUDENTS RELATIVE TO THOSE OF NON-GIFTED STUDENTS

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No Child Left Behind Act: The Impact on the Performance Levels of Gifted Students Relative to Those of Non-gifted Students

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ABSTRACT

Rochelle L. Hopson-Lamar. NO CHILD LEFT BEHIND ACT: THE IMPACT ON THE PERFORMANCE LEVELS OF GIFTED STUDENTS RELATIVE TO THOSE OF STUDENTS. (Under the direction of Dr. Mark A. Angle) School of Education, August 2009.

The purpose of this causal comparative study was to determine the impact of the implementation of NCLB on the performance levels of gifted students relative to those of non-gifted students. The study involved the 2001, 2002, 2008, and 2009 Georgia Criterion-Referenced Competency Tests (CRCT) results of 1,978 middle grades students from a school in rural Northwest Georgia. The analysis included comparing the Mann-Whitney statistics, two-sample independent z-test statistics, and the percentage of improvement in performance levels of the gifted and non-gifted students, as measured by the CRCT in reading, language arts, and mathematics. The findings revealed that, since the implementation of NCLB, both the gifted and non-gifted students experienced a statistically significant increase in their performance levels on the CRCT. However, the difference between the percentages of improvement in the performance levels of the gifted students relative to those of the non-gifted students was statistically non-significant.

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CONTENTS

TABLES

FIGURE

CHAPTER 1: INTRODUCTION

According to President Bush, “In America, no child should be left behind; every child should be educated to his or her full potential” (The White House, n.d., p. 3). The No Child Left Behind Act of 2001(NCLB) mandates that every student in K-12 public schools will reach basic proficiency in math and reading by 2014. The goals of the accountability component of NCLB place emphasis on closing the achievement gap for all public school students, regardless of their socioeconomic status, ethnicity, or disabilities (The White House, 2002). The Federal Government mandates annual testing of all students in grades three through eight on challenging state standards for mathematics and reading (The White House). This study examines the impact of the implementation of NCLB on the performance levels of gifted students relative to those to non-gifted students. Chapter One introduces the study, background of the study, problem statement, significance of the study, overview of methodology, and key definitions.

Background of the Study

In 2002, President Bush signed the No Child Left Behind Act of 2001 (NCLB), formerly known as the Elementary and Secondary Education Act, into law. The act included a test accountability mandate to ensure that the schools focus on closing the achievement gaps between minority, disabled, disadvantaged, and limited English proficiency students and their peers. The goal was for all students to meet a minimum proficiency level by the year 2014 (The White House, 2002). NCLB required state departments of education to develop academic standards detailing what every student

should master at grades three, five, eight, and eleven, while holding schools accountable for satisfying basic state proficiency goals (The White House).

Despite the goals of NCLB, educational researchers recognized the possibility that this new accountability system negatively affected gifted students as well as the very low struggling students (Amrein & Berliner, 2002; Elmore, 2003; Golden, 2003; Neill, 2003; Tomlinson, 2002). Researchers Neal and Schanzenbach (2008) conducted a study on the math and reading achievement levels of fifth and sixth grade students from Chicago, since the implementation of NCLB. They concluded that Chicago Public Schools were focusing on the middle third of the students, which neglected very low and high achieving students.

To meet the mandate of NCLB, Target Middle School, a pseudonym for the actual school name, implemented the following: 1) smaller class sizes for regular education students, 2) inclusion classes for special needs students, and 3) additional remedial mathematics and reading classes for struggling students. Target's research of best practices revealed that small class sizes allow teachers to focus more on the individual student. Teachers can then focus better on diagnosing weaknesses and reteaching, as it related to the CRCT.

Over the years, funding for programs unrelated to NCLB has decreased. This year, the Target School District is facing an eight million dollar decrease in the budget. Moreover, the state government is increasing the class size maximum from 28 to 30. Despite these changes, the accountability mandate of NCLB remains intact. With these pressures created by NCLB, Target Middle School wants to keep the regular education mathematics and reading classes as small as possible.

While Target's plan for the implementation of NCLB was effective, it forced the gifted program to alter its offerings. Unlike the standard regular classroom maximum size of 28 students, the State Board of Education Rule 160-5-1-.08 stated that the gifted advanced content classes could hold a maximum of only 21 gifted students (Georgia Department of Education, n.d.). This instructional model required more teacher resources, which decreased the resources for regular students. Prior to the implementation of NCLB, Target Middle School offered two gifted advanced content classes per academic subject and grade level. However, to help improve the performance levels of regular students, the school implemented one gifted advanced content class and one gifted cluster class per academic subject and grade level.

Target School District defines a gifted cluster class as one in which up to seven gifted students learns with regular education students. Gifted cluster classes have a maximum class size of 28. The teachers of gifted cluster classes are supposed to differentiate instruction so that they challenge all students to learn to their fullest potential. Conversely, the teachers at Target Middle School only teach to the basic tested curriculum necessary for the regular education student. Experts note that gifted students are already proficient in the basic state standards at their grade levels and possess the ability to gain an in-depth mastery of the standards (Amrein & Berliner, 2002; Elmore, 2003; Golden, 2003; Neill, 2003; Tomlinson, 2002; Georgia Department of Education, n.d.).

Without differentiated instruction, gifted cluster classes may result in the marginalization of the gifted students, leaving them unchallenged and underserved (Gentry, 2006; Neal & Schanzenbach, 2008). Unchallenged gifted students may result in

their loss of interest in school causing them to dropout, which may create a mediocre future America. Diezmann and Watter (2002) pointed out that “Mathematically gifted students have the potential to assume critical roles as creative contributors and future leaders due to their insightful reasoning and passion for mathematics” (p. 76). The results of this study provide insight, for Target Middle School and other similar schools across the United States, on whether the educational practices used to meet the demands of NCLB neglect gifted learners’ needs.

Problem Statement

With such an emphasis on the accountability mandate component of NCLB, Moon (2006) stated that teachers were overly concerned about their students achieving basic proficiency levels. Because students learn at different rates, some teachers experienced difficulties serving all students appropriately (Moon). The average student required 18 to 25 repetitions to learn new material, while the gifted student required only one to three repetitions to learn new material (Ruf, 2005). The implementation of NCLB, which resulted in enrolling gifted students in more heterogeneous classes, may have neglected the academic and emotional needs of gifted students. Hence, to attain equity in education, teachers must differentiate instructional practices and activities. This study attempted to address the following question: What is the impact of the implementation of NCLB on the performance levels of gifted students relative to those of non-gifted students, as measured by the criterion-referenced competencies mathematics, language arts, and reading tests?

Research Questions

The general purpose of this causal comparative study was to determine the impact of the implementation of NCLB on the achievement of sixth and eighth grade students who are gifted relative to those of the non-gifted. This study explored data from the pre-NCLB (2001 and 2002) and post-NCLB (2008 and 2009) periods to determine whether the instructional strategies implemented because of NCLB impacted the performance levels of sixth and eighth grade students who are classified as gifted relative to those of non-gifted. The researcher focused on four years of data collected from the Target Middle school located in a rural Northwest Georgia school district. The data included the Georgia Criterion-Referenced Competency Tests (CRCT) results in mathematics, reading, and language arts from the 1,978 sixth and eighth grade students attending Target Middle School. The researcher used two years of CRCT data to create the pre-NCLB and post-NCLB periods. Using two years of data decreased the effects of any anomalies in CRCT scores and students' abilities. The research analyzed the impact of NCLB on gifted students relative to those of non-gifted students by answering the following research questions and null hypotheses:

1. Between the pre-NCLB and post-NCLB periods, what is the percentage of improvement in the performance levels of gifted students, as measured by the Georgia CRCT in reading, language arts, and math?

2. Between the pre-NCLB and post-NCLB periods, what is the percentage of improvement in the performance levels of non-gifted students, as measured by the Georgia CRCT in reading, language arts, and math?

3. Between the pre-NCLB and post-NCLB periods, what is the difference in

the percentage of improvement in the performance levels of gifted students relative to those of non-gifted students, as measured by the Georgia CRCT in reading, language arts, and math?

Null Hypotheses

H_{01}: Between the pre-NCLB and post-NCLB periods, no percentage of improvement will exist in the performance levels of gifted students, as measured by the Georgia CRCT in mathematics, reading, and language arts.

H_{02}: Between the pre-NCLB and post-NCLB periods, no percentage of improvement will exist in the performance levels of non-gifted students, as measured by the Georgia CRCT in mathematics, reading, and language arts.

H_{03}: Between the pre-NCLB and post-NCLB periods, no difference will exist in the percentage of improvement in the performance levels of gifted students relative to those of non-gifted students, as measured by the Georgia CRCT in mathematics, reading, and language arts.

Significance of the Study

The No Child Left Behind Act of 2001 (NCLB) is a federal law designed to ensure that all students, regardless of their ethnicities, disabilities, and socioeconomic levels, master basic proficiency of the various state curricula standards (The White House, 2002). Because of this law, teachers must modify their instructional practices so that all students become proficient in the basic state curricula by 2014. According to Gentry (2006), an average student can take the majority of the school year to attain basic proficiency of the curricula. Gifted students either have already or can quickly attain basic proficiency of the curriculum (Gentry). Based on these statements, the question of

concern becomes, “Are the needs of gifted students being met?” Gifted students do not have the opportunity to develop their strengths (Gentry). As a result, gifted students with low educational aspirations are dropping out of high school (Renzulli & Park, 2000).

Americans expect and assume that students who are gifted and/or highly talented are being educated to replace the retiring scientists, engineers, artists, and musicians in America. The results of this study can heighten the awareness of the effects that NCLB has on gifted students. Researchers Renzulli and Park (2000) concur that schools need to modify their programs for gifted students. In their study on high school dropouts who are gifted, they recommend

> To help potential gifted dropouts continue their education: (1) Schools and teachers need to recognize the characteristics of gifted dropouts and identify potential gifted dropouts in the early grades; (2) School culture should be changed to meet the needs of potential gifted dropouts, providing an appropriate and challenging curriculum that addresses their particular interests and learning styles. (p. 269)

To further validate and generalize these results, researchers can replicate this study in other schools across the country. With the generalized reports, advocates for gifted students can lobby to amend NCLB to include the educational needs of gifted students.

Overview of Methodology

This study incorporated a causal comparative research method. Using the pre-NCLB (2001 and 2002) and post-NCLB (2008 and 2009) periods, the researcher collected and analyzed existing Georgia Criterion-Referenced Competency Test (CRCT) results in math, reading, and language arts from approximately 1,978 sixth and eighth

grade students from the Target Middle School located in a rural Northwest Georgia school district. For the aforementioned four years, the researcher performed the following statistical procedures on the 5,946 CRCT test results: differences, descriptive statistics, percentages, Mann-Whitney U tests, and two-sample independent z-tests. The researcher conducted the statistical tests utilizing Microsoft Excel software, Analyse-It software, and the online Dimension Research Statistical Calculator to perform the statistical computations. Using the resulting statistics from the CRCT in mathematics, reading, and language arts, the researcher compared the statistical results of performance levels of sixth and eighth grade students who are gifted to sixth and eighth grade students who are non-gifted.

Definitions of Key Terms

The Georgia Department of Education (2007) serves as the primary reference for most of the definitions given below. Listed are the definitions for relevant terms and acronyms pertaining to this study:

Adequate Yearly Progress (AYP). A term coined by the No Child Left Behind legislation that indicates whether a school system or school campus has sufficiently made academic achievement gains when relative to those of annual measurable objectives. The state government labels a school as not making Adequate Yearly Progress if the school fails to demonstrate the established percentage of students meeting or exceeding standards in math and reading/language arts.

Annual Measurable Objective (AMO). A given percentage, established by the federal NCLB law, of the school's student scores that must meet or exceed the standards for each content area indicated.

Confidence Interval. If the event schools do not meet the annual measurable objectives for reading/ELA and/or math, a series of second looks are applied beginning with a confidence interval application. In Georgia, the critical z is 1.645 for a population proportion, which means the programs are running a one-tail test at the 95% level of significance.

Criterion-Referenced Competency Test (CRCT). The CRCT is a series of criterion-referenced tests administered, throughout the state of Georgia, in reading, language arts, and mathematics in grades one through eight, and in science and social studies in grades three through eight. These tests measure how well students have acquired the skills and knowledge mandated by Georgia's curriculum standards. The Georgia High School Graduation Tests (GHSGT) for English/language arts and mathematics were enhanced to comply with the No Child Left Behind Act of 2001, which required examinations that are more rigorous. For accountability purposes, Enhanced GHSGT results from first time test takers in the eleventh grade for English/language arts and mathematics are used in making AYP determinations at school, local educational agency (LEA), and state levels.

Equipercentile equating. Equipercentile equating process determines the equating relationship between scores from two similar but different tests. Equipercentile equating is a statistical application that the Georgia Department of Education (GaDOE) uses to compare Quality Core Curriculum (QCC) based assessment data to Georgia Performance Standards (GPS) based assessment data for use in the calculation of multi-year averaging, safe harbor, and progress on the second indicator for AYP determination purposes.

Georgia Alternate Assessment (GAA). A summative assessment based on an Individualized Education Program (IEP) that measure a student's progress toward the mastery of targeted goals. In lieu of the traditional CRCT, the GAA serves as a replacement assessment for students who participates in an alternate curriculum and are unable to participate in state mandated assessments even with maximum accommodations.

Georgia Performance Standards (GPS). Georgia Performance Standards provide clear expectations for assessment, instruction, and student work. They define the level of work necessary for a student to accomplish in order to master the standards. Performance standards incorporate content standards but expand upon them by providing suggested sample tasks, sample student work, and teacher commentary.

Gifted students. According to the Target Middle School and the Georgia Department of Education, gifted students are students who demonstrate a high degree of intellectual and/or creative abilities, exhibit an exceptionally high degree of motivation, excel (possibly) in specific academic fields, and warrant special instruction and/or special ancillary services to achieve at levels commensurate with their abilities.

High-achieving students. Students who score 90% or above on any portion of the CRCT tests.

Instructional Extension. A state-funded academic instructional program designed for implementation beyond the regular school day to address the academic needs of low-performing students.

Middle school. A school that enrolls 11-15 year-old students in grades six, seven, and eight.

Multi-year Averaging. If a school fails to make AYP based on the AMOs for reading/ELA and math, test scores from the current school year are averaged with test scores from the preceding two years. This rolling average is designed to mitigate the fact that student performance can vary widely from year to year, due to factors beyond a school's control such as changes in the demographic composition of student populations.

No Child Left Behind Act of 2001 (NCLB). On January 8, 2002, President Bush signed the No Child Left Behind Act of 2001 (NCLB) that reauthorized the Elementary and Secondary Education Act (ESEA). NCLB significantly raised expectations for states, local school districts, and schools, in that all students were expected to meet or exceed state standards in reading and mathematics within twelve years.

Non-gifted students. Students who do not meet the guidelines of a gifted student (as defined previously) or have not been identified as gifted.

Percent score (percentage correct). The percent score is calculated by multiplying 100 by the number of correct responses (raw score) divided by the total number of questions on the CRCT in a content area.

Percentage of improvement. The sum of the change in the percentage of students who do not meet standard (Performance Level 1) and the change in the percentage of students who exceeded standard (Performance Level 3), between the pre-NCLB and post-NCLB periods.

Performance Level. A range of scores that defines a specific level of performance, as articulated in the Performance Level Descriptors. The CRCT has three performance levels: 1) *Does Not Meet the Standard*, 2) *Meets the Standard*, and 3) *Exceeds the Standard.* In essence, the performance level provides more meaning to the scale score.

Performance Level 1 (DNM). Performance Level 1 describes (a) a CRCT score below 300 points, which *Does Not Meet Standard* under the Quality Core Curriculum or (b) a CRCT score below 800 points which *Does Not Meet Standard* under the Georgia Performance Standards. Performance Level 1 is also known as the *basic* level.

Performance Level 2 (PRO). Performance Level 2 describes (a) a CRCT score between 300 and 350 points, which, *Meets Standard* under the Quality Core Curriculum or (b) a CRCT score between 800 and 850 points which *Meets Standard* under the Georgia Performance Standards. Performance Level 2 is also referred to as the *proficient* level.

Performance Level 3 (ADV). Performance Level 3 describes (a) a CRCT score 350 points or above, which *Exceeds Standard* under the Quality Core Curriculum or (b) a CRCT score 850 points or above, which *Exceeds Standard* under the Georgia Performance Standards. Performance Level 3 is also referred to as the *advanced* level.

Performance Level Descriptors. A verbal statement describing each performance level in terms of what the student has learned and can do.

Pre-NCLB. This term represents the years 2001 and 2002, the two years prior to the implementation of NCLB. During that time, Georgia required all public schools to administer a Quality Core Curriculum-based state assessment.

Post-NCLB. This term represents the years 2008 and 2009. These years mark the fifth and sixth years after the implementation of NCLB.

Quality Core Curriculum (QCC). Replaced by GPS in 2005, the Quality Core Curriculum was the previous set of Georgia learning standards that provided expectations for assessment, instruction, and student work.

Raw Score. The actual number of correct responses on the CRCT in any content area.

Safe Harbor. AYP is met if the percentage of students in that subgroup not scoring proficient decreases by 10% from the preceding school year and the subgroup meets the State's requirement for progress on second indicator.

Scale Score (SS). A scale score is a mathematical transformation of a raw score. Scale scores provide a uniform metric for interpreting and comparing scores within each grade and content area.

