EFFECTS OF THE AFTERSCHOOL PROGRAM ON STUDENT ACHIEVEMENT OF

STUDENTS WITH DISABILITIES IN A RURAL GEORGIA MIDDLE SCHOOL

by

Constance Franklin

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

The purpose of this quantitative nonexperimental causal comparative research study is to determine if there is a statistically significant difference in reading and math achievement as measured by the Georgia Criterion-Referenced Competency Test (CRCT) for sixth, seventh, and eighth grade students with disabilities (SWD) who attended the afterschool program of one rural Georgia middle school when compared to sixth, seventh, and eighth grade SWD who did not attend the program. The results of this research are important because they will identify practices used in the specified afterschool program to improve the academic achievement of SWD. A quantitative research method using a causal comparative design was used to assess the impact of the afterschool program on the student achievement of SWD as an intervention to improve student achievement. Using analysis of covariance (ANCOVA), the study compared two groups of SWD from each grade level: one group attending the afterschool program and the other group not attending the program. Georgia CRCT reading and math scores of those who participated were compared to students who did not participate in the afterschool program. Results showed that there was no statistically significant difference between the groups of SWD for all grade levels and both reading and math. Conclusions and recommendations for further research are included.

Keywords: 21st Century Community Learning Centers, afterschool programs, Georgia CRCT, students with disabilities

Dedication

This dissertation is dedicated to my wonderful family. To my husband, Mike Franklin, who would not let me give up even though I tried to on at least a hundred occasions. Thank you for your patience, support, understanding, love, and help throughout this long process. To my children who have supported, encouraged, and inspired me all along the way. I love you all.

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List of Abbreviations

Adequate Yearly Progress (AYP)

Analysis of Covariance (ANCOVA)

Criterion-Referenced Competency Test (CRCT)

Criterion-Referenced Competency Tests-Modified (CRCT-M)

Elementary and Secondary Education Act (ESEA)

Every Student Succeeds Act (ESSA)

No Child Left Behind (NCLB)

Standard Error of Measurement (SEM)

Students with Disabilities (SWD)

CHAPTER ONE: INTRODUCTION

Overview

This chapter provides the background of the study along with overviews of the history of afterschool programs and the theoretical framework for the study. The problem statement, the purpose statement, the significance of the study, research questions and hypotheses, and definitions that are relevant to the study are also presented in this chapter.

Background

Currently, closing the achievement gap is one of the most significant challenges facing educators, researchers, and our nation. The achievement gap is defined as the difference in academic performance between specified groups of students, particularly low-income students and minority groups as compared to White and Asian students (Wixom, 2015). To resolve the achievement gap, President George Bush reauthorized the Elementary and Secondary Act (ESEA) on January 7, 2002, by signing into law the No Child Left Behind Act of 2001 (NCLB). This act required students to be tested in reading and mathematics annually in grades 3–8 and once in grades 10–12. Schools were required to test students once in science during the following grade spans: 3rd–5th, 6th–8th, and 10th–12th. Test results for individual schools, school districts, and states were to be publicly reported collectively for all students and reported for specific student subgroups (i.e., low-income students, students with disabilities [SWD], English language learners, and racial and ethnic groups; Holbein & Ladd, 2015; NCLB, 2002). The intent of NCLB was to set accountability measures for public school systems in the United States and deliberately focus on improving the academic achievement of disadvantaged students.

At the heart of NCLB were measures intended to hold states and schools accountable for student progress and increased student achievement. These requirements were to ensure

proficiency in grade-level math and reading for all students by 2014 based on annual

standardized testing, academic progress, state report cards, teacher qualifications, and funding

changes (Holbein & Ladd, 2015; NCLB, 2002). Grade-level performance measured adequate

yearly progress (AYP) with the rate of increase required specified by each state. Target goals

were implemented with expectations for a school to meet these goals each year and were

measured by the state's total student proficiency rate and the rate achieved by student subgroups.