School Corrective Action Plan. An addendum of a School Improvement Plan required of all schools that reach Needs Improvement Year 3. The Corrective Action Plan is written collaboratively by the LEA and the school in accordance with the No Child Left Behind Act of 2001, section 1116, and approved by the local board of education for a minimum of a two-year period.

School Improvement Plan. A document developed by a school and approved by the LEA to serve as a blueprint for guiding the school's continuous improvement and progress toward identified student achievement objectives and targets.

School Restructuring Plan. An addendum of the School Improvement Plan and Corrective Action Plan required of all schools that reach Needs Improvement Year 4. The School Restructuring Plan is written and implemented collaboratively by the LEA and the school in accordance with the No Child Left Behind Act of 2001, section 1116, and approved by the Georgia Department of Education (GaDOE).

Supplemental Educational Services (SES). Additional academic instruction provided outside the regular school day that is designed to increase the academic

achievement of students in low-performing schools (State Board of Education Rule 160-4-5-.03).

CHAPTER 2: REVIEW OF THE LITERATURE

Reviewing the literature about gifted students and the No Child Left Behind Act (NCLB) was crucial in comprehending the significance of this study. Senator Edward Kennedy stated NCLB was a commitment from the government to "provide the opportunity for each student to receive a quality education" (Kennedy, 2005, ¶26). However, NCLB did not commit to challenging the gifted student.

In this review of literature, the researcher investigates the true intent of NCLB and the results of its implementation. Because NCLB is the prominent education legislation in its sixth year of implementation, researchers are conducting more studies on its effectiveness. This chapter begins with a historical background on gifted students and gifted education, which includes gifted characteristics and legislations. The review also discusses the history of related educational legislations such as NCLB. Finally, this chapter discusses the general impact of NCLB on education and gifted students.

Historical Definition of Giftedness

Over the years, many organizations and groups redefined the term *gifted*. Most organizations based their definitions of giftedness on the Federal Government's definition. Former United States Commissioner of Education, Sidney J. Marland (1971) defined the term, *gifted* in the Elementary and Secondary Education Act (ESEA) as,

> Gifted and talented students are those identified by professionally qualified persons who by virtue of outstanding abilities are capable of high performance. These students require differentiated educational programs and/or services beyond

> those normally provided by the regular school program in order to realize their contribution to self and society. (p. 8)

Dr. Mels Carbonell (n.d.), president of the Leadership Institute of America, explained that giftedness varies in each individual. He concluded,

> Your spiritual gifts reflect in the way you think, feel, and act with a special enablement and endowment from God. Just as there are different gifts of the Spirit, there are also different people doing different work for the Lord[…] One person may have one gift and another person will have a unique gift. (p. 1)

Carbonell's definition, that was aligned with Marland's, further explained that gifted students excelled in one or more of the following areas: "general intellectual ability, specific academic aptitude, creative or productive thinking, visual and performing arts, leadership ability, and psychomotor ability" (p. 1).

Several experts on giftedness developed their own definitions of the term. Joseph Renzulli (1978) stated that gifted students possessed and applied the following composition of human traits: above-average general and/or specific abilities, high levels of task commitment (motivation), and high levels of creativity. Robert Sternberg and Robert Wagner (1982) suggested that giftedness resided in people who experienced the following psychological processes: 1) separating relevant from irrelevant information, (2) combining isolated pieces of information into a unified whole, and (3) relating newly acquired information to information acquired in the past. Wagner also noted that gifted people had great intellectual insight, possessed superior abilities to solve problems, and processed information quickly (Sternberg & Wagner). In 1993, the Federal Government amended the Javits Act into the Elementary and Secondary Act of 1988, which

characterized gifted students as:

> students and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment. These students and youth exhibit high performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. Outstanding talents are present in students and youth from all cultural groups, across all economic strata, and in all areas of human endeavor. (U. S. Department of Education, 1993, p. 26)

The Columbus Group provided an alternative way of perceiving giftedness, characterizing it as:

> an asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm. This asynchrony increases with higher intellectual capacity. The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching, and counseling in order for them to develop optimally. (Silverman, 1997, p. 39)

Finally, both the state of Georgia and the Target Middle School defined a gifted student as:

> a student who demonstrates a high degree of intellectual and/or creative abilities, exhibits an exceptionally high degree of motivation, and/or excels in specific academic fields, and who needs special instruction and/or special ancillary

services to achieve at levels commensurate with his or her abilities. (GaDOE, n.d., p. 1)

Characteristics of Gifted Students

Historically, gifted students exhibit certain intensities. These certain intensities also known as *overexcitabilities* are described as "genetic predispositions of the nervous system to respond more and more intensely to life's stimuli" (Sword, 2003, ¶ 5). Kazimierz Dabrowski, a polish psychologist, identified five *overexcitabilities* or intensities that gifted students tend to exhibit: psychomotor, sensual, emotional, intellectual, and imaginational (Bainbridge, n.d.; Piechowski, 1998). He noted that gifted students usually have a dominant intensity but may possess several. Dabrowski and Piechowski described and characterized the gifted as a way to better understand and help them become productive and happy (Sword, 2003).

Students who possess a psychomotor intensity have an abundant of energy. Often times they are misdiagnosed as having attention deficient-hyperactivity deficient syndrome (Bainbridge, n.d.). They tend to exhibit nervous habits or tics, competitiveness, compulsive/impulsive behaviour, and sleeplessness. These students prefer sports or fast-paced activities.

Bainbridge (n.d.) noted that students who have the sensual intensity have a keen sense of sight, smell, taste, touch, and hearing. They can easily become ill from certain smells. They enjoy the pleasures of beauty, tastes, and textures. Some have a tactile sensitivity to materials or fabrics. They can also be highly sensitive to pollution.

Students who have an intellectual intensity, the most recognized, appear to be thinking or in deep thought all of the time (Piechowski, 1998). They are theoretical,

analytical, and independent thinkers. They tend to be avid readers. Because of their natural curiosity and love for learning, they frequently question teachers or persons of authority.

Students with an imaginational intensity have an intense ability to dream, fantasize, joke, visualize, and pretend (Sword, 2003). They fear the unknown, which may hinder their ability to take risks. The vivid imagination of these gifted students can cause them to imagine the worst possible scenarios. They may have a love for the fine arts like poetry, music, and drama.

Finally, students who have extreme emotional sensitivities are characterized as possessing the emotional intensity. These students are often misdiagnosed as being bipolar or having emotional problems. They feel a sense of guilt, anxiety, and loneliness. They are very aware of injustice and hypocrisy. They tend to have a physical response, like experiencing headaches or stomachaches, to their emotions (Bainbridge, n.d.).

Federal law requires each state to develop criteria for identifying gifted students. The criteria usually include observable characteristics and valid testing protocol. Most public schools will identify gifted students in mathematics, reading, and intelligence (Zirkel, 2005). Gifted students typically score at or above 97% on national norm-referenced achievements tests and have outstanding achievement in academic content areas (Rogers, 1986). Because of gifted students' glaring academic achievements, teachers typically identify the academically gifted students instead of the intellectually gifted students (Davis & Rimm, 2004). Table 1 lists common academic and intellectual characteristics of the gifted.

Table 1

Academic and Intellectual Characteristics of the Gifted

Academic Characteristics	**Intellectual Characteristics**
• Rapid learning and reading rate • Large vocabulary • High comprehension rate • Abstract construction of knowledge • Intensely focused • Intrinsic motivation for learning • Keen power of observation • Quick recollection of events or facts • Systematic Analysis	• Wildly eclectic • Boundless energy • Good adult relationships • Goal-directed problem solving • Independent thinkers • Impulsive • Skeptical, critical, & evaluative • Passion for intellectual activity • Extremely curious

Gifted Student Population

The Federal Government has never collected census data on gifted students in America. Researchers, however, periodically estimate the number of gifted students in America. Using his definition, Marland (1971) estimated that the gifted K-12 population should minimally range between three to five percent. According to the latest estimation from the Elementary and Secondary School Survey compiled in 2000 by the Office for Civil Rights (OCR), approximately six percent of the United States population was gifted and talented, which equated to 2,926,034 people (U.S. Department of Education, 2003).

Gifted Education History

Many researchers and educators have analyzed methods that identify and accommodate the gifted students. Lewis Terman, a prominent psychologist, developed one of the first valid testing methods for identifying the gifted and talented. In 1916, Terman published the first version of the Stanford - Binet test of Intelligence. Terman, in his 1925 book titled *The Genetic Studies of Genius* described his study involving testing approximately 1500 Californian students with intellectual quotients of 140 or more enrolled in the upper elementary schools. He studied characteristics like "racial origins, sex ratio, anthropometric measurements, health and physical history, school progress, specialized abilities, intellectual, social, and play interests, and personality and character traits" (Tannenbaum,1983, p. 6). By 1928, over 775,000 Americans were tested using Terman's test for intelligence.

The Genetic Studies of Genius served as a dominant document on testing the gifted and their genetic compositions. Terman noted that many gifted students were born into families with higher occupational levels. Many families of gifted students descended from Northern and Western Europe (Tannenbaum, 1983). In essence, Terman concluded that heredity hailed as the main contributor in determining giftedness. Although this theory overlooked disadvantaged and minority students, America still recognized Terman as an expert in identifying the gifted.

The practice of gifted education evolved in the late 1800s. Educators recognized Leta Stetter Hollingworth (1889-1939), a gifted person, as one of the founding professors of gifted and educational psychology. She exhibited some of the psychomotor, sensual, intellectual, imaginational, and emotional intensities described in Dabrowski's

characterization of gifted people (Klein, 2000; Piechowski, 1998; Silverman, 1992). In the late 1910s, Hollingworth unexpectedly had to teach a class on exceptional students and developed an interest in gifted and learning disabled students (Silverman, 1992). In the 1920s and 1930s, she conducted a successful study on the gifted education classes at the Public School 165, which led to her authoring the textbook titled, *Gifted Students: Their Nature and Nurture* (Hollingworth, 1926; Silverman, 1992; Klein, 2000). Hollingworth convinced that giftedness derived from more than hereditary genes, believed that opportunity and education were critical factors in developing gifted students. To confirm this theory, she conducted over 30 studies and wrote numerous articles on the characteristics of gifted students (Silverman, 1992).

While Lewis Terman received the credit for his identification process for gifted students, Hollingworth earned a place in the educational field as founder of the concept of gifted education (Klein, 2000). She created an affective-based curriculum with instructional practices designed especially for gifted students enrolled in mainstream and accelerated classes (Klein; Silverman, 1992). Silverman stated,

> Several of Hollingworth's innovative ideas have become standard fare in general education today: adapting the school to the student, individualized education, the student centered approach, independent and small group projects, interdisciplinary education, seminars (student discussion), thematic education, education for creativity, movable desks, modern languages, general science, art and music appreciation, health and nutrition, physical education, the study of biography, handicrafts, field trips, affective development, and the use of typewriters in the classroom. (p. 25)

The instructional practices of gifted education also included compacting and facilitating instruction using a thematic approach, two practices currently in use today (Klein).

Approximately twenty years later, on October 4, 1957, the Russian launch of the Sputnik Spaceship sparked a renewed interest in gifted education (Marland, 1971; Bracey, 2007). The success of the Russian Sputnik made the United States contemplate its own math and science education programs. Bracey proclaimed, "Inattention to the gifted became one of the major post-Sputnik themes among reformers" (p. 122). Both the Eisenhower and Kennedy administrations realized that America must improve its educational practices. The Federal Government contemplated how to be superior in a competitive global economy (Cavanagh, 2007).

The Russian Sputnik caused the government to invest monies into research and educational materials that would challenge gifted students. In 1958, Congress passed the National Defense and Education Act aimed to increase the instruction of science and foreign languages, yielding in 887 million dollars in grants and loans (Kennedy, Cohen, & Bailey, 2002). In 1971, congress amended the Elementary and Secondary Education Act (ESEA) of 1969 (Public Law 91-230 Section 806), to request a study to develop educational provisions for the gifted and talented to

> 1) Determine the extent to which special educational assistance programs are necessary or useful to meet the needs of gifted and talented students, 2) Show which federal educational assistance programs should be used to meet the needs of gifted and talented students, 3) Evaluate how existing federal educational assistance programs can better meet these needs, and 4) Recommend new programs, if any, needed that would assist teachers in meeting gifted students'

needs. (Marland, 1971, p. 7)

Because of the study findings, Marland reported that the United States Office of Education (USOE) would commit to the improvement of gifted education. USOE vowed to establish regional gifted education directors and higher education professional development for teachers of gifted students. Additionally, the office committed to providing monetary support for gifted education experiments, collegial studies, and local programs. Since the passing of ESEA, the USOE's commitment marked the first time the federal government provided funds linked to national educational concerns (Paige, 2006).

In addition to Public Law 91-230 Section 806, legislation created and passed several mandates to support and enhance gifted education. In Marland's (1971) report, Title VI of ESEA classified gifted students as handicapped, which opened the door for funding. Title V of ESEA provided funds for local and state consultations for the gifted. Title III of ESEA assigned funds to identify gifted students and improve instruction, teachers, musicians, and equipment. The Education Professional Development Act provided funds for the professional development of teachers and other related personnel who instruct and challenge gifted and talented students (Marland).

In 2001, Congress amended the 1988 Javits Gifted and Talented Students Education Act (Javits) to focus on new methods to identify gifted students from traditionally underrepresented areas (U.S. Department of Education, 2008b). The purpose of the amended Javits Education Act was to

> carry out a coordinated program of scientifically based research, demonstration projects, innovative strategies, and similar activities designed to build and enhance the ability of elementary and secondary schools that meet the special

education needs of gifted and talented students. (U.S. Department of Education, ¶ 1)

The Javits Act also enabled the government the ability to award grants for conducting studies toward the development of instructional models for gifted and talented students from diverse backgrounds. Moreover, the Javits Act granted provisions for the professional development of educators and personnel working with gifted programs (U.S. Department of Education).

The Government's Role in Educational Policy

In the United States Constitution, America's founding fathers did not specifically address the policies regarding the educational system. The Tenth Amendment of the Constitution assigned the states the power to rule over any policies not mentioned in the Constitution. Hence, the state governments assumed the majority of the power to govern over education. The states, in turn, delegated a portion of the power to the local governments, allowing all three levels of government, federal, state, and local, to create educational policies.

With the No Child Left Behind Act of 2001, the Federal Government serves as a more powerful force in today's education. The Federal Government has three major responsibilities in education: (a) distribution of funds, (b) educational statistics, and (c) educational project research. Out of the funds that are distributed to the local schools, the Federal Government earmarks the majority of the funds for specialized programs and specific groups of students, i.e. students with disabilities, vocational programs, college students in financial need, and youth with educational disadvantages (Webb, Metha, & Forbis Jordan, 2000).

Secondly, since the 1867 inception of the Department of Education and the Secretary of Education position, the Federal Government periodically collects nationwide educational statistics. They engage in data collection and data reporting. Their purpose is twofold: (a) evaluating the state systems' effectiveness and (b) comparing America's schools to other global schools (Webb, et al., 2000).

The third educational emphasis of the Federal Government is educational research and demonstration projects (Webb, et al., 2000). The government grants funds for educational research. The research recommendations and projects are implemented through local districts and state educational agencies (Webb, et al.).

The state government holds a variety of power that can affect educational practices. The state governing body includes the governor, state secretary of education, chief state school officer, state board of education, and state department of education. With the assistance of state advisors and agencies, the governor formulates the educational budget and recommends it to the state legislature. The governor also appoints or terminates state administrative personnel. The governor, along with legislative officials, listens to different lobby groups, like the National School Board Association, to gain insight into the needs in education. The state board of education adopts and monitors educational regulations and policies. The board also prepares educational reports for the state legislature. The chief state school officer or state superintendent has limited powers. The governor traditionally appoints a qualified person to the position. The state secretary of education develops the educational budget and long-term plan (Webb, et al, 2000). Finally, the state-level administrative agency has the power to

> implement the state board of education's board policies for the operation of the state's public elementary and secondary schools; monitor the schools in accordance with legislative mandates; advocate for public education; provide the state legislature and citizens with information about the schools; provide technical assistance to the schools; collect data about the schools; and disburse state funds for the operation of local school districts. (Webb, et al, p. 439)

The local governments focus primarily on school operations. Specifically, local school districts are responsible for the following: (a) adopting policies and regulations for the operation of schools; (b) linking the community patrons with the schools; (c) creating periodic reports on the schools' progress; (d) providing human and material resources needed to operate schools; (e) providing and maintaining facilities for instruction; and (f) supplying the required information regarding the schools for the state department of education and other agencies (Webb, et al., 2000). Local governments, within the context of state guidelines, also adopt a K-12 curriculum.

Historical Educational Policies Leading up to the No Child Left Behind Act

The Elementary and Secondary Education Act of 1965.

President Kennedy reviewed and developed several proposals that focused on giving every American an equal opportunity for a quality education. After President Kennedy's death, Congress utilized Kennedy's proposals to develop the Elementary and Secondary Education Act (ESEA) (Brown-Nagin, 2004). In 1965, President Lyndon B. Johnson called a war on poverty in education. He signed ESEA into law as a tool to counteract the negative effects on education in poverty-stricken neighborhoods. Brown-Nagin (2004) noted, "Johnson believed that equal access to education was vital to a

student's ability to lead a productive life" (¶ 1). The passing of ESEA resulted in federal support for K-12 students in poor schools and communities. The components of ESEA ensured equal educational opportunity for all students regardless of socioeconomic background. Wenning, Herdman, and Smith (2002) noted, "ESEA also promised to close the achievement gap between poor affluent students by providing additional resources for schools serving disadvantaged students" (p. 2).

The Title I Program, a major component of ESEA, provided additional educational resources for students who received free or reduced lunch (Yell & Drasgow, 2005). Specifically, Title I bestowed federal funding for resources to help under-privileged students improve their mathematics and reading achievement levels. Title I was the first major law to designate a significant amount of financial resources to education. Under Title I, the government dispersed approximately eleven billion dollars a year (ESEA, 1965).

As the years progressed, Congress reauthorized ESEA several times to include students who have physical, social, or emotional challenges. In 1968, the Federal Government amended ESEA to provide federal funding to assist bilingual students with learning English (Sloan, 2007). ESEA of 1969 mandated that researchers conduct new studies to develop educational provisions for the gifted and talented (Marland, 1971). The 1970 reauthorization of ESEA included resources for the handicapped and declared that schools must safe and drug free. Additionally, the Title II Eisenhower Professional Development program, a component of ESEA, provided resources for instructional training for math and science educators (Sloan, 2007). Congress also passed the 1975

Individuals with Disabilities Education Act (IDEA) furthering defining assistance for the disabled (Paige, 2000).

Despite the various amendments to ESEA, Americans believed the educational system still functioned below global standards. Secretary of Education Terrell Bell charged the U. S. Commission on Excellence in Education (1983) with measuring the progress towards providing quality education. Bell released a report titled, *A Nation At Risk: The Imperative For Educational Reform*, which served as the justification for linking federal funding to standardized test results. The report revealed that American students spent far less time studying, learning, and practicing academics than other nations abroad. Hence, the Commission made five major recommendations in the following areas: content, standards and expectations, time, teaching, leadership and fiscal support.

In 1994, the United States Department of Education released the report, *National Excellence: A Case for Developing America's Talent.* Director Ross and the Office of Educational Research and Improvement (1994) reported that, while educational practices improved for the gifted and talented, the gifted programs offered were limited in substance and scope. The Office of Educational Research and Improvement noted that current studies revealed:

- Gifted and talented elementary school students mastered 35 to 50 percent of the academic curriculum prior to the school year.
- Although the regular classroom teachers were aware that gifted students should be challenged, few make any provisions for the gifted students.

- Most of the highest-achieving students in the nation included in *Who's Who Among American High School Students* reported that they studied less than an hour a day. This suggests they get top grades without having to work hard.
- A 1990 national survey on K-12 education uncovered that only .02% of educational dollars supported resources for talented students.

In summary, the gifted and talented students worked well below their capabilities, which leaves them unchallenged.

The No Child Left Behind Act.

In 2002, President Bush signed the No Child Left Behind Act of 2001 (NCLB), formerly known as the Elementary and Secondary Education Act (ESEA), into law. NCLB increased the scope of ESEA one-step further by requiring more accountability from the state and local levels. NCLB included a state accountability mandate to ensure that schools close the achievement gap between all students.

The primary purpose of NCLB, as with ESEA, is to close the achievement gap between all types of students, regardless of their ethnicity, disability, socioeconomic status, or primary language. This bill holds schools and teachers accountable for improving achievement for all students. NCLB consists of four components: (a) accountability for results; (b) unprecedented state and local flexibility with a reduction of red tape; (c) focus of resources on proven educational methods; (d) and expanded choices for parents (The White House, 2002).

NCLB includes as a goal that all students achieve a minimum proficiency level by the year 2014 (The White House, 2002). The State Department of Education, with the approval of the federal government, creates Annual Measurable Objectives (AMO) for

each content area that schools must achieve. For every public school, the AMO specifies the percentage of students' scores that must meet or exceed the standard for each content area indicated.

The first component of NCLB, accountability for results, held the state and local public schools accountable for closing the achievement gap between all students. Starting in 2005-2006, the Federal Government began requiring states to develop valid reliable assessments and performance standards in math, reading, language arts, and science. Congress mandated that schools assess students in grades K-8 annually in these subjects. Moreover, the Federal Government required states to assess students in grades 10-12 at least once. For 2007-2008 and every year after, Congress required states to administer a science test once at the elementary, middle, and high school levels (The White House, 2002). In this component, Congress held the schools, not the students, accountable for the students' progress (Hess & Petrilli, 2006). The government recognized the school for having met Adequate Yearly Progress (AYP), if the school met the AMOs in test participation, math, reading/language arts, and a second indicator (i.e. attendance). This law mandated that the AMOs would increase on a determined annual schedule until all students achieve a minimum level of mastery of the state standards.

Schools that fail to demonstrate the established percentage of students meeting or exceeding standards in math and reading/language arts did not make Adequate Yearly Progress (AYP). AYP, a cornerstone of NCLB, measures the trends of annual student achievement on statewide assessments. A school that does not achieve AYP, which means to fail one or more of 37 categories, receives a Needs Improvement status. A school with a Needs Improvement status must create and implement an improvement

plan, publish the school's test results in a school report card and provide supplemental educational services. Continued failure to make AYP could result in parental school choice, school restructuring, and faculty replacement (Weaver, 2007). A school not meeting the AMO for each content area could avoid these repercussions by using the following methods: safe harbor, confidence interval, multi-year averaging, or federal flexibility for schools and districts not making AYP based solely on special education group scores (Governor's Office of Student Achievement, 2006). A school can achieve safe harbor when it increases the percentage of students meeting or exceeding standard on the CRCT by at least 10% in a school year (Hess & Petrilli, 2006). Confidence interval is a statistical Z test that determines whether the percentage of students meeting or exceeding standard on the CRCT is significantly lower than the AMO for that content test (GaDOE, 2008b). Multi-year averaging removes test anomalies by averaging the current year passing percentage with the previous two years. Finally, beginning in 2006 if a school does not achieve AYP solely because of the tests results of the students with disabilities, the state will make a mathematical adjustment (a proxy percent) to the school's AMOs (Governor's Office of Student Achievement, 2006).

After five years of not making Adequate Yearly Progress (AYP), the state can restructure, take over or privatize, or reconstitute the school. Additionally, any school not making AYP for more than two years consecutively must publish a school improvement plan with corrective actions, for the state, parents, and the general public (Hess & Petrilli, 2006). The plan must include action steps for each subgroup of students that did not meet standards according to the state curriculum.

The second component of NCLB, unprecedented state and local flexibility and

reduced red tape, gives financial assistance to the schools towards the implementation of NCLB. Unlike in ESEA, states have more flexibility in how they distribute the federal educational funding. Congress realizes that state departments of education and local schools know what is required to improve their individual schools (Yell & Drasgow, 2005). Furthermore, schools and other organizations tend to operate and produce more efficiently when they have some autonomy to make decisions. The State and Local Flexibility Demonstration Project, created by the government, assists state and local school districts in developing performance agreements to waive funding restrictions under previous federal title programs. Moreover, the federal government designates up to 50 percent of the federal non-Title I monies for local schools to apply locally and transfer to areas that would have the greatest positive impact on achievement levels of struggling students (The White House, 2002). Those funds also help areas that include programs supporting disadvantaged students. No longer are the schools restricted to allocating funds to assist a specific subgroup; federal assistance can now be applied to programs that help struggling students school wide (Hess & Petrilli, 2006).

Under the second component of NCLB, the government promises that it would also increase school districts' funding for teacher salaries, hiring, and training. Congress realizes that teachers must be properly trained to utilize the scientifically based educational methods. Hess and Petrilli (2006) noted that, like many American businesses, teachers need monetary incentives for outstanding performance that result in an increase in student achievement. Under the auspices of NCLB, funds can be used for pay-for-performance programs and the development of instruments to measure teacher performance as it relates to student achievement.

The third component of NCLB focused on funding resources and instruction that utilize scientifically based educational methods (The White House, 2002). Yell and Drasgow (2006) defined scientific research as a process that

> (a) uses systematic, empirical methods that draw on observation or experiment, (b) involves rigorous data analyses that are adequate to state hypotheses and justify the conclusions, (c) relies on measurement or observational methods that provide valid data evaluators and observers across multiple measures and observations, and (d) has been accepted by a peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective, and scientific review. (p. 16)

The government utilized the scientific research process to approve and deem various educational methods as "scientifically-based." To handle this massive process, Congress redirected the focus of the Office of Education Research and Improvement and renamed it The Institute for Educational Sciences. Created in 2002, this institute studied specific educational methods to determine if they would help improve student achievement. The government helped fund any educational methods approved by the institute. However, local schools still had the flexibility to select the scientifically based practices that best fit the needs of their individual schools (Kimmelman, 2006).

In the fourth component, parental choice, Congress pledges to ease overcrowding and racial tension while increasing specialized education (Sunderman & Kim, 2005). The parental choice component offers increased options for students scoring below the minimum proficiency level on state standards. When schools lack progress in performance in the same content area for two or more years, parents could transfer their

students to a better performing public or charter school in the district (The White House, 2002). Other rationales for parental choice include creating competition between the schools to increase achievement as well as returning the parents' authority to manage their students' education (Hess & Finn, 2004).

Because of the fourth component, struggling students in schools that do not meet Adequately Yearly Progress (AYP) for three or more consecutive years could use Title I monies for supplemental educational services. These services include tutoring, after school services, and summer school programs at any faith- or community-based organizations. Moreover, failing schools could face a change in management, replacement of administrative and teaching faculty, and the restructuring of the school (Hess & Petrilli, 2006; Yell & Drasgow, 2005).

The parental choice option is one of the less implemented components of NCLB. Many parents do not exercise their options to enroll their students in other designated choice schools (Sunderman &Kim, 2005). School districts, like the Target School District, have designated choice schools that have not met AYP. Hence, the new schools of choice may perform no better than the previous failing schools. Many of the designated school choices did not have space for additional students (Borkowski & Sneed, 2006). Additionally, school districts do not provide transportation to the school of choice, which is usually not in close proximity to the students' homes (Hess & Finn, 2004). The lack of transportation makes it difficult for parents, who struggle financially, to send their students to a school of choice.

Georgia's Implementation of the No Child Left Behind Act.

The No Child Left Behind Act of 2001 (NCLB) required all states, school districts, and individual schools to significantly raise the achievement expectations for all students, regardless of ethnicity or race, socioeconomic status, limited English proficiency, or disabilities (Georgia Department of Education, 2008a). The Federal Government mandated all states to develop state academic standards and testing systems that followed federal guidelines. On June 7, 2004, the United States Department of Education approved Georgia's final revision of its state accountability plan (GaDOE).

The first major change in Georgia's plan included updating and streamlining its current Quality Core Curriculum (QCC) to the new curriculum, named Georgia Performance Standards (GPS). In 2002, Phi Delta Kappa conducted an audit of the QCC. They concluded that the Georgia curriculum does not meet national standards, lack depth, and was impossible to complete in twelve years of education (GaDOE, 2008b). Phi Delta Kappa went on to state,

> It would take twenty-three years—not twelve—to cover the topics included at anywhere near the level of depth necessary for real learning to take place. Shallow standards forced our teachers to guess what they should teach and hope that what they were teaching is what would be tested. Inevitably, teachers used the curriculum not as a guide for quality instruction, but as a reference to mention in lesson plans and then place back on the shelf. (GaDOE, 2008b, p. 1)

Using national standards from high-achieving states and countries, teacher teams, state and national experts, and consultants developed the Georgia Performance Standards (GPS). The GPS provided clear mastery expectations for the students, as well as best

practices for teachers (GaDOE, 2008b). GaDOE stated that the GPS consisted of more in-depth content standards. Moreover,

> The GPS expands upon it by providing three additional items: suggested tasks, sample student work, and teacher commentary on that work. Performance standards provide clear expectations for assessment, instruction, and student work. They define the level of work that demonstrates achievement of the standards, enabling a teacher to know "how good is good enough." The performance standards isolate and identify the skills needed to use the knowledge and skills to problem-solve reason, communicate, and make connections with other information. Performance standards also tell the teacher how to assess the extent to which the student knows the material or can manipulate and apply the information. (GaDOE, 2008b, p. 2)

The GaDOE also realigned the QCC-based CRCT to the GPS. The teacher training for the GPS was completed using a two-year cycle (see Appendix A): the first year was training and the second year was instructional implementation (GaDOE, 2008b). The training also followed a train-the-trainer model for redelivery.

The elementary and middle schools (specifically grades one to eight) utilized the CRCT as a measurement for AYP. To assess students' mastery of the GPS, high schools (specifically for the eleventh grade) utilized the Enhanced Georgia High School Graduation Test (EGHSGT). The achievements of students who are severely cognitive-impaired are assessed by an individualized Georgia Alternate Assessment (GAA). The GaDOE set increasing Annual Measurable Objectives (AMO) for each year, to ensure that all subgroups would achieve proficiency on CRCT, EGHSGT, and GAA in math and

reading by 2014. For diagnostic purposes, Georgia required that high schools use End of Course Tests (EOCT) for selected courses leading up to the EGHSGT (U. S. Department of Education: Office of Elementary and Secondary Education, 2008). Moreover, the State of Georgia required that all teachers were *highly qualified,* meaning that all teachers are certified in their specific teaching area (U.S. Department of Education: Office of Elementary and Secondary Education, 2008).

In setting the requirements needed for schools to meet Adequate Yearly Progress (AYP), Georgia developed three criteria. First, GaDOE must establish the Annual Measurable Objectives (AMO) for all state public schools. All public schools must meet the AMO for all subgroups of students on the CRCT in mathematics and reading/English language arts (GaDOE, 2008c). Subgroups consist of groups with a minimum size of 40 or 10% of the students enrolled in the AYP grades (with a cap of 75 students), whichever is greater. Secondly, at least 95% of each subgroup must take the CRCT in mathematics and reading/English language arts. Finally, each school district must select a second indicator or standard in which each school must meet or show growth. The options for second indicators include attendance, middle grades writing assessment, science CRCT, social CRCT, percent exceeding reading CRCT standards, percent exceeding English/language arts CRCT standards, percent exceeding mathematics CRCT standards, percent exceeding science CRCT standards, or the percent exceeding social studies CRCT standards. Additionally, GaDOE incorporates other avenues for schools to make AYP. They include: (a) direct comparison of students' performance on the CRCT to AMO, (b) confidence interval, (c) multi-year averaging, (d) safe harbor, and (e) federal

flexibility adjustment for schools not making AYP solely because of students with disabilities.

In the accountability workbook, the GaDOE promises to return the scores for the CRCT, EGHSGT, and the GAA in a timely manner. This would enable parents to make informed decisions about school choice and supplemental services. Moreover, the schools have time to develop a plan for implementing public school choice, the school improvement plan, and supplemental or instructional extension services. When a school does not meet AYP for the first year, they should consider a school improvement plan. When a school does not meet AYP in the same area for a second year, the GaDOE deems the school as a *Needs Improvement* School. With each year of not making AYP, the school then receives consequences on an escalating scale. The consequences include offering school choice, providing supplemental services or instruction extension, developing a school improvement plan, creating a corrective action plan, or implementing restructuring plan (GaDOE, 2008a). A school can only move out of Needs Improvement status by making AYP for two consecutive years.

Prior to NCLB, the GaDOE and the Governor's Office of Student Achievement (GOSA) produced an annual State Report Card that reveals student achievement information from every public school, school district, and the State; this data was disaggregated by subgroups. The State updated the report card to include information on the CRCT, EGHSGT, and GAA results, as well as the participation rates and the second indicator information. The report also included information on teachers' certification qualifications.

The Effects of the No Child Left Behind Act on Instruction for the Gifted.

The government promised the No Child Left Behind Act (NCLB) would help improve education for all students. However, after its implementation, several unintended implications resulted. Gallagher (2004), referring to gifted educators, stated:

> Those who attempt to improve education through policy changes whether through legislation, court decisions, or administrative rule making must bear the burden of the unintended consequences that follow such policy initiatives. In the case of the NCLB act, the unintended consequences are impressive. (p. 2)

The accountability component of NCLB has unintentionally altered educational philosophies and best practices (Neill, 2003). Goodkin (2005) added, "NCLB sacrifices the education of the gifted student" (p. A25).

The National Research Center on the Gifted and Talented at the University of Virginia conducted a two-year study on the effects of educational initiatives for gifted students (Moon, 2006). The center concluded that teachers' instructional practices primarily focused on covering test related concepts from the basic curriculum (Moon). When teaching the content, teachers utilized many traditional and test preparation skill approaches. The study also revealed that one month prior to testing, teachers focused heavily on review worksheet activities and test taking techniques (Moon). In essence, creative and challenging activities in the classrooms were lacking.

Scot, Callahan, and Urquhart (2009) conducted a study to determine the influence of the NCLB accountability component on a professional development program for gifted teachers. The professional development program, named Project LOGgED ON, was designed to instruct gifted teachers on best practices that challenge gifted students.

Participating teachers completed surveys that questioned the program's effectiveness and their ability to implement the instructional strategies learned. The study revealed eight resulting effects of implementing a program that enhance the learning process for gifted students while under the NCLB accountability mandate.