Realizing they could not meet the staunch NCLB requirements, 42 states along with

Washington, D.C., a group of California school districts, Puerto Rico, and the Bureau of Indian

Education applied for waivers. President Barrack Obama and Secretary of Education Arne

Duncan allowed states flexibility waivers in September of 2011 based on the reauthorization of

the Education and Secondary Education Act of 1965 (ESEA). These waivers were offered when

schools were unable to meet AYP targets that required a goal of 100% of students scoring at or

above NCLB expectations of proficiency in reading and math on standardized tests by 2014, as

well as mandated interventions expecting districts to (a) offer Supplemental Educational Services

for Title I schools and (b) allow students to attend different schools when AYP targets were not

met. Waivers also included giving states the choice of opting out when districts were unable to

staff only highly qualified teachers in their schools (Holbein & Ladd, 2015; NCLB, 2002).

The state of Georgia applied for and was granted approval for its ESEA flexibility waiver

from the U.S. Department of Education. Since February 2012, 43 states and Washington, D.C.,

had been granted waivers. States that did not apply or were not approved for waivers had to

abide by the NCLB requirements. Such waiver agreements included the new Common Core

State Standards; annual student achievement targets set by individual states; measures for school

quality; and evaluations of teachers and principals based on student test scores (U.S. Department

of Education, 2015). According to Farbman (2015), waiver agreement policies remain controversial.

In Georgia, as part of the approved waiver, schools are accountable through a comprehensive accountability system known as the College and Career Readiness Performance Index. For all students attending Georgia public schools, this accountability system is to promote college and career readiness. Georgia identifies Title 1 schools as *priority*, *focus*, *reward*, or gives no designation at all. Priority and focus are indicators to replace the current Georgia needs improvement schools under NCLB which measured schools based on Criterion Referenced Competency Test (CRCT) scores to determine AYP. Georgia Alert Schools' evaluations of subgroup performances are reported in three categories: subgroup alert schools, subject area alert schools, and graduation alert schools.

Due to the weight of federal and state mandates, school districts and local schools have the daunting challenge of focusing on the disparity among subgroups based on ethnicity, socio-economic status, and SWD. In an effort to close the achievement gap among subgroups, many school systems have implemented out of school time programs. These subgroups of students are most at-risk for failure (Dodd & Bowen, 2011). The focus of this study was to determine the impact of afterschool programs on the achievement of SWD.

At-risk students are those students who are most likely to leave school due to failed courses, truancy, loss of credit, pregnancy, need to earn a living, lack of support, etc. (Darling-Hammond, Zielezinski, & Goldman, 2014). Without remediation, these at-risk students face a grim future. According to research by the National Center for Education Statistics (Aud et al., 2011), poor performing students are less likely to graduate from high school. After dropping out of high school these former students deal with the overwhelming possibility of being

undereducated and underprepared for today's knowledge-rich society (Sikhan, 2013).

The unreasonable requirements of federal mandates coupled with long-term implications associated with at-risk students make additional learning time imperative. Learning only during school hours is not sufficient for all students to reach the required high standards (Wallace Foundation, 2011). Afterschool programs are increasing in popularity. They are a promising strategy for implementing extra instructional time and remediation for at-risk students and schools failing to meet NCLB mandates (Maynard, Kremer, Polanin, Vaughn, & Sarteschi, 2015).

Out of school programs that focus on academic improvement are well documented in the literature (Farbman & Kaplan, 2005; Frankel, Streitburger, & Goldman, 2005; Huang & Dietel, 2011; Vandell, Reisner, & Pierce, 2007). However, the research on the effects of afterschool programs on at-risk students is limited (Miller, 2003; Weisman & Gottfredson, 2001). Furthermore, the majority of afterschool programs does not focus on academics, but rather provide a positive and safe place for students while parents are working (Huang & Dietel, 2011).

The academic success of at-risk students gained attention because of the NCLB Act. NCLB mandated that by 2014 all students be proficient on state standards and assessments (Holbein & Ladd, 2015; NCLB, 2002). This requirement included SWD who are considered categorically at risk for the purposes of this paper. To meet accountability requirements, schools not only needed to reevaluate the type of academic support given to at-risk students, but also the strategies used to remediate them.