Scot et al. (2009) found that gifted teachers, because of NCLB, were required to conform to the school's curriculum standards and timelines. Given the state curriculum standards, schools mandated that teachers use the school district's curriculum pacing guides. However, using the mandated guides instead of the new instructional strategies gave the teachers a feeling of disempowerment. The teachers felt they could not use their creativity or their newly learned best practices for fear of repercussions. Educators felt that their expertise or professional advancement was undervalued. Moreover, they believed that gifted students were not developing to their fullest potential. Scot et al. concluded,

> The demands on school administrators to improve test scores result in policies that seem to overshadow the improvement of services to the gifted via a professional development program. In their quest for improving the percentage of passing student test scores, leaders at the school district and school-building level use coercive tactics that are counterproductive to the daily practices of teaching gifted students and result in professional development in gifted education becoming a Utopian dream rather than an applied reality. (2009, p. 50)

Due to the NCLB policy of high-stakes testing, the instructional emphasis is strictly on test preparation. As a result, a narrowing or a reduction of the curricular content occurs (Gentry, 2006). In order to increase test preparation time, schools reduce

or eliminate a variety of exploratory connection classes (Amrein & Berliner, 2002; Kohn, 2000; Popham, 2001). However, the number of remedial mathematics, reading, and test-taking skills classes offered continue to increase. Unfortunately, the instructional practice of cognitive learning theory and higher order thinking decreases (Wenglinsky, 2005).

The Impact of No Child Left Behind on the Gifted

The primary focus of the No Child Left Behind Act (NCLB) promises to increase all students' level of academic achievement to a basic proficiency level. This focus does pertain to gifted students that quickly master the basic curriculum. Several researchers conclude from their studies that NCLB's accountability mandate has resulted in teachers focusing on test-taking strategies, narrowing the curriculum, and teaching to the middle third of the students (Amrein & Berliner, 2002; Hamilton, Stecher, Marsh, McCombs, Robyn, Russell, Naftel, & Barney, 2007; Matthews, 2006). Due to the pressure of NCLB, educators are convinced that drilling students and teaching test strategies have a greater affect on standardized test scores. They forgo utilizing instructional strategies like teaching problem-solving strategies and administering performance-based assessments that tend to benefit everyone (Kohn, 2000).

By definition, most gifted students learn at a faster pace than regular students do. Additionally, most gifted are already proficient in the basic curricula on their grade level (Mendoza, 2006). Colangelo, Assouline, and Gross (2004) note that gifted students' academic progress is determined by the rate of their class's progress, resulting in a glass ceiling for gifted students. The national educational agenda and the No Child Left Behind legislation essentially ignore the gifted and talented student population. Without the

modification of instruction for students who are well above basic proficiency, gifted students sit unchallenged in the classroom.

Many researchers reported, since the implementation of NCLB, gifted students have been left behind and ignored (Meier, Kohn, Darling-Hammond, Sizer, & Wood, 2004; Neal & Schanzenbach, 2007). Robinson (2008) concluded that over an eight-year period gifted students improved their performance levels in mathematics and reading by a range of 14% to 20%, but experienced a decrease in writing scores. Robinson also administered an online survey, which revealed that the services of gifted students did not change over time. Despite the results, the online survey results stated that gifted students were not receiving services that would truly enhance the knowledge level at an advanced level.

Neal and Schanzenbach (2007), from the University of Chicago, conducted a study on the influences that the NCLB testing accountability mandate had on the achievement levels of Chicago Public Schools' fifth and sixth grade students. After studying a three-year period of standardized test scores, they discovered that the average students experienced slight gains in test scores. The low and high achieving students showed no conclusive gains or losses in their scores. Neal and Schanzenbach (2007) revealed in their study of Chicago public schools students that the top 10% of the students realized a lower percent gain than those of average students or no academic gain at all. They observed that because of NCLB, schools might find it most advantageous to cap the services for gifted students. Neal and Schanzenbach concluded that administrator and county personnel pressured teachers to concentrate on the low achieving students, forcing teachers to ignore the needs of gifted students. Teachers simply had little or no

incentive to accelerate or challenge gifted students. Colangelo et al. (2004) stated, “When we say no to acceleration, we are quietly and ironically with good intentions, lowering our national standards from excellence to baseline competence“(p. 23).

Academically, gifted students are not making academic gains equivalent to the low to average students (Golden, 2003). This can be attributed to teachers who are only teaching basic skills or standards-based concepts. Gifted students become restless and unmotivated, resulting in an increase in distracting behavior. When teachers do not attend to gifted students’ needs, the students begin to display inattentive and distractive behaviors (Golden). Patrick, Gentry, and Owen (2006), stated that when gifted students are prepared in an unchallenging manner, they might underachieve. Additionally, unchallenged gifted students might also lose their zest for outside activities, as well as their initiative to discover and construct knowledge (Golden).

Without rigor, gifted students become bored, lose their passion for learning, and get frustrated (Stephens & Riggsbee, 2007). Gifted students want to be engaged in constructing their own knowledge. Because they possess a high intellect, they experience a struggle different in nature from regular students (de Vise, 2007). Treta and Exter (2005) state that unengaged gifted students may begin to criticize their teachers, believing that the teachers are not academically astute. Moon (2006) states, “Gifted learners experience a lack of academic challenge and consequently suffer unintended psychological effects” (p. 3).

The passing of NCLB resulted in increased funding to assist schools with low performing students, which resulted in a reduction in funding for gifted programs across the country. The government earmarked less than one percent of federal educational

monies for talented and gifted programs (Stephens & Riggsbee, 2007). State governments have eliminated gifted program funds to strengthen other programs that help academically deficient students. Specifically, only 11 of the 29 states that mandate gifted identification programs received funds. Fourteen states spent less than $500,000 per year, and eight states expended no dollars (Stephens & Riggsbee). Illinois discontinued its $19 million state-funded gifted program (Golden, 2003). In addition, California decreased their gifted program budget by $10 million (Golden). In Connecticut, the number of gifted programs declined by 22% (Golden). Rhode Island cut their most promising elementary and middle school programs. These cut backs not only affected the gifted program but also decreased the probability of identifying underrepresented minority and low socioeconomics students. This devastating elimination of funds may result in an America full of mediocre citizens. The abandonment of the gifted programs may negatively affect gifted students with a low socioeconomic status, who simply do not have the money to attend a private school with gifted programs or enroll in online or on-campus enrichment college courses.

Tested Strategies to Accommodate the Gifted

Although NCLB does not specifically cater to gifted students' needs, educators and counselors must train specifically on how to facilitate a positive learning experience for the gifted. Sternberg (1986) proclaims

> We must give intellectually gifted and talented youngsters the chance to feel they are making progress in their learning; all kinds of problems begin to occur when they must sit year after year repeating what they have previously mastered. (p. 386)

One strategy to accommodate gifted students entails hiring educators who are knowledgeable about the academic, affective, and emotional needs of gifted students. The gifted require educators, who can build trusting relationships, yet possess the pedagogical knowledge to challenge them (Postma, 2007). According to Dr. John Feldhusen (1997), creator of the Purdue Creative Thinking Program, the best educators for gifted students are gifted people who have similar affective needs as their gifted students. Feldhusen explains that educators who teach gifted students should possess most of the following qualities: confident and mature, non-judgmental, facilitates learning, adaptable to various points of view, organized but flexible, innovative, responsible to individual students, ability to teach for self-assessment, continued appetite for learning, skilled at counseling, facilitate independent research, and adept at teaching higher order thinking skills.

To serve gifted students effectively, researchers agreed that educators must continue to evaluate alternative educational options for gifted students. Although the U.S. Department of Education (1993) decreased funding for the gifted, the department still agrees that advanced programs are needed for gifted students. To promote the advancement and proliferation of the individual gifted student, Postma (2007) suggested that educators create individual education plans for gifted students. Colangelo, Assouline, and Gross (2004) recommended that schools allow options such as early entrance, subject-based acceleration, grade skipping, curriculum compacting, mentoring, dual enrollment, and advanced placement courses. Installing virtual schools hailed as a viable option that provides gifted students with a rigorous curriculum yet required no additional gifted certified teachers (Treta, & Exter, 2005).

Parents and counselors should encourage gifted students to participate in

extracurricular activities, college co-curricular weekend camps, or mentorships (Moon, 2006). Extra-curricular or off-campus activities could also afford gifted students the opportunity to engage in challenging educational activities. Gifted students may also enroll in summer enrichment courses and interest-related after-school clubs (Gentry, 2006; Moon, 2006).

Biblical Integration

Educators must remember that they are to serve all students academically, keeping their affective needs in mind. Titus 2:7-8 states,

> [7]in everything set them an example by doing what is good. In your teaching, show integrity, seriousness, [8]and soundness of speech that cannot be condemned, so that those who oppose you may be ashamed because they have nothing bad to say about us. (New International Version)

Educators should demonstrate integrity by extrapolating beyond the narrow standards required by NCLB, challenging every student. Colossians 3:23 (King James Version) states, “And whatsoever ye do, do it heartily, as to the Lord, and not unto men.”

Educators must seek input from gifted experts and their gifted students, to plan lessons that appropriately challenge gifted students. Proverbs 15:22 states, “Without counsel purposes are disappointed: but in the multitude of counselors they are established” (King James Version). Seeking input will help further define a more robust and rigor curriculum for the gifted.

While educators play a major role in a student's education, it is the parents’ responsibility to serve as an advocate for their student. Ever since the beginning of history, the home served as the primary location for educating students. Proverbs 1:8 and

6:20 state, “Listen, my son, to your father's instruction and do not forsake your mother's teaching” (New International Version). Thus, both parents must interject themselves and share the responsibility in this daunting task of educating students. It takes a community to develop well-rounded students.

Conclusion

Closing the achievement gap is the primary focus of the Federal government’s No Child Left Behind Act. While this purpose is quite significant, the interpretation of this act has resulted in schools promoting the academic growth of low to average students, which excludes the academic growth of gifted students. As a result, teachers are not assisting or encouraging the gifted to achieve beyond the basics. Educators across the nation desperately need to implement effective gifted programs. Gifted students have a right to learn at their academic levels. Legislators must amend the No Child Left Behind Act to include the gifted and talented students. Educators should have high expectations for gifted students that reach beyond the mastery of a basic curriculum. McCluskey and Coulson (2007) conclude that the NCLB is,

> ineffective in achieving its intended goals, has had negative unintended consequences, is incompatible with policies that do work, is at the mercy of a political process that can only worsen its prospects, and is based on premises that are fundamentally flawed. (p. 1)

The government must revise the accountability emphasis of NCLB to focus on the raising the proficiency levels of all students. Without amendments to the NCLB accountability component, the potential of gifted students to do great things will diminish. Furthermore, the implications of not meeting gifted students’ needs can be

detrimental to America's future inventions, research, political agendas, and creations (Davidson, Davidson, & Vanderkam, 2004). Besides, gifted students are our future researchers, engineers, and other scientific leaders (Goodkin, 2005). Goodkin (2005) stated, "NCLB may end up producing an entire generation of merely proficient mediocre students -- a generation that will end up working for the science leaders produced by other countries" (p. A45).

Regardless of any proposed amendments to NCLB, teachers and school systems must plan strategically to improve gifted education. They must first study the research to understand the characteristics of the gifted student (Postma, 2007). Teachers must then implement tested instructional strategies, recommended by Hollingworth (1926) and others, that help further develop the unique abilities and talents of the gifted. The United States must find a way to educate all students appropriately.

CHAPTER 3: RESEARCH PROCESS AND METHODOLOGY

This causal comparative study examined whether the implementation of NCLB influenced the performance levels of middle school students who are gifted relative to those of middle school students who are not gifted. The purpose of Chapter Three is to describe the methodology components that were utilized in this mixed method study. The chapter includes basic research design, preliminary procedures, site selection, participants, instrumentation, data collection procedures, data analysis, potential threats, and limitations.

Basic Research Design

This study incorporated a causal comparative research method. This study applied a causal comparative method which Gall, Gall, and Borg (2007) defined as a method used to,

> identify cause-and-effect relationships by forming groups of individuals in whom the independent variable is present or absent… and then determining whether the groups differ on the dependent variable. The critical feature of causal comparative research is that the independent variable is measured in the form of categories. (p. 306)

For this study, the independent variable was the implementation of NCLB, which constituted the instructional changes implemented after NCLB at Target Middle School. The instructional changes were implemented to satisfy the requirements of the NCLB accountability mandate of 2001. The changes were designed to support regular education

students. The researcher discussed Target Middle School's implementation of NCLB in more detail in the Instruments Used in Data Collection section of this chapter.

Using Target Middle School's test results from the CRCT in mathematics, reading, and language arts, the researcher investigated the cause-and-effect relationships of the implementation of NLCB (independent variable), as measured by the CRCT results (dependent variable). The researcher compared the statistical results from the performance levels of sixth and eighth grade gifted students to the sixth and eighth grade non-gifted students. The goal of this analysis was to examine the "consequences of differences on an independent variable" (Ary, Jacobs, Razavieh, & Sorenson 2008, p. 360). Utilizing the CRCT data from the 2001, 2002, 2008, and 2009, Microsoft Excel Software, Analyse-It Software, and the Dimension Research Statistical Calculator, the researcher performed the following statistical procedures: descriptive statistics, differences, percentages, Mann-Whitney U tests, and two independent sample z-tests.

Preliminary Procedures

Prior to the implementation of this study, the researcher completed a thorough review of literature detailing the characteristics of giftedness, history of gifted education, governmental laws pertaining to the gifted, components of NCLB, and previous study results on the impact of NCLB on students who are gifted. The researcher started the research process by seeking the approval to conduct this study from the Target School District, Internal Review Board Committee, and Liberty Dissertation Committee. The researcher received approval to utilize the 2001, 2002, 2008, and 2009 CRCT data from Target Middle School.

The CRCT results provided by the school district did not identify which sixth and eighth grade students were gifted. Thus, the school data specialist manually inserted a column to identify the gifted students in each CRCT test result file. The number 1 was entered into the column as an identifier to reveal which students were gifted. Prior to releasing the CRCT data files for the study, the data specialist deleted the columns with the student names and state identification numbers. This procedure was described in detail in the Data Collection Process and Methodology Section later in this chapter. Because the researcher used no personal identifiers, parental permission from the participants was not required.

Research Context

Target Middle School is located in a rural county in Northwest Georgia with a population of 104,547 and a median family income of $55,692 (U.S. Census Bureau, 2006). Seventy percent of the population graduated from high school; approximately 18% earned a college degree. The ethnic composition of the town consisted of the following: 78% white, 17% black, 4.5% Hispanic, and .5% others. With 2,259 employees last year, the school district of Target Middle School served as the largest employer in the county and had an annual $200 million impact on economic development.

Target Middle School, in rural Northwest Georgia, currently has an approximate enrollment of 770 students in grades six through eight. Over half of the students receive free or reduced fee lunches. Historically, the students attending the school are predominantly European-American (64.2%). African-American students have the second largest enrollment with 25.7%, followed by Latin-American (3.4%), multiracial (5.8%),

and Asian/Pacific Islander (.9%). The enrollment of gifted students make up 13% of the population, while 14% of the population participate in the special needs program.

During the 2006-2007 school year, Target Middle School met adequate yearly progress (AYP), satisfying the accountability mandate component of NCLB. For the school year 2007-2008, however, the school did not meet AYP in the area of special needs reading. Under NCLB, the State of Georgia kept Target Middle School on a Needs Improvement status for a second year. The Needs Improvement status required the school district to offer school choice and supplemental services for the students enrolled at Target Middle School. For the 2008-2009 school year Target Middle School made AYP, which held the school at a Needs Improvement status.

Participants

This study included CRCT results from approximately 1,978 sixth and eighth grade students, enrolled during the spring federal enrollment count, at Target Middle School in 2001, 2002, 2008, and 2009. Out of the 1,978 sixth and eighth grade students, 218 were gifted and 1,745 were non-gifted. Table 2 revealed further details regarding the demographics of the 2009 Target Middle School students who are gifted.

Table 2

Demographics of the Gifted Students in Target Middle School

Category	Percentage
Ethnicity	82.7% European-American, 12.2% African-American, 3% Multiracial, and 2% Asian American
Category	**Percentage**
Gender	51% females and 49% males
Grade	32% 6th grade students, 38% 7th grade students, 41% 8th grade students

The Target School District and Target Middle School describe a gifted student as a child

> who demonstrates a high degree of intellectual and/or creative abilities, exhibits an exceptionally high degree of motivation, and/or excels in specific academic fields, and who needs special instruction and/or special ancillary services to achieve at levels commensurate with his or her abilities. (Georgia Department of Education, n.d., p. 1)

Target Middle School (Target School District, 2008) identifies gifted students using the following procedures:

1. The student, teacher, parent, or counselors nominate by referring the student to the In-Review Team.
2. The In-Review Team, consisting of gifted education specialists, administrators, and/or teachers, review the student's academic grades,

standardized test scores, and the current teachers' written recommendation. The team then recommends or rejects the student's information.

3. After receiving parental permission, the gifted coordinator gathers and considers the student's data in the areas of creativity, motivation, achievement, and cognitive ability.
4. The gifted coordinator will determine eligibility using one of two options: 1) on nationally norm-referenced assessments and standards must be met in mental or cognitive abilities and achievement or 2) standards must be met in three of the four areas assessed (mental or cognitive abilities, achievement, creativity, and motivation). At least one of the criteria must be met by earning a qualifying score on a nationally norm-referenced test.
5. Once eligibility is determined, the parent and the gifted coordinator establish which services are appropriate for the student.

Target Middle School currently serves 98 students who are classified as gifted. While the percentages of gifted students in each grade level are very similar, the percentage of gifted students with different ethnicities varies. The European-American population dominated the Quest gifted program with 82.7% of the program's enrollment.

For the gifted students, Target Middle School provides the Quest program. The acronym Quest is an abbreviation for questioning, understanding, evaluating, solving, and thinking. The Quest program goals are to (a) identify gifted and talented students and (b) assist them in reaching their full potential. The Quest program in the elementary school offers pullout enrichment activities while the high school implements honors and advanced placement classes.

The Quest program at the middle school level offers two instructional service models: gifted advanced content and heterogeneous cluster grouping. The advanced content class consists of a gifted certified teacher, gifted students, and high-achieving students who scored at 90% or above in that content area of the CRCT exam. The maximum class size of an advanced content class is 21. The heterogeneous cluster group model, also known as the gifted cluster model, is a class composed of a gifted certified teacher, gifted students, regular education students, and preferably high achieving students. In this class, the teacher differentiates instruction to meet the needs of all learners. The maximum class size for the gifted cluster model is 28 and can have no more than seven gifted students enrolled.

During the pre-NCLB period, gifted students were solely enrolled in homogeneous gifted advanced content classes. Due to the implementation of NCLB in the post-NCLB period, gifted students were enrolled in both the homogeneous gifted advanced content and heterogeneous gifted cluster classes. Hence, the number of gifted students enrolled in homogenous advanced content classes decreased by 50% from the pre-NCLB to post-NCLB periods. To determine which gifted students are in the homogeneous gifted cluster classes and the gifted advanced content classes, the Quest coordinator ranks the gifted students by their previous CRCT scores. For each content class, the 21 top scoring gifted students are enrolled in the gifted advanced content class. The remaining students who are gifted in that content area are enrolled in heterogeneous gifted cluster class.

Target Middle School's Implementation of NCLB

Since the authorization of NCLB, Target Middle School implemented and changed various instructional strategies, practices, and curricula. In 2004, in compliance with the NCLB accountability mandate, Target Middle School began the phase-in schedule for a new streamlined academic curriculum, named the Georgia Performance Standards (GPS) (see Appendix A). Additionally, the school implemented a math and reading remediation course, as electives, for students who did not meet standard on the previous CRCT math and/or reading exam. The course focused on accelerating the GPS math and reading vocabulary as well as remediating previous math and reading concepts using individualized computer-based instruction. The school also offered the extended day program for remediation mathematics and reading. The program met three days a week for 90 minutes each day. In preparation for the CRCT, the program focused on grade level content remediation. Target also reduced the number of special education resource classes and replaced them with inclusion classes that have special needs and regular education students. Although all Target Middle School students received GPS-based instruction, only non-gifted students had the option to receive the aforementioned course offerings.

Finally, since NCLB focuses more on closing the achievement gap between all students, Target Middle School places heavy emphasis on remediation and teaching to GPS at the basic level of proficiency. Target implemented smaller class sizes in mathematics and reading for regular education students. In order to accomplish this goal without hiring new teachers, Target changed the instructional offerings for gifted students. Prior to NCLB, the school offered two gifted advanced content gifted classes

per grade level. In the advanced content class, instructional activities are facilitated on a more rigorous and in-depth level. The class structure allows gifted students to assist in creating their own knowledge. However, since the implementation of NCLB, the teachers spend more time on the basic level of the GPS. Instead of the regular class, size of 28, gifted advanced content classes for the gifted has a maximum class size of 21. The other gifted service model, heterogeneous gifted cluster grouping, could accommodate up to seven gifted students with up to 21 regular education students. Instead of using one gifted certified teacher to teach seven gifted students, the same teacher can serve both groups. This strategy creates additional space for up to 21 regular students who would have normally had to attend a maxed out regular education classes. Thus, the school can serve more regular education students using a cluster model. To have smaller class sizes for regular education, Target Middle School only offers one advanced content gifted class per grade level and up to two cluster classes per content area. Thus, since the pre-NCLB period, there is a 50% decrease in the number of gifted students being enrolled in homogenous gifted advanced content classes. The gifted students of the pre-NCLB period were enrolled in all gifted advanced content classes. As mentioned in Chapter Two, gifted students master concepts quickly.

The ideal cluster class is a mixed-ability group consisting of gifted students and high achieving students where the teacher differentiates or facilitates learning using multiple groups. Only one-fourth of the 28 students are gifted in a heterogeneous cluster class. The smaller classes are reserved for struggling math and reading students. A heterogeneous cluster class can have a mixture of high achievers, gifted students, average students, and low achieving students. Although possible, the teachers find facilitating

cooperative learning and differentiating instruction to accommodate all levels of students very difficult. Hence, the teacher teaches to meet the average students' need. Robinson (1990) concluded that cooperative learning in a mixed-ability group for regular instruction was not beneficial for gifted learners.

Instruments Used in Data Collection

Georgia Criterion-Referenced Competency Tests

The researcher analyzed results from the mathematics, reading, and language arts portions of the Georgia Criterion-Referenced Competency Tests (CRCT). The CRCT is the annual assessment the State Department of Georgia used to satisfy the assessment-mandated component of NCLB. The Georgia State Department of Education describes the CRCT as a series of tests,

> designed to measure how well students acquire the skills and knowledge described in the Georgia Performance Standards (GPS). The assessments yield information on academic achievement at the student, class, school, system, and state levels. This information is used to diagnose individual student strengths and weaknesses as related to the instruction of the GPS, and to gauge the quality of education throughout Georgia. (Georgia Department of Education, 2008, ¶1)

The CRCT tests are summative assessments written for students in grades one through eight. The CRCT question format is selected-response only. Each content area of the CRCT consists of two sections and requires 60 to 90 minutes of administration time.

The Georgia Department of Education and Riverside Publishing Company ensure the reliability and validity of the CRCT. According to Ary, Jacobs, Razavieh, & Sorenson (2008), validation is a "process of gathering evidence to support (or fail to support) a

particular interpretation of test scores" (p. 244). When considering the validity, one must be understand its three key elements. Once an instrument is verified as having a high degree of validity, it is only valid for that specific purpose. Second, validity is not an absolute; it is measured by degrees. Third, validity cannot be represented by a single statistic; it involves a multi-faceted process (GaDOE, 2008d). The scores from the CRCT, which are correlated to outcome criteria, infer performance on the criterion. The validity of the CRCT depends on how closely the instrument aligns with the QCC or GPS standards and the clarity of the score reports that inform the public about the students' performance (GaDOE, 2008d).

GaDOE implemented a process for test development and validation of the CRCT. GaDOE, state focus groups, local educators, and, state legislatures determined the purpose of the CRCT (GaDOE, 2008b). First, this group, which represents various areas of the state, selects the standards that will be assessed and the assessment method for those standards. Second, the content domain specifications were developed. The GaDOE then post the content domain specifications and the corresponding 'content weight' on the GaDOE website. The content weight chart shows the percentage of questions to be tested per domain on each content test. Third, the test questions were written for the CRCT by professional assessment specialists. A committee reviewed the test questions, which were then field-tested by a representative group of eager students under standard testing conditions. A second committee then review the students' responses. The responses were checked for potential biases. The questions were then accepted, rejected, or revised. Finally, the actual test was created, making certain to create several forms of the test with the questions having the same level of difficulty (GaDOE, 2008b).

After the first administration of the test, educators then decided the number of test questions that must be answered correctly to earn a Performance Level 2 (meets) or Performance Level 3 (exceeds). After the administration of the CRCT, the GaDOE produced and distributed the CRCT score reports, which are reported using scale scores and performance levels. For clarity, GaDOE created a CRCT score interpretation guide. The Testing Division of the Georgia Department of Education continues to meet on a quarterly basis with an independent panel of experts, named the Technical Formative Assessment 55 Advisory Committee (TAC) of Georgia. As part of the validation process, the TAC members who are experts in the field of educational measurement review all aspects of the test development and implementation process on a continual basis (GaDOE, 2008b).

Georgia's Annual Assessment (CRCT) must also have a high degree of reliability. The *Standards for Educational and Psychological Testing* (1999) defines reliability as,

> the degree to which test scores for a group of test takers are consistent over repeated applications of a measurement procedure and hence are inferred to be dependable, and repeatable for an individual test taker; the degree to which scores are free of errors of measurement for a given group. (p.180)

According to the GaDOE (2009), reliability is "the extent to which a test can be depended upon to provide consistent information. Reliability is usually reported as a correlation coefficient, with the closer the coefficient to +1.00, the higher the reliability" (p.10). GaDOE uses two indices to report the reliability of the CRCT: Cronbach's alpha reliability coefficient and the standard errors of measurement (SEM). GaDOE notes, "Cronbach's alpha measures the internal consistency over the responses to a set of items

measuring an underlying unidimensional trait" (2008d, p.4). The Cronbach's alpha typical ranges for the CRCT in reading, language arts, and mathematics tests ranges from 0.70 to 0.92, while the standard errors of measurement ranges between 9 and 12. For example, Figure 1 reveals the 2008 CRCT Cronbach's alpha and SEM indices (GADOE, 2008d).

Reliability Coefficients (Cronbach's Alpha) and the Raw Score SEM						
Grade	Reading		Language Arts		Mathematics	
	Alpha	SEM	Alpha	SEM	Alpha	SEM
6	0.88	2.54	0.9	2.82	0.91	3.35
7	0.87	2.6	0.88	2.74	0.92	3.21
8	0.87	2.5	0.89	2.72	0.91	3.22

Figure 1: Reliability Coefficients (Cronbach's Alpha) and the Raw Score SEM

The reliability Cronbach's alpha and SEM indicate that the CRCT yields consistent results and is justified in the generalizations of CRCT results (GaDOE, 2008d).

Since 2002, students in grades one through eight attending public schools in Georgia are required to take the CRCT annual assessments in mathematics, reading, and language arts. Students in grades three through eight must also take the science and social studies tests. In order to matriculate to the next grade level in Georgia, students in grades three, five, and eight must earn at least a Performance Level 2 (meet standard) on the CRCT in mathematics and reading. Students in these grades earning a Performance Level 1 (does not meet) on the math or reading test may choose to attend an optional summer school or receive remediation on the subjects in school. However, during the summer or after the remediation period, all students earning a Performance Level 1 on either the math or reading CRCT test must take a second version of the CRCT to be eligible for promotion to the next grade level (GaDOE, 2008c).

Because of NCLB, the GaDOE also uses the CRCT to gauge the quality of its educational systems throughout the state (Millicans, 2004). The CRCT mathematics, reading, and language arts tests serve as indicators to determine if a school is making adequate yearly progress (AYP) as required by the accountability mandate of NCLB. Along with the CRCT scores, the GaDOE uses the participation rate and a second indicator to determine AYP for each school. The GaDOE publishes the CRCT math scores along with the combined score for the CRCT reading and the language arts tests.

For 2001-2005, the GaDOE utilized the Quality Core Curriculum (QCC). From 2004-2009, the GaDOE phased in the new streamlined, in-depth curriculum named the Georgia Performance Standards (GPS) (GaDOE, 2008b). Therefore, the CRCT tests administered from 2006-2009 were either QCC-based or GPS-based (refer to Appendix A for the GPS phase-in schedule).

The CRCT score report lists the number of correct responses (raw score) and the total questions given on each content area test for each student. The Riverside Publishing Company uses a mathematical formula to convert the number of correct responses to a scale score. The scale score (SS) is displayed as a three-digit number. The CRCT evaluators then convert and list the scale scores and the corresponding performance levels: Performance Level 1(does not meet standard), Performance Level 2(meets standard), or Performance Level 3(exceeds standard). Table 3 provides details on the scale score ranges and corresponding performance levels for both the QCC and GPS versions of the CRCT. Notice in Table 3 that for each performance level the QCC and GPS scale score ranges differ by 500 points.

Table 3

CRCT Scale Scores Ranges and Performance Levels

Performance	QCC Scale Score (SS)	GPS Scale Score (SS)
Level 1 (Does not meet)	$150 \leq SS \leq 299$	$650 \leq SS \leq 799$
Level 2 (Meets)	$300 \leq SS \leq 349$	$800 \leq SS \leq 849$
Level 3 (Exceeds)	$350 \leq SS \leq 450$	$850 \leq SS \leq 950$

The Riverside Publishing Company designed each series of CRCT tests, QCC-based and GPS-based, to test the students' mastery of the curriculum taught at that time. The researcher must note that this study did not directly compare the improvement of the scale scores from the CRCT results during the pre-NCLB and the post-NCLB periods, as this would yield an invalid comparison. Instead, the researcher analyzed the students' mastery of the curriculum taught during each period to determine if more students of the pre-NCLB era mastered that specific curriculum than the students of the post-NCLB era mastered their NCLB-driven curriculum.

Because of the accountability mandate of NCLB, the United States Department of Education required Georgia to equate the QCC-based CRCT scores to the GPS-based CRCT scores to preserve the quality of computing adequate yearly progress (AYP) information over the years, (Governor's Office of Student Achievement, 2006). This reasoning served as the purpose of Georgia's 2005 Equipercentile Amendment. The amendment provided continuity between both versions of CRCT tests. GaDOE was required to develop a method to gauge a group of students' progress as the schools transition from the QCC-based curriculum to the GPS-based curriculum. In situations where two tests measure the mastery of two similar curricula, equipercentile equating

offered a viable alternative that enables a way to monitor progress. Dr. Davis (GaDOE, 2009) stated,

> The equipercentile method of equating the QCC versions of CRCT/GHSGT to GPS versions was specifically designed to preserve Georgia's AYP plan intact. In the planning stages of the GPS transition plan, testing had to devise a practical plan to retain the AYP components… It was decided to establish a statistical correspondence between the QCC based tests and those based on the GPS. (p. 1)

Equipercentile equating, also known as horizontal equating, is the statistical process that the GaDOE uses to compare QCC and GPS-based CRCT data. Without this method, GaDOE would not be able to use QCC-based assessment data to perform calculations for multi-year averaging, safe harbor, and selected second indicators for AYP (Governor's Office of Student Achievement, 2006). Safe harbor, for example, is the process of measuring if a student subgroup decreases the percentage of students not meeting standard (Performance Level 1) by 10% from the previous year. It is important to note that the equipercentile equating method is used by GaDOE as a method to 1) equate the assessment data of the two CRCT tests and 2) determine the achievement progress of a subgroup of students over time.

This study utilized the equipercentile method in the same manner as the GaDOE. While the study does not compare the scale scores, it does measure the achievement progress of two subgroups of students. GaDOE found this to be a viable method to assess the achievement progress of a group of students over time, making the equipercentile method viable for this study.

Using equipercentile equating, the data is equated by simply matching the percentiles associated with the cutscores for Meets (Performance Level 2) and Exceeds (Performance Level 3) on the GPS-based test with the score at the same or closest percentile on the QCC based test. Because of this method, the performance levels data can be used for analyzing students' progress. The Data Analysis section of this chapter contains further details regarding the calculations of equipercentile equating method.

This study included Target Middle School's test data from the 2001 and 2002 (pre-NCLB) QCC-based CRCT scores in mathematics, reading, and language arts from the sixth and eighth grade students. Additionally, the researcher analyzed the 2008 and 2009 (post-NCLB) GPS-based CRCT scores in mathematics, reading, and language arts from the sixth and eighth grade students. Georgia did not administer the CRCT to seventh grade students until 2002. Thus, the study did not include any CRCT results from seventh grade students. Moreover, each period (pre-NCLB and post-NCLB) included two years of CRCT scores to allow for any anomalies in testing and student abilities.

Data Collection Process and Methodology

The data collection process began in the March of 2009 and ended in May of 2009. The Target School District created two writable CD-ROMS for the 2008 and 2009 CRCT results data from Target Middle School. Because GaDOE did not begin uploading CRCT results until 2004, no CD-ROMS existed for 2001 and 2002. Hence, the school district data specialist had to query and extract the 2001 and 2002 CRCT results data from the Target School District's computer database software, named Testrax. The data was imported into two Excel spreadsheets and saved onto a writable CD-ROM.

Target Middle School did not identify which students are gifted on the CRCT

answer sheets. Hence, the data specialist opened each spreadsheet and inserted a column to identify the gifted students. The researcher used the AS/400 and Infinite Campus student information systems to create the lists of gifted students' names. The lists were imported into a Microsoft Excel spreadsheet and emailed the file to the data specialist. Using the 2001, 2002, 2008, and 2009 lists of gifted students' names, the specialist entered the number one as an identifier in the gifted column. Prior to releasing the CRCT data files for the study, the data specialist deleted the columns with the student names and information, saving the workbooks onto a new writable CD-ROM.

Next, the researcher extracted and separated the data into two Excel Workbooks, one for the pre-NCLB data (2001 and 2002) and the other for the post-NCLB (2008 and 2009) data. The researcher sorted the rows of data on each workbook spreadsheet by the grade column. The researcher deleted all extraneous test information in the new workbooks, leaving each student's grade level, test year, student type (gifted or non-gifted), scale score, number of correct questions, total number of test questions, and performance level for each CRCT in mathematics, reading, and language arts. The data were re-organized, adding two spreadsheets so that the data was organized by time period and grade level. The researcher then created separate spreadsheets in each workbook for the CRCT data so that each spreadsheet consisted of test data from each grade level, time-period, student type, and content area. This process yielded 12 spreadsheets per workbook in Excel.

Data Analysis

The two versions of tests use different point systems for the scale scores. The GaDOE and the Riverside Publishing Company equate the scale score systems of the two

tests to the same type of GPS-based performance level system (Millicans, 2004). On the QCC-based CRCT tests, students earning 350 or more points earn a Performance Level 3. Performance Level 3 represents the score of a student who exceeded standard or has an advanced mastery of the standards. To earn a Performance Level 3 (ADV) on the GPS-based CRCT, a student must score at least 850 points. Performance Level 2 (PRO) represents the score of a student whose performance met standard or is proficient in the standards, scoring between 301 and 349 (QCC) or between 801 and 849 (GPS). Performance Level 1 (DNM) represents the score of a student whose performance did not meet standard, earning a score less than 300 (QCC) or 800 (GPS).