Providing additional instructional time during the regular school day is difficult at best. As a result, schools are turning to afterschool programs to provide additional services needed by at-risk students to attain basic skills (Durlak & Weissberg, 2013). According to Huang and

Dietel (2011), effective afterschool programs contribute to improved academic achievement, particularly among economically disadvantaged students. The Afterschool Alliance (2014c) claims links exist between afterschool programs, improved student engagement, commitment to homework, and parental involvement in school. Although academic failure has compound causes ranging from poverty to lack of parental involvement, experts believe the major cause is the lack of time available for mastering basic skills during the regular school day (Bodilly et al., 2010; Halpern, 2006; Halpern, Heckman, & Larson, 2013; Moroney, Newman, Smith, McGovern, & Weikart, 2014).

From 2000 to 2014, Georgia students were tested annually using the CRCT. This test was designed to assess mastery of knowledge and skills in the state curriculum (Georgia Department of Education, n.d.-b). Schools who failed to meet state performance targets on the CRCT were urged to provide supplemental services in addition to required interventions for students who fell below the state standard. Afterschool programming was one of the most common delivery models for these supplemental services (Heinrich & Burch, 2012).

History of Afterschool Programs: An Overview

The emergence of afterschool programs (late in the 1800s) evolved from changes in child labor laws and the dynamics of working class families. In that context, children became students instead of workers. As is the case in today's society, children needed supervision after school to keep them off the streets and thus reduce the risk of illegal activity. A report by the Healthy City Advancement Project (2012) indicated that students who are unsupervised during the afterschool hours are more likely to experiment with drugs, alcohol and sexual activity.

In 1876, Edward Harriman opened a club for boys located at Tompkins Square in Manhattan. He started with seven 15-year-old boys, and within 14 years the club grew to a club

membership participation of over 400 children. The program was enriched with opportunities to

expand young teenaged boys' minds. Some of the programs taught included wrestling, natural

history, and musical education. Edward Harriman's program opened the door for the formation

of other organizations to include girls and immigrant groups. Today, some 140 years later, the

focus is different. Though enrichment opportunities are important, afterschool programs provide

much needed academic support for low-achieving students (Holstead & Doll, 2015).

In 1965, ESEA was signed into law by President Lyndon Baines Johnson and offered

low-income students federal grants to improve the quality of elementary and secondary

education (U.S. Department of Education, n.d.). In 1994, the Clinton Administration

reauthorized the ESEA to include afterschool activities provided through the 21st Century

Community Learning Center Program and Title I. By the year 2000, this program grew to a

$453 million initiative. As noted in the Federal Register,

> The 21st Century Community Learning Centers Program was established by Congress to
> award grants to rural and inner-city public schools, or consortia of those schools, to
> enable them to plan, implement, or expand projects that benefit the educational, health,
> social services, cultural and recreational needs of the community. School-based
> community learning centers can provide a safe, drug-free, supervised and cost-effective
> after school, weekend or summer haven for children, youth and their families (21st
> Century Community Learning Centers Program, 1997, p. 63777)

These grants, however, made eligible only rural or inner-city public elementary or secondary

schools, consortia of those schools, or local education agencies.

A guide detailing a step-by-step plan as to how to begin a community learning center

with a list of resources was put into place and written by the U.S. Department of Education

Planning and Evaluation Service and the Partnership for Family Involvement in Education

(1997). The guide entitled *Keeping Schools Open as Community Learning Centers: Extending Learning in a Safe Drug Free Environment Before and After School* offered suggestions for costs to obtain qualified staff. The authors of the guide stressed equitable distribution of assistance for urban and rural areas. ESEA required a minimum of four of the activities listed (U.S. Department of Education, n.d.). Activities included literacy education programs; children's day care services; integrated education, health, social service, recreational, or cultural programs; expanded library service hours to serve community needs; telecommunications and technology education programs for individuals of all ages; and parenting skills education programs.

Other activities could include tutoring or homework assistance; instructional enrichment classes; and recreational, musical, and artistic activities. Designated as *empowerment zones* or *enterprise communities* by the U.S. Housing and Urban Development and the U.S. Department of Agriculture, rural and minority communities were considered disadvantaged. A concern of the federal government for more than thirty years has been the education of disadvantaged children (Kena et al., 2016; Jennings, 2000).

In these recognized areas, programs that focused on helping children to narrow the achievement gap were implemented. By 2001, Clinton requested one billion dollars be set aside for continuation and expansion of the 21st Century Community Learning Centers grant program. Approximately 900 communities received grants for providing extended learning opportunities in over 3,600 schools, influencing over 650,000 students during after school hours (Gayl, 2004; Phillips, 2010).

To further accountability measures, President George W. Bush introduced NCLB, with school improvement being the central theme. States were required to test students annually in

reading and mathematics and to achieve grade level proficiency by 2014. Schools were required to publicly report test results for all students and for specific student subgroups. These subgroups included low-income students, SWD, English language learners, and major racial and ethnic groups (NCLB, 2002). The incentive for programs after school to provide additional support to high-risk students became even more necessary in order for schools to meet requirements imposed by federal and state mandates.

Theoretical Framework: An Overview

The theoretical foundation for this study included constructivism and sociocultural theory. Jean Piaget's constructivist approach looks at how people learn or how the learners construct knowledge for themselves (Au & Carroll, 1996). Constructivism encourages curriculum customized to students' prior knowledge and emphasizes problem solving, hands-on experiments, exploration, thinking, and reflection (Au & Carroll, 1996; DeVries, 2002; Grennon-Brooks & Brooks, 1999).

Lev Vygotsky's sociocultural theory describes learning as a social process and suggests students should be provided with a variety of socially rich environments to explore and interact with others (John-Steiner & Mahn, 1996; Rezaee, 2011). According to Honig and McDonald (2005), sociocultural theory requires more than attendance or participation. It requires deep engagement in meaningful work. Most afterschool programs provide time for social interaction and focus on student participation, engagement, and attendance to impact student learning.

Both the constructivist and sociocultural theories suggest that when students are engaged in activities that require them to think, solve problems, explore, and interact with others, learning takes place. Since afterschool programs are not bound by state mandated curriculum and limited class times, students can be provided opportunities to participate in hands-on learning,

meaningful projects, and experiments in socially rich environments thus positively impacting student achievement.

Problem Statement

The general problem is large numbers of at-risk students, including SWD, struggle to perform at grade level on state mandated assessments. According to the Afterschool Alliance (2009, 2014a), SWD have a higher risk of dropping out of school. In fact, in 2011 63% of SWD graduated from high school while 78% of all students graduated (Afterschool Alliance, 2014a). This is a nationwide problem that must be addressed because a direct correlation exists between high school test scores and college entrance. Due to low test scores, a large number of at-risk students may not have the opportunity to go to a college of their choice. At a time when a college degree has become necessary to secure a job, many minority, language learners, SWD, and economically disadvantaged students are not mastering academic skills and related study habits needed to succeed in college (Williams, 2011). These facts increase the need to close the achievement gap immediately.

In order to make a difference and facilitate changes, effective procedures used to help at-risk students must be reexamined. Carroll (1963) argued that the time needed for productive learning relates directly to time spent during the school day. The National Association of Elementary Principals (2005) noted in *Making the Most of After-School Time* that providing additional time on task was critical to ensure at-risk students have the opportunity to learn basic skills. The concept of mastery learning, as advocated by Bloom, expanded on this theory by stating that everyone can learn, given the right circumstances, such as time and instructional strategy (Bloom, 1987). SWD need additional time to learn required curriculum.

The use of afterschool programs is a well-documented approach to closing the academic

achievement gap. However, research on the effects of afterschool programs for improving student achievement of SWD on standardized tests is inadequate and fails to meet minimal standards of research design (Rothman & Henderson, 2011). The problem is there is a gap in the literature that demonstrates the effectiveness of afterschool programs on reading and math achievement of SWD.

Purpose Statement

The purpose of this quantitative nonexperimental causal comparative research study was to determine if there is a statistically significant difference in reading and math achievement, as measured by the Georgia CRCT, for sixth, seventh, and eighth grade students with disabilities (SWD) who attended the afterschool program of one rural Georgia middle school when compared to sixth, seventh, and eighth grade SWD who did not attend the program. The study compared groups differing on the preexisting independent variable (i.e., afterschool participation) to determine its effect on the dependent variables (i.e., student achievement in reading and math). The population for this study was all SWD who attended one rural Georgia middle school 2011–2014. This convenience sample consisted of all SWD who had at least two consecutive years of Georgia CRCT scores in reading and/or math.