In order to analyze the performance levels, the researcher used the equipercentile equating method to equate the QCC-based scales scores to the corresponding GPS-based performance levels. Kolen and Brennan (1995) stated,

> Equipercentile equating is frequently used when there are differences in difficulty between different tests. For example, one test may be more difficult than another at the high and low scores, but less difficult in the middle. The equating function is an equipercentile equating function if the distribution of scores on [test A] converted to the [test B] scale is equal to the distribution of scores on [test B] in the population. The equipercentile equating function is developed by identifying scores on [test A] that have the same percentile ranks as scores on [test B]. (p. 35)

Thus, the equipercentile equating method served as a viable approach for analyzing performance levels on different tests. Also known as horizontal equating, the equipercentile equating method is known as “the most widely used and seemed to be the most robust method under a variety of conditions” (Reynolds & Fletcher- Janzen, 2007,

p. 1990) (Refer to Appendix B for the QCC scale score to GPS equated performance levels from GaDOE).

The equipercentile equating method utilized by the GaDOE included the following procedures:

1. Produced a Cumulative Frequency Distribution (CFD) using [the GPS based CRCT scale scores from all Georgia test participants for grades six and eight for each content area and transition year].
    a. Identified the percentage of students less than or equal to a score of 800, rounding to the nearest whole number.
    b. Identified the percentage of students less than or equal to a score of 850, rounding to the nearest whole number.
2. Produced a CFD using the QCC-based CRCT scale scores from grades six and eight for each content area and transition year.
    a. Identified the scale score that is closest to the percentile identified in 1a.
    b. Identified the scale score that is closest to the percentile identified in 1b.

3. The scale scores identified in 2a and 2b were considered the QCC scores that were equivalent to the GPS scores of 800 and 850, respectively (Governor's Office of Student Achievement, 2006).

Once the researcher equated the data, the QCC-based data were assigned the equated GPS-based performance levels using Appendix B.

The CRCT performance level data were ordinal in nature. The analysis was

descriptive in nature, which included data disaggregation, averages, differences, equipercentile equating, and percentages. Specifically, the CRCT results data of Target Middle School were analyzed using Microsoft Excel, Analyze-it, and the Dimension Research Statistical Calculator computer programs. The study included 2001, 2002, 2008, and 2009 CRCT results in reading, language arts, and mathematics. The pre-NCLB data from years 2001 and 2002 were QCC-based, while the post-NCLB data from 2008 and 2009 were GPS-based. Because the pre-NCLB and post-NCLB data were based on different curricula, the QCC-based data had to be equated to the GPS-based data. To equate the QCC-based scores, the researcher sorted the scale scores from smallest to largest. Figure 2, which is a condensed form of Appendix B, provides the QCC-based scale scores for the sixth and eighth grade CRCT that equated to the GPS scale scores.

	QCC Equivalent to GPS Score of 800		QCC Equivalent to GPS Score of 850	
Content	6th Grade	8th Grade	6th Grade	8th Grade
Reading	296	285	384	409
Math	314	317	371	359
Language Arts	288	294	361	350

Figure 2. QCC Equivalent to GPS Scores

Using the GaDOE equipercentile equating chart in Figure 2, the researcher equated the QCC-based CRCT scale scores to the corresponding GPS-based CRCT performance levels. For example, the QCC-based CRCT scale score in sixth-grade reading of 296 would equate to a GPS-based scale score of 800, which is equivalent to a Performance

Level 2. After the data was equated, only performance levels were used for the remainder of the study.

The spreadsheets were separated by student type (gifted and non-gifted), which yielded an additional six spreadsheets in each grade level workbook. The researcher computed the percentage of students scoring at each performance level by grade level, student type, time-period, and content area.

Two research questions pertained to the CRCT performance levels of the sixth and eighth grade students enrolled in Target Middle School. They are the following:

1. Between the pre-NCLB and post-NCLB periods, what is the percentage of improvement in the performance levels of gifted students, as measured by the Georgia CRCT in reading, language arts, and math?

2. Between the pre-NCLB and post-NCLB periods, what is the percentage of improvement in the performance levels of non-gifted students, as measured by the Georgia CRCT in reading, language arts, and math?

To answer these questions, the researcher used Excel to calculate the percentages of gifted and non-gifted students who performed at each performance level on the CRCT by content area, time-period, and grade level. Next, the researcher computed the differences between the percentage of each performance level earned by the gifted and non-gifted students from the pre-NCLB to post-NCLB periods by each grade level and content area. The percents of improvement by grade level and content area were calculated by summing the absolute value of the decrease in the percent of students earning a Performance Level 1 (did not meet) and the increase in the percent of students earning a Performance Level 3(exceed).

The third research question was the following:

3. Between the pre-NCLB and post-NCLB periods, what is the difference in the percentage of improvement in the performance levels of gifted students relative to those of non-gifted students, as measured by the Georgia CRCT in reading, language arts, and math?

To answer the third research question, the researcher compared and calculated the difference between the gifted students' percentages of improvement and the non-gifted students' percentages of improvement by content area and grade level.

The researcher utilized the Mann-Whitney U two-tailed tests and two-sample z-tests for independent samples to determine if the results were statistically significant. The Mann-Whitney U test is:

> a non-parametric test (distribution-free) used to compare two independent groups of sampled data. Unlike the parametric t-test, this non-parametric makes no assumptions about the distribution of the data (e.g., normality)… This, like many non-parametric tests, uses the ranks of the data rather than their raw values to calculate the statistic. (Mann-Whitney U test, n.d., ¶ 1)

The Mann-Whitney U two-tailed test investigated whether the unpaired independent samples came from identical populations. Since the sample size is greater than 25, the Mann-Whitney U test computed **ρ** (using the normal distribution approximation) which is utilized to compute a *z* statistic. As a result, the Mann-Whitney U test was performed to determine whether the performance of the gifted students and non-gifted students differ significantly (Field, 2005).

Because the sample sizes were large and the data were ordinal, the researcher

conducted the two-tailed version of the two-sample z-test instead of the *t* test. The z-test for two independent samples, a common statistical process, determined the level of significance when the average performance levels of two independent groups were compared. The *z* statistic was used to determine the probability level (ρ level) of rejecting the null hypothesis. The researcher used an alpha level of .05 for statistical significance on the two-tailed z-tests. Each z-test produced a *z* statistic. The probability of rejecting the null hypothesis (Type I error) was set at five percent, where α was .05. The two-tailed *z* test was selected to accommodate for a higher percent (difference) in improvement may occur in either direction. Thus, the z-test helped determined whether the difference between the percent improvement of the gifted students and the percent improvement of the non-gifted students was significant. The researcher analyzed the results from the Mann-Whitney U tests and two-sample z-tests to answer the following null hypotheses:

H_{01}*:* Between the pre-NCLB and post-NCLB periods, no percentage of improvement will exist in the performance levels of gifted students, as measured by the Georgia CRCT in mathematics, reading, and language arts.

H_{02}*:* Between the pre-NCLB and post-NCLB periods, no percentage of improvement will exist in the performance levels of non-gifted students, as measured by the Georgia CRCT in mathematics, reading, and language arts.

The third null hypothesis required a comparison of the percents of improvement (from the pre-NCLB to post-NCLB periods) by student type and content area. The third null hypothesis statement:

H_{03}*:* Between the pre-NCLB and post-NCLB periods, no difference will exist in the percentage of improvement in the performance levels of gifted students relative to

those of non-gifted students, as measured by the Georgia CRCT in mathematics, reading, and language arts.

This null hypothesis was tested using the z-test for two independent proportions. The z-test was defined as "a statistical test used to detect differences between two proportions (or means) or one proportion (mean) and a norm. If testing a proportion (mean) to a norm and the sample size is greater than 30, a *z*-test rather than a *t*-test should be performed" (Dimension Research Inc, 2005, ¶24). In order to test the null hypothesis, the z statistics were compared to the critical z value with a significance alpha level of .05. In determining whether Target Middle School's implementation of NCLB affected the performance of the gifted students, the researcher generalized and summarized the relationships between the performance levels and *z* scores of the gifted students' percent of improvement relative to those of the non-gifted students, as measured by the CRCT in mathematics, reading, and language arts.

Summary

This chapter has explained the statistical methods used to analyze the performance of gifted students before and after the implementation of NCLB as compare to non-gifted students. Included in this chapter were the potential treats and limitations of this study. The next chapter presents the results obtained from those methods.

CHAPTER FOUR: RESULTS

As stated in chapter one, the primary purpose of this causal comparative study was to determine the impact of the implementation of NCLB on the performance levels of gifted students relative to those of non-gifted students. The accountability component of NCLB focused on improving the performance levels of non-gifted students only. The instructional practices at Target Middle School were changed in order to improve the achievement of non-gifted students. Hence, to gage the impact of NCLB on gifted students, the researcher compared the percent improvement of performance levels of gifted students to those of non-gifted students. The study involved the Georgia Criterion-Referenced Competency Tests (CRCT) results of 1,978 sixth and eighth grade students from Target Middle School in a rural Northwest Georgia school district. The disaggregated data included 5,479 CRCT results in reading, language arts, and mathematics from the pre-NCLB (2001 and 2002) and post-NCLB (2008 and 2009) periods.

The results were reported according to the order of the research questions and null hypotheses. Each research question and corresponding null hypothesis involved analyzing results from each grade level, student type, and content area. The research questions were the following:

1. Between the pre-NCLB and post-NCLB periods, what is the percentage of improvement in the performance levels of gifted students, as measured by the Georgia CRCT in reading, language arts, and math?

2. Between the pre-NCLB and post-NCLB periods, what is the percentage of improvement in the performance levels of non-gifted students, as measured by the Georgia CRCT in reading, language arts, and math?
3. Between the pre-NCLB and post-NCLB periods, what is the difference in the percentage of improvement in the performance levels of gifted students relative to those of non-gifted students, as measured by the Georgia CRCT in mathematics, reading, and language arts?

Data Analysis Procedures

The results of the CRCT testing data of Target Middle School were analyzed using Microsoft Excel, Analyse-it, and the Dimension Research Statistical Calculator computer programs. The study included 2001, 2002, 2008, and 2009 CRCT results in reading, language arts, and mathematics. The pre-NCLB data from years 2001 and 2002 were QCC-based, while the post-NCLB data from 2008 and 2009 were GPS-based. Because the pre-NCLB and post-NCLB data were based on different curricula, the QCC-based data had to be equated to the GPS-based data. Using the GaDOE's equipercentile equating chart, the scale scores of the QCC-based CRCT results were equated and assigned equivalent GPS-based CRCT performance levels. The CRCT performance level data were ordinal in nature, while the scale scores data were interval. The initial analysis involved descriptive statistics, which included data disaggregation, averages, differences, equipercentile equating, and percentages.

To answer the research questions, the researcher used Excel to compute the percentage of students scoring at each performance level by grade, student type, time-period and content area. Next, the percentages of improvement by grade level and content

area were calculated by adding the absolute value of the decrease in the percent of students earning a Performance Level 1 (did not meet) to the increase in the percent of students earning a Performance Level 3 (exceed). In order to illustrate the findings, corresponding bar graphs and tables were created (See Figure 2).

To prove the validity of the null hypotheses, the researcher performed the Mann-Whitney U two-tailed tests and two-sample z-tests for independent samples and proportions. The probability of rejecting the null hypothesis (Type I error) was set at five percent, with a corresponding significance level (α) of .05.

Results

Research Question #1

Between the pre-NCLB and post-NCLB periods, what is the percentage of improvement in the performance levels of gifted students, as measured by the Georgia CRCT in reading, language arts, and math?

During the pre-NCLB period administration of the CRCT in reading, 100% of the 53 sixth-grade gifted students met or exceeded the minimum standard (passed) and 98.25% of the 57 eighth-grade gifted students passed. During the post-NCLB period, all gifted students met or exceeded the minimum standard on the CRCT. Figure 3 illustrates the 20.87% increase in the percentage of gifted students who increased their reading performance level from Performance 2 (meets) to Performance Level 3 (exceeds). On the pre-NCLB CRCT in language arts, all gifted students met or exceeded the minimum standard. On the post-NCLB CRCT results in language arts, 19.6% of gifted students improved their achievement levels from a Performance Level 2 to Performance Level 3. During the pre-NCLB period, 23.81% of gifted students earned a Performance Level 3 on

the CRCT in mathematics. During the post-NCLB period, the percentage of gifted students earning a Performance Level 3 increased to 42.48%, as shown in Figure 3.

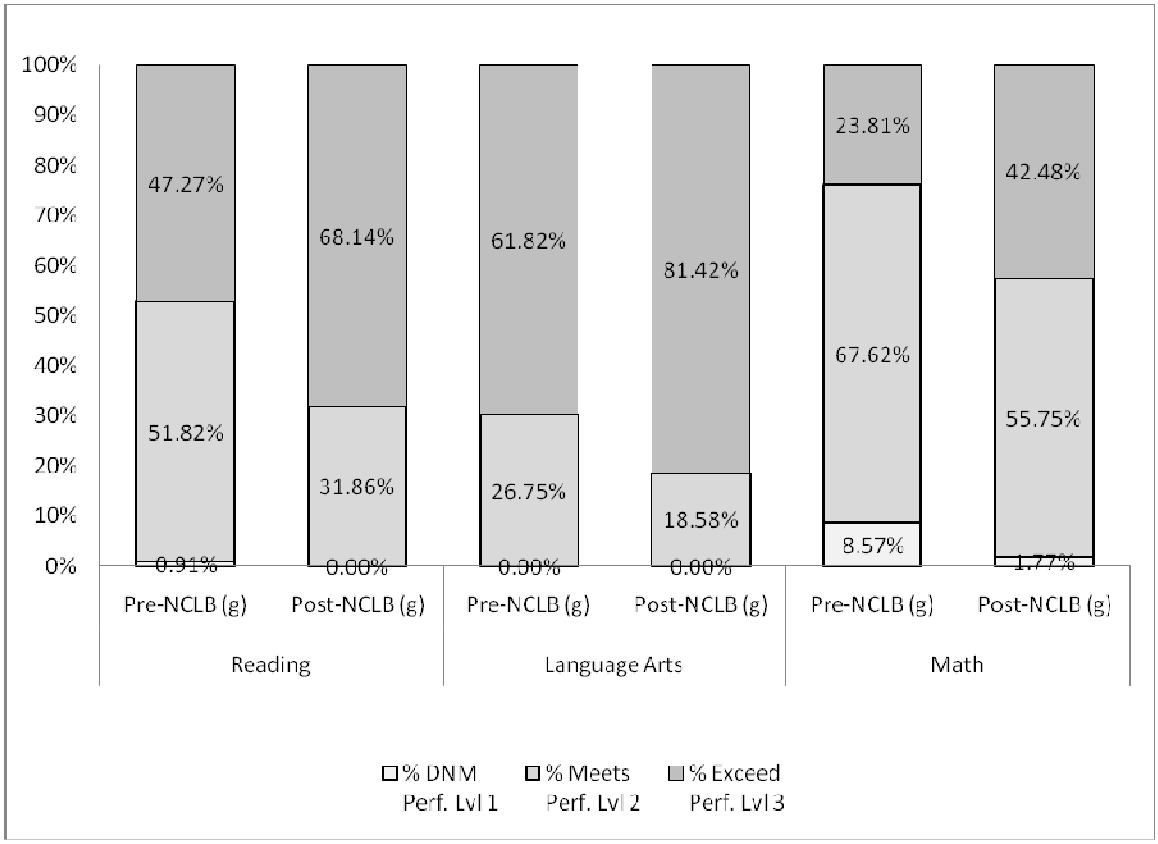

Figure 3. CRCT Performance Levels Earned by Gifted Students

When comparing the percent of improvement of gifted students in reading, the sixth and eighth grade students experienced a similar increase in performance. They both improved approximately 22% (Table 4). In language arts, the sixth-grade gifted students improved at a higher percentage (23.53%) than the eighth grade gifted students (16.03%), as shown in Table 4.

Table 4

Percent of Improvement by Gifted Students

Difference between pre & post NCLB	Reading	Language Arts	Math
6th Grade	21.79	23.53	9.81
8th Grade	21.68	16.03	39.46
All	21.78	19.60	25.47

From pre-NCLB to post-NCLB periods, the eighth-grade gifted students experienced the most significant achievement gain in mathematics with an improvement of 39.46%. The sixth-grade gifted students increased their performance by 9.81%. Overall, the gifted students increased their performance in mathematics by 25.47%, as measured by the CRCT. The percentages of improvement by grade level and content area are exhibited in Table 4.

The value for mean rank sum, calculated using the Mann-Whitney U test, revealed the changes in the performance levels of the students. Within each grade level and content area for the gifted students, from the pre-NCLB to post-NCLB periods, the Mann-Whitney U test also yielded an increase in the mean rank and sum rank. On the CRCT in reading, the gifted population started with a mean rank of 100.05 (pre-NCLB) and increased their mean rank by 27.64 points over the post-NCLB period. In language arts, the pre-NCLB mean rank was 100.93. The mean rank from the post-NCLB data (122.78) was 21.85 points higher than the mean rank from the pre-NCLB data (Table 5). Finally, on the CRCT in mathematics, the pre-NCLB gifted group had a mean rank of

96.63, while the post-NCLB gifted group had a mean rank of 121.18. From pre-NCLB to post-NCLB periods, the mean ranks for all gifted students' CRCT results in reading, language arts, and mathematics increased by 23 points on average, as shown in Table 5. The results showed that the gifted students of the post-NCLB period had a higher achievement on the CRCT in reading than the gifted students from the pre-NCLB period.