In Georgia, educational administrators at both the system and local school level are attempting to measure improvement in afterschool students' standardized test scores. According to Kane (2004), studies on afterschool programs have not confirmed a major impact on high stakes testing. A study by Browne (2015) showed that afterschool programs positively impacted student achievement and social and emotional growth of its participants. However, there appears to be limited research when looking at the impact of afterschool programs on student achievement of SWD.

Significance of the Study

The significance of this study was to determine the effects of afterschool programs on the achievement of SWD. Afterschool programs designed for school improvement and to increase student performance in math and reading are well documented in the literature (Farbman & Kaplan, 2005; Frankel, Streitburger, & Goldman, 2005; Huang & Dietel, 2011; Vandell, 2007). Learning during the regular school day is not enough for all students to reach the high standards of federal and state mandates. According to research by Davies and Peltz (2012) and Maynard et al. (2015), afterschool programs are an excellent approach to providing additional instructional time and tutoring for at-risk students. However, there is insufficient research on the effects of afterschool programs on the achievement of SWD.

The research project identified some practices utilized in the specified afterschool program designed to improve academic achievement of SWD. Therefore, this research provided beneficial information to teachers, administrators, school district leaders, and parents. Furthermore, it will determine if there is a difference in CRCT math and or reading scores of SWD who participated in the afterschool program and those who did not. The research adds to the limited body of knowledge on the effects of afterschool programs on the achievement of SWD in reading and math. Finally, the study provides evidence that supports the use of effective practices in afterschool programs to help students improve performance on high stakes testing.

Research Questions

The study will attempt to answer the following research questions:

RQ1: Is there a difference in reading achievement as measured by the Georgia CRCT for sixth grade SWD who participate in an afterschool program when compared to sixth grade SWD who do not participate?

RQ2: Is there a difference in reading achievement as measured by the Georgia CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate?

RQ3: Is there a difference in reading achievement as measured by the Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate?

RQ4: Is there a difference in math achievement as measured by the Georgia CRCT for sixth grade SWD who participate in an afterschool program when compared to sixth grade SWD who do not participate?

RQ5: Is there a difference in math achievement as measured by the Georgia CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate?

RQ6: Is there a difference in math achievement as measured by the Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate?

Definitions

1. *Afterschool Program*: A program that takes place immediately following the school day. It may include academics, enrichment, homework help, or recreational activities (Afterschool Alliance, 2011).

2. *At-Risk Students*: Students who are in danger of failing or dropping out of school (Horn & Carroll, 1997).

3. *Adequate Yearly Progress* (AYP): A measurement defined by the NCLB. It indicates if a school or system is performing academically according to the state's standardized

assessment (Georgia Department of Education, n.d.-a).

4. *Criterion-Referenced Competency Test* (CRCT): A standardized assessment that was administered annually to students in first through eighth grades in the state of Georgia at the time of this study (Georgia Department of Education, n.d.-b).

5. *Student Achievement*: Academic achievement of students as measured by standardized test scores (Mertens & Anfara, 2006).

6. *Students with Disabilities* (SWD): Students with an identified disability who may need additional specialized instruction to meet their educational goals (Aud et al., 2011).

CHAPTER TWO: LITERATURE REVIEW

Overview

This chapter provides a review of the literature related to afterschool programs. The literature review consists of the following topics: The History of Afterschool Programs, Need for Afterschool Programs, Effectiveness of Afterschool Programs, Afterschool Programs Best Practices, Effectiveness of Afterschool Programs on SWD, Frequency and Duration, and Middle School Afterschool Programs. This section also reviews the theoretical framework for this research.

Theoretical Framework

In effective afterschool programs, learning is based on (a) the students' existing knowledge, (b) the ability for the teacher to become the coach or facilitator, not just the source of information, and (c) the students' projects and activities being planned around the learners' interests in order to challenge them to think and solve problems (Hirsch, 2011). In order to be effective, afterschool programs must challenge students who are at risk to learn and develop skills, either missed in prior years of learning or from ineffective teaching. Because learning and teaching can happen anywhere, the importance of finding new and innovative methods