Table 5

Comparison of CRCT Performance Levels of Gifted Students

	Reading		Language Arts		Math	
Mann-Whitney	Pre-NCLB	Post-NCLB	Pre-NCLB	Post-NCLB	Pre-NCLB	Post-NCLB
Mean rank	100.05	123.64	100.93	122.78	96.63	121.18
Rank sum	11005	13971	11102	13874	10177.5	13693.5
N	110	113	110	113	105	113

Null Hypothesis #1

H_{01}: Between the pre-NCLB and post-NCLB periods, no percentage of improvement will exist in the performance levels of gifted students, as measured by the Georgia CRCT in mathematics, reading, and language arts.

The study utilized the Analyze-It add-in software for Microsoft Excel to conduct the Mann-Whitney and z-tests in order to determine the significance of the difference between the percent of improvement of the gifted students from the pre-NCLB to post-NCLB periods. From the Mann-Whitney U test, the U statistic is 7530 for the CRCT in reading (See Table 6). The z statistic of 3.19 with a $\rho = 0.0014$ was greater than the

critical value of 1.96. Moreover, the actual probability of a Type I error was .14%, which is less than α at 0.05. Thus, the null hypothesis for reading was rejected. Hence, the percentage of post-NCLB non-gifted students who met or exceeded standard on the CRCT was statistically significantly higher relative to those of the pre-NCLB non-gifted students.

Table 6

Analysis of Significance for Gifted Students: CRCT in Reading

Difference between pre & post NCLB	Mann- Whitney U	Z Statistic	2-tailed probability (ρ)
6th grade	1775	2.32	0.023
8th grade	1993	2.19	< 0.0001
All	7530	3.19	0.0014

For the CRCT results in language arts of the gifted students, the z-test with two independent samples and a significance level of α=0.05 resulted in a *z* statistic of 3.24 with a ρ= 0.0012, as shown in Table 7. With this two-tailed z-test, the actual probability of a Type I error is .12%, which is less than α at 0.05. Thus, the null hypothesis for language arts was rejected. The null hypothesis for language arts regarding gifted students is also rejected. Hence, the difference in the percent of improvement in the performance levels from the pre-NCLB to post-NCLB periods in language arts was determined to be statistically significant.

Table 7

Analysis of Significance for Gifted Students: CRCT in Language Arts

Difference between pre & post NCLB	Mann- Whitney U	Z Statistic	2-tailed probability (ρ)
6th grade	1801	2.55	0.0108
8th grade	1918	2.07	0.038
All	7433	3.24	0.0012

Regarding the CRCT mathematics results for the gifted students, an interesting point from Table 8 was noted. Regarding the sixth grade only, the *z* statistic of the sixth-grade gifted students in mathematics was only a 0.97, with a $\rho = 0.3344$. Thus, the sixth-grade gifted students in mathematics failed to reject the null hypothesis, meaning that the 9.81% improvement was statistically non-significant. However, the research question and null hypothesis refer to the entire group of sixth and eighth grade students as a single entity. Thus, the data for both grade levels were merged into one table prior to conducting the Mann-Whitney U Test for the data for all gifted students. The Mann-Whitney U statistic of 7253 was converted into a *z* statistic of 3.32 with a $\rho = 0.0009$, as shown in Table 8. The actual probability of a Type I error was much lower than the significance level α at 0.05. Therefore, the null hypothesis for mathematics was rejected. The change in percentage of improvement in the performance levels of gifted students (25.47%) from the pre-NCLB to post-NCLB periods in mathematics was statistically significant.

Table 8

Analysis of Significance for Gifted Students: CRCT in Mathematics

Difference between pre & post NCLB	Mann- Whitney U	Z statistic	2-tailed probability (ρ)
6th grade	1443	0.97	0.3344
8th grade	2208	3.58	0.0003
All	7253	3.32	0.0009

Overall, the null hypothesis was rejected for the CRCT in reading, language arts, and mathematics for gifted students.

Research Question #2

Between the pre-NCLB and post-NCLB periods, what is the percentage of improvement in the performance levels of non-gifted students, as measured by the Georgia CRCT in reading, language arts, and math?

The group of non-gifted students included students with disabilities and diverse ethnicities and socioeconomic status. Of the 904 non-gifted students (pre-NCLB), 78.77% met or exceeded minimum standards on the CRCT in reading. During the post-NCLB period, 84.84% of the 851 non-gifted students met or exceeded standards on the CRCT in reading (Table 9).

Table 9

Percent of Non-gifted Students who met or Exceeded Standard on the CRCT

Grade	Reading		Language Arts		Math	
	Pre-NCLB	Post-NCLB	Pre-NCLB	Post-NCLB	Pre-NCLB	Post-NCLB
6th	74.85	82.02	65.48	83.37	46.06	56.94
8th	83.14	87.93	73.03	86.14	30.17	65.52
All	78.77	84.84	69.01	84.69	38.75	61.03

From the pre-NCLB to post-NCLB periods, 6.08% more non-gifted students met or exceeded standards (passing rate) on the CRCT in reading. Non-gifted students increased their passing rate by 15.68% in language arts. The highest increase in the passing rate for non-gifted students occurred on the CRCT in mathematics, improving by 22.28%.

From the pre-NCLB to post-NCLB periods, non-gifted students improved their level of performance on the CRCT, yielding double-digit percentages of improvement. Non-gifted students increased their reading performance level by 15.51%, as shown in Table 10. On the CRCT in language arts, approximately a third (32.03%) of non-gifted students in the sixth grade improved their performance levels. Overall, from the pre-NCLB to post-NCLB periods, 23.92% of non-gifted students experienced an increase in their performance levels in language arts (See Table 10).

Table 10

Percent of Improvement by Non-gifted Students

	Reading	Language Arts	Math
6th grade	17.40	32.03	9.16
8th grade	13.39	19.46	42.75
All	15.51	23.92	24.92

The non-gifted students' CRCT results in mathematics yielded intriguing results. Approximately, 33.59% more eighth grade non-gifted students improved their performance levels than the sixth grade non-gifted students (See Table 10). Overall, the total percent of improvement of the non-gifted students in mathematics from the pre-NCLB to post-NCLB periods was 24.92%.

The mean rank sums calculated using the Mann-Whitney U two-tailed test revealed changes in the performance levels of the students. For each grade level and content area for the non-gifted students, the Mann-Whitney U test also yielded a higher mean rank and sum rank from the pre-NCLB to post-NCLB periods. On the CRCT in reading, the non-gifted population's mean rank increased by 143.47 points from the pre-NCLB to the post-NCLB period (see Table 11). In language arts, the post-NCLB mean rank was 188.72 points higher than the pre-NCLB mean rank (See Table 11). Finally, on the CRCT in mathematics, the mean rank increased 189.66 points. On average, from pre-NCLB to post-NCLB, the mean ranks for all non-gifted students' CRCT results in reading, language arts, and mathematics increased by 173.95 points.

Table 11

Comparison of CRCT Results for Non-gifted Students

	Reading		Language Arts		Math	
Mann-Whitney	Pre-NCLB	Post-NCLB	Pre-NCLB	Post-NCLB	Pre-NCLB	Post-NCLB
Mean rank	823.11	966.58	781.73	970.45	780.4	970.06
Rank sum	744088	853490	701516	823915	696893	826492
n	904	883	897	849	893	852

Null Hypothesis #2

H_{02}: Between the pre-NCLB and post-NCLB periods, no percentage of improvement will exist in the performance levels of non-gifted students, as measured by the Georgia CRCT in mathematics, reading, and language arts.

Using the same procedures as in the first research question, the non-gifted data was analyzed. The z-test with two independent samples and a significance level of α=0.05 resulted in a *z* statistic of 7.27 with a ρ= 0.0001. With this two-tailed z-test, the actual probability of a Type I error is .01%, which is less than α at 0.05. As with null hypothesis #1, the null hypothesis #2 for non-gifted students for the CRCT in reading was rejected. The difference between the percent of improvement in the performance levels in reading from the pre-NCLB to post-NCLB periods was statistically significant.

Table 12

Analysis of Significance for Non-gifted Students: CRCT in Reading

Difference between Pre & Post NCLB	Mann-Whitney U	Z Statistic	2-tailed ρ
6th Grade	135952	6.09	< 0.0001
8th Grade	96852	3.98	< 0.0001
All	463204	7.27	< 0.0001

The percentage of improvement in language arts, from the pre-NCLB to post-NCLB, for the non-gifted students was statistically significant. For the CRCT in language arts, the Mann-Whitney U statistic is 463090 (See Table 13). As shown in Table 7, the *z* statistic was 9.14 with a ρ= 0.0001. The actual probability of a Type I error was practically nonexistent with a .01%, which is less than the significance level (α) at 0.05. For that reason, the null hypothesis for language arts was also rejected.

Table 13

Analysis of Significance for Non-gifted Students: CRCT in Language Arts

Difference between Pre & Post NCLB	Mann- Whitney U	Z Statistic	2-tailed ρ
6th grade	134116	7.93	< 0.0001
8th grade	98438	4.81	< 0.0001
All	463090	9.14	< 0.0001

Unlike the gifted students, both the sixth and the eighth grade students' percentages of improvement in mathematics were significant. With a larger number of non-gifted students, a 9.16% improvement was still statistically significant. The Mann-

Whitney U statistic was 463114. The *z* statistic, for the percent of improvement in mathematics, of all of the non-gifted students, was 8.95 with a ρ= 0.0001. With this two-tailed z-test, the actual probability of a Type I error is .01%, which is less than the significance level (α) at 0.05 (Table 14). Thus, the null hypothesis for mathematics was rejected. The difference in the percent of improvement in the performance levels from the pre-NCLB to post-NCLB periods was statistically significant.

Table 14

Analysis of Significance for Non-gifted Students: CRCT in Mathematics

Difference between Pre & Post NCLB	Mann- Whitney U	Z Statistic	2-tailed ρ
6th grade	115810	2.33	0.0196
8th grade	114429	10.42	< 0.0001
All	463114	8.95	< 0.0001

From the pre-NCLB to post-NCLB periods, all percents of improvement on the CRCT for the non-gifted students were statistically significant.

Research Question #3

Between the pre-NCLB and post-NCLB periods, what is the difference in the percentage of improvement in the performance levels of gifted students relative to those of non-gifted students, as measured by the Georgia CRCT in reading, language arts, and math?

The third research question was a three-part question that required the examination of CRCT results from three content areas. Because this question relied heavily on the calculations performed for the first two research questions, little tabulation

was required to achieve its answer. The total percentages of improvement on the CRCT in reading, language arts, and mathematics for the gifted students were compared to those of the non-gifted students. From the pre-NCLB to post-NCLB periods, 21.78% of the gifted students compared to 15.51% of the non-gifted students improved their performance levels in reading (See Table 15). Reading experiences the greatest difference at 6.27%.

Table 15

Percent of Improvement from the Pre-NCLB to Post-NCLB Periods

	6th grade		8th grade		Total % improvement		Difference
CRCT	Gifted	Non-gifted	Gifted	Non-gifted	Gifted	Non-gifted	
Reading	21.79	17.40	21.68	13.39	21.78	15.51	6.27
Language Arts	23.53	32.03	16.03	19.46	19.60	23.92	4.32
Math	9.81	9.16	39.46	42.75	25.47	24.92	0.55

From the pre-NCLB to post-NCLB periods, 19.60% of the gifted students compared to 23.92% of the non-gifted students improved their performance levels in language arts. The difference was smaller at 4.32%. On the CRCT in mathematics, the percentage of improvement for the gifted students and non-gifted students were similar (See Table 15). Approximately twenty-five percent of both the gifted population (25.47%) and non-gifted population (24.92%) increased their performance levels on the CRCT in mathematics, resulting in a difference of a mere .55%.

Null Hypothesis #3

H_{03}: Between the pre-NCLB and post-NCLB periods, no difference will exist in the percentage of improvement in the performance levels of gifted students relative to those of non-gifted students, as measured by the Georgia CRCT in mathematics, reading, and language arts.

Using the Dimension Research Statistical Calculator Software, the z-test for two proportions was performed in order to determine whether the gifted students' percentage of improvement was statistically different from that of the non-gifted students' on the CRCT in reading, language arts, and math. Since the null hypothesis tested whether the two proportions were equal, the study utilized the two-tailed testing procedures. The confidence level of 95% serves to virtually eliminate the possibility that the difference in proportions was due to random chance. For the CRCT results in reading, from the pre-NCLB to post-NCLB periods, the z-test yielded a *z* statistic of 1.48 with a $\rho = 0.86$. Thus, the actual confidence level is 86%, meaning there was an 86% likelihood that the difference in the percentage of improvement for both groups was not due to random chance (Type I error). The test failed to reject the null hypothesis, making its results insignificant. The difference in the percentages of improvement in reading from both groups is not statistically significant.

Table 16

Analysis of Significance: Gifted Students Compared to Non-gifted Students

	6th grade		8th grade		Total % improvement	
CRCT	*z* statistic	Probability (ρ)	*z* statistic	Probability (ρ)	*z* statistic	Probability (ρ)
Reading	0.737	0.539	1.635	0.898	1.477	0.860
Language Arts	1.056	0.709	0.542	0.412	0.825	0.591
Math	0.01	0.400	0.290	0.228	0.116	0.092

Regarding the percent of improvement in language arts, the z-test yielded a *z* statistic of 0.825 with a ρ=0.591. This *z* value is less than the critical *z* value of 1.96, with a significance level of .05. The exact probability of a Type I error is 59.10%. The difference in the percentages of improvement for both groups in language arts is statistically non-significant and failed to reject the null hypothesis.

The closest percentage of improvement between the two groups was in mathematics. The z-test with two independent samples and a significance level of α=0.05 resulted in a *z* statistic of 0.116 with a ρ= 0.092. Hence, the actual probability of a Type I error is 9.2%, which is greater than the significance level (α) at 0.05 (See Table 14). The difference in the percentages of improvement for both groups in mathematics is statistically non-significant and failed to reject the null hypothesis. In summary, the overall z-test results in all three content areas failed to reject the null hypothesis that

proposed a difference existed in the percent of improvement between the gifted and non-gifted students, as measured by the CRCT in reading, language arts, and mathematics.

In conclusion, the results in this chapter clearly indicated that both the gifted and non-gifted students in this study improved their performance during the implementation of NCLB. Both groups experienced similar percentages of improvement in their performance, as measured by the CRCT in reading, language arts, and mathematics. Chapter 5 contains a detailed summary and discussion of the findings.

CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

To provide continuity, this final chapter outlines the study, restates the problem statement and the methodology used in this study. The sections of this final chapter also summarize the study's results and discuss their implications. Finally, this chapter provides recommendations for educators and suggestions for future studies.

Statement of the Problem

With such an emphasis on the accountability mandate component of NCLB, Moon (2006) stated that teachers are overly concerned about their students achieving basic proficiency levels. In order to improve the instruction for the non-gifted students, schools like Target Middle Schools are decreasing classroom size for non-gifted students. In order to accomplish this task without increasing faculty size, Target is replacing half of the homogeneous gifted classes with cluster heterogeneous gifted classes. The implementation of NCLB does not encompass the academic and emotional needs of gifted students. Thus, this study attempted to address the following question: What is the impact of the implementation of NCLB on the performance levels of gifted students relative to those of non-gifted students, as measured by the Criterion-Referenced Competencies Tests (CRCT) in mathematics, language arts, and reading tests?

Summary of the Methodology

As reported in Chapter 3, this study incorporated a causal comparative research method. Using the pre-NCLB (2001 and 2002) and post-NCLB (2008 and 2009) periods, the researcher collected and analyzed existing results from the Georgia CRCTs in math,

reading, and language arts from approximately 1,978 sixth and eighth grade students from Target Middle School located in a rural Northwest Georgia school district. For the aforementioned four years, the researcher performed the following statistical procedures: differences, descriptive statistics, percentages, Mann-Whitney U tests, and two-sample independent z-tests. For each grade level and content area, the researcher utilized Microsoft Excel Software, Analyze-It Software, and the Dimension Research Statistical Calculator to perform statistical computations. Using Target Middle School's test results from the CRCT in mathematics, reading, and language arts, the researcher compared the performance level statistical results of gifted sixth and eighth grade students to sixth and eighth grade students who are non-gifted.

Summary of the Results

All of the sanctions imposed by the No Child Left Behind Act (NCLB) are aimed at improving achievement in the groups of students that perform at a low rate. The Federal Government earmarks funds to achieve this goal, yet it has decreased funds for gifted programs. The implementation of NCLB causes schools like Target Middle School to invoke new ways of improving the achievement levels of non-gifted students. However, the gifted program's academic offerings an budget are being decreased.

This study examined the impact of the implementation of NCLB on gifted students relative to those of non-gifted students. The researcher performed an analysis of the CRCT results of gifted students and non-gifted students during the pre-NCLB to post-NCLB periods. The result summary was organized by the three research questions defined in Chapter 1.

Research Question #1

Between the pre-NCLB and post-NCLB periods, what is the percentage of improvement in the performance levels of gifted students, as measured by the Georgia CRCT in reading, language arts, and math?

The study revealed that, since the implementation of NCLB, the gifted students experienced a statistically significant increase in performance on the CRCT in reading, language arts, and mathematics. From the pre-NCLB to post-NCLB periods, the majority of the gifted students' performance levels increased by double-digit percentages. In reading, both the sixth-grade and the eighth-grade gifted students improved their performance levels by approximately 22%. In language arts, the sixth-grade gifted students increased their performance by 23.53% compared to the 16.03% improvement experienced by the eighth-grade gifted students, for an overall gain of 19.6%.

The results from the CRCT in mathematics were unexpected. The performance levels of the sixth-grade gifted students in mathematics increased by only 9.81% while the eighth grade gifted students improved their performance levels by 39.46%, for an overall gain of 25.47%. The GaDOE changed the eighth-grade 2008 CRCT in mathematics from a QCC-based to a GPS-based test. The 2008 CRCT results, along with the 2009 CRCT results, were included in the post-NCLB period data. In the past, disaggregated CRCT data from a transition year typically yielded a decrease in the students' performance levels. For example, Target Middle School's passing rate from the eighth-grade CRCT results in mathematics decreased from 79.4% (2007) to 62% (2008). It was expected that, for the post-NCLB period, this decrease in the percentage of students passing in 2008 would significantly affect the overall eighth grade students'

percent of improvement. Despite the change in curriculum in 2008, the eighth-grade gifted students were able to increase their performance levels (39.46%) from the pre-NCLB to the post-NCLB periods. Although, the Federal Government increased the amount of federal funds for the implementation of new instructional strategies for non-gifted students, the results of this study indicated that gifted students are continuing to improve their performance levels.

Research Question #2

Between the pre-NCLB and post-NCLB periods, what is the percentage of improvement in the performance levels of non-gifted students, as measured by the Georgia CRCT in reading, language arts, and math?

The study revealed that, since the implementation of NCLB, non-gifted students experienced a statistically significant increase in performance on the CRCT in reading, language arts, and mathematics. From the pre-NCLB to post-NCLB periods, the majority of the non-gifted students' performance levels increased by double-digit percentages. The results of this study revealed that the percentage of non-gifted students that met or exceeded standards on the CRCT increased by the following: reading (6%), language arts (16%), and mathematics (21%). In reading, the non-gifted students improved their performance levels by 15.51%. In language arts, approximately one-third (32.03%) of the sixth-grade non-gifted population increased their performance on the CRCT. The eighth-grade non-gifted students increased their performance levels by 19.46%. The mathematics performance levels of the sixth-grade non-gifted students increased by 9.16%, the lowest percent of improvement for the both the non-gifted and gifted students. On the other hand, the eighth grade non-gifted population improved their performance by

42.75%, the highest percentage of improvement for both groups. The post-NCLB period includes the 2009 results of the first GPS-based CRCT in mathematics. The results of this study would indicate that the implementation of NCLB is accomplishing its goals of improving the academic performance of the underachieving students.

Research Question #3

Between the pre-NCLB and post-NCLB periods, what is the difference in the percentage of improvement in the performance levels of gifted students relative to those of non-gifted students, as measured by the Georgia CRCT in reading, language arts, and math?

The results from the analysis of research questions #1 and research questions #2 revealed that both groups of students improved their performance since the implementation of NCLB. For research question #3 and null hypothesis #3, the total percentages of improvement on the CRCT in reading, language arts, and mathematics for the gifted students were compared to those of the non-gifted students. Statistical tests indicated that the differences in the percentages of improvement between gifted and non-gifted students were not statistically significant. From the pre-NCLB to post-NCLB periods, 21.78% of the gifted students compared to 15.51% of the non-gifted students improved their performance levels in reading. On the CRCT in language arts, approximately four percent (4.32%) more of the non-gifted population (23.92%) increased their performance levels compared to those of the gifted population (19.6%). Approximately twenty-five percent of both the gifted students (25.47%) and non-gifted students (24.92%) experienced an increased performance on the CRCT in mathematics. The percentages of improvement in the performance levels of gifted students relative to

those of the non-gifted students differed by the following: 6.27% in reading, 4.32% language arts, and .55% in mathematics. Hence, the differences in the percentages of improvement in the performance levels of the gifted students relative to those of the non-gifted students were minimal.

Relationship of the Current Study to Prior Research

A comprehensive literature review revealed that no research studies have been conducted to compare the state assessment scores of gifted students to non-gifted students. However, a few researchers have performed studies to assess the achievement levels of gifted students on state assessments since the implementation of NCLB. Many measured other factors, such as ability and cluster grouping, in order to assess the achievement of gifted students after the implementation of NCLB.

Several of the studies were consistent with this study, concluding that gifted students continued to increase their performance after the implementation of the accountability mandate of NCLB. Robinson (2008) concluded that over an eight-year period gifted students improved their performance levels in mathematics and reading by a range of 14% to 20%. However, the Robinson study differed from this study in that the instructional strategies and programs for the gifted students did not change after the implementation of NCLB.

Because both gifted and non-gifted students increased their performance in reading, language arts and mathematics at similar rates, the results of this study were unexpected. Previous studies have shown that gifted students learn at a faster rate than non-gifted students. For example, Director Ross and The Office of Educational Research and Improvement (1994) reported that gifted students master 35% - 50% of the curricula

prior to the school year. The results of this study are also inconsistent with Rogers (1986) who reported that gifted students score in the top 3% on a national norm-referenced exam and have outstanding achievement in academics.

Some studies have shown that the many of the instructional practices implemented to attain the goals of NCLB are damaging to the gifted students. Neal and Schanzenbach (2007) revealed in their study of Chicago public schools, that the top 10% of students realized neither an academic gain nor a lower percent gain. They observed that because of NCLB, schools might find it most advantageous to limit the services for gifted students.

In this study, Target Middle School implemented more heterogeneous gifted cluster classes or mixed-ability classes to help improve the achievement of non-gifted students, as it relates to NCLB. Despite that fact, the gifted students still improved their performance levels. Furthermore, the gifted students improved at a similar to that of non-gifted students.

Although the gifted students continued to improve their performance levels after the implementation of NCLB, the research pointed to that fact that gifted students should have improved at a higher rate relative to those of non-gifted students. Research showed that gifted students typically score higher on tests (Rogers, 1986). They also learn more rapidly than average students do. While some gifted students in this study may have attained a higher score on the CRCT than some of the non-gifted students, gifted students did not improve their performance levels at a faster rate. Thus, the results of this study were not consistent with Roger's theory. The findings of this study align better with

Robinson's theory (1990) which found that cooperative learning in mixed-ability groups for regular instruction was not beneficial for gifted learners.

Implications for Practice

Based on the findings of this study, the researcher has several implications for practice. Overall, the study revealed that Target Middle School's implementation of NCLB significantly affected the performance of both the gifted students and non-gifted students. Consequently, the difference in the percentage of improvement in the performance levels of gifted students was not statistically significant relative to those of non-gifted students. These findings indicated that, while gifted students improved their performance by approximately 25%, the percentage of improvement should have been statistically significantly higher relative to those of the non-gifted students.

Gifted students typically score at or above 97% on national norm-referenced achievements tests and have outstanding achievement in academic content areas (Rogers, 1986). The Director Ross and The Office of Educational Research and Improvement noted that gifted and talented elementary school students master 35 to 50 percent of the academic curriculum prior to the school year (Ross, 1994). Since gifted students master the curricula faster, their performance levels should increase at a faster rate relative to those of non-gifted students. This suggests that, because the gifted students in this study may not have been challenged academically, they did not reach their fullest academic potential. Hence, several recommendations are necessary.

First, gifted students need to learn academic subjects in a homogeneous environment of instructional facilitation. Rogers (1991) reported that ability grouping for acceleration or enrichment showed strong support for the academic gain. Mixed-ability

grouping showed no achievement gains and educators should use this method sparingly. This research suggests that, in order to improve their achievement levels, educators should challenge gifted students, which in turn also allow them to have an active role in their own learning.

Second, Dr. Krisel (2004) stated that NCLB offers "no incentive for schools to attend to the growth of students once they attain proficiency or to spur students who are already proficient (and beyond) to greater achievement" (p.26). States and school systems may need to offer more exemplary gifted programs with clearly defined goals. Krisel suggest that curriculum specialists should write curriculum guides that have an in-depth scope and a sequence of rigorous objectives. Once implemented, schools should monitor the progress of the achievement of its gifted students, modifying the curriculum as necessary.

Finally, the consequences of failing to accommodate the needs of gifted students can be detrimental to the gifted as well as the nation. Davidson, Davidson, and Vanderkam (2004) found that unchallenged gifted students become depressed, act out, pursue danger behaviors, and dropout of school. Twenty percent of school dropouts are gifted. Hence, Davidson, Davidson, and Vanderkam recommend that school systems pre-assess gifted students before a new unit, create skill-based student groupings, and accelerate learning when gifted students are already proficient.

Limitations

Several situational realities serve as limitations for this study. The unpredictability of adolescents threatens the validity of this study. Middle school students tend to focus more intensely on tests when they will reap a reward outside of the world of academics.

Georgia's eighth-grade students must pass the CRCT in mathematics and reading to be promoted to the ninth grade. Hence, they seriously attempted to perform well, checking and recheck their answers. On the other hand, sixth grade students do not have to meet standard on the CRCT to be promoted to the seventh grade. For this reason, sixth grade students may intentionally code in random answers in order to complete the test in a timely manner, producing results that do not accurately represent their true achievement levels.

During the pre-NCLB period, gifted students were solely enrolled in homogeneous gifted advanced content classes. Due to the implementation of NCLB in the post-NCLB period, gifted students were enrolled in both the homogeneous gifted advanced content and heterogeneous gifted cluster classes. Hence, the number of gifted students enrolled in homogenous advanced content classes decreased by 50% from the pre-NCLB to post-NCLB periods.

Many differences existed in the students, communities, schools, and instructional practices across the United States. The demographics of Target Middle School may not have been diverse enough to represent every middle school in the United States. Furthermore, this study only used data from a medium-sized rural middle school. Hence, the sample size may have been too small to extrapolate and apply the findings to larger schools.

Target Middle School was located approximately one mile from a major interstate. As a result, the student population that matriculates to the school may have been transient. Thus, not all of the students may have received their entire middle school education solely from Target Middle School.

Federal or most state governments do not mandate providing a specific program that serves only gifted children. Hence, school districts differ on the types of service models available to accommodate gifted students. Furthermore, those school districts that do specifically serve gifted children determine different sets of criteria for classifying gifted students. In essence, the definition of term *gifted* may vary across school districts, which could affect the able to generalize the findings of this study.

Finally, not all gifted students attended at least one heterogeneous gifted cluster class. Thus, several gifted students may have only been enrolled in advance content gifted classes with only other gifted students. The performance levels of these gifted students could have affected the results of this study.

Because of these limitations, the findings of this study may not be applicable to all school communities across the United States. While the findings of this study may not be generalized to characterize the performance of all middle grades students, the results do suggest that the gifted students are improving their performance levels at a similar rate relative to those of non-gifted students.

Recommendations for Further Research

To understand the progression of the performance of the gifted students better, the researcher suggests conducting additional research. This study only utilized two years prior to NCLB and two years after the fifth year of the implementation of NCLB. Conducting a longitudinal study for 2001-2009 could provide a clearer illustration of the trends of performance of the gifted students, as measured by the CRCT in reading, language arts, and mathematics. Secondly, researchers could further validate the results of this study by performing a comparison study between the gifted students' CRCT

performance and their performance on the National Assessment of Educational Progress (NAEP) Test. Third, researchers should conduct a causal comparative study using nationally recognized norm-referenced exams.

Based upon this research and its findings, the reasoning behind the statistically non-significant differences between the percentages of improvement in the performance levels of gifted and non-gifted students remain ambiguous. As an addendum to this study, researchers could interview or survey the gifted students and their teachers to uncover whether the gifted students were challenged in class. Additionally, researchers could isolate the performance levels of gifted students as it relates to types of service models for gifted students by conducting a comparison study of the performance levels of gifted students who were enrolled in only homogeneous advance content classes to those of the gifted students who were enrolled in only heterogeneous gifted cluster classes. Finally, this study could be replicated using only gifted students who are enrolled in heterogeneous gifted cluster classes

Summary

Although specialized services for gifted students have declined since the implementation of NCLB, the gifted students continue to increase their performance levels on the CRCT. Gifted students have improved their performance levels at nearly the same percentages as those of non-gifted students. Since gifted students traditionally learn at a faster rate than non-gifted students do, additional studies are needed to determine if gifted students who participate solely in specialized instruction, provided by exemplary gifted programs, increase their performance levels at a statistically significantly higher rate than those of non-gifted students. While this study has uncovered some interesting

results, further research is also needed to find out the emotional effects of NCLB on gifted students.

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APPENDICES

Appendix A: Georgia Performance Standards Phase-In Schedule

Phase in Plan for GPS

Year	Implement Year I ELA	Implement Year II ELA	Implement Year I Math	Implement Year II Math	Implement Year I Science	Implement Year II Science	Implement Year I Soc. Studies	Implement Year II Soc. Studies
K	04-05	05-06	05-06	06-07	06-07	07-08	07-08	08-09
1	04-05	05-06	05-06	06-07	06-07	07-08	07-08	08-09
2	04-05	05-06	05-06	06-07	06-07	07-08	07-08	08-09
3	04-05	05-06	06-07	07-08	05-06	06-07	07-08	08-09
4	04-05	05-06	06-07	07-08	05-06	06-07	07-08	08-09
5	04-05	05-06	06-07	07-08	05-06	06-07	07-08	08-09
6	04-05	05-06	04-05	05-06	04-05	05-06	06-07	07-08
7	04-05	05-06	05-06	06-07	04-05	05-06	06-07	07-08
8	04-05	05-06	06-07	07-08	06-07	07-08	06-07	07-08

Year	Implement Year I ELA	Implement Year II ELA	Implement Year I Math	Implement Year II Math	Implement Year I Science	Implement Year II Science	Implement Year I Soc. Studies	Implement Year II Soc. Studies
9	04-05	05-06	07-08	08-09*	04-05	05-06	06-07	07-08
10	04-05	05-06	07-08	09-10*	04-05	05-06	06-07	07-08
11	04-05	05-06	07-08	10-11*	04-05	05-06	06-07	07-08
12	04-05	05-06	07-08	11-12*	04-05	05-06	06-07	07-08

Implementation Year I indicates the year systems will receive training on the new curriculum.

Implementation Year II indicates the year systems will implement and be assessed on the new curriculum.

Changes as of November 10, 2004 highlighted in blue.

Changes as of August 23, 2004 highlighted in yellow.

Changes are for clarification of a student's progression through high school. The math curriculum is implemented as 08-09 ninth graders move through high school.

*All high school GPS math courses are available for ninth grade students in the 08-09 school year.

From Georgia Department of Education. (2008). *Phase-In Plan.* Retrieved July 22, 2008 from https://www.georgiastandards.org/standards/GPS%20Support%20Docs/GPS%20Phase-in%20Plan.pdf

Appendix B: QCC to GPS Equipercentile Equating Table for 2005-2008

Table B1

QCC to GPS Transition between 2007 and 2008

Assessment Type	Grade Level	Assessment Subject	Curriculum Code	Performance Code	Low Score	High Score
CRCT	3	Math	GPS	DNM	150	319
CRCT	3	Math	GPS	PRO	320	349
CRCT	3	Math	GPS	ADV	350	450
CRCT	4	Math	GPS	DNM	150	308
CRCT	4	Math	GPS	PRO	309	350
CRCT	4	Math	GPS	ADV	351	450
CRCT	5	Math	GPS	DNM	150	316
CRCT	5	Math	GPS	PRO	317	353
CRCT	5	Math	GPS	ADV	354	450
CRCT	8	Math	GPS	DNM	150	316
CRCT	8	Math	GPS	PRO	317	358
CRCT	8	Math	GPS	ADV	359	450
CRCT	8	Science	GPS	DNM	150	311
CRCT	8	Science	GPS	PRO	312	350
CRCT	8	Science	GPS	ADV	351	450
CRCT	8	Social Studies	GPS	DNM	150	323
CRCT	8	Social Studies	GPS	PRO	324	374
CRCT	8	Social Studies	GPS	ADV	375	450

Does Not Meet (DNM) – Performance Level 1 Proficient (PRO) – Performance Level 2

Advanced (ADV) – Performance Level 3

Table B2

QCC to GPS Transition between 2006 and 2007

Grade/ Content	QCC Equivalent to GPS Score of 800	QCC Equivalent to GPS Score of 850
1 Math	310	367
2 Math	306	359
3 Science	313	350
4 Science	314	350
5 Science	317	350
7 Math	306	353

Table B3

QCC to GPS Transition between 2005 and 2006

Grade/ Content	QCC Equivalent to GPS Score of 800	QCC Equivalent to GPS Score of 850
1 Reading	307	362
1 ELA	309	380
2 Reading	295	367
2 ELA	308	378
3 Reading	317	372
3 ELA	307	358
4 Reading	308	369
4 ELA	305	354
5 Reading	310	374
5 ELA	305	350
6 Reading	296	384
6 ELA	288	361
6 Math	314	371
6 Science	316	353
7 Reading	311	392
7 ELA	300	350
7 Science	314	347
8 Reading	285	409
8 ELA	292	350

From Georgia Department of Education, Office of Standards, Instruction, & Assessment. (n.d.). *QCC to GPS transition between 2005 and 2008.* Atlanta, GA: Author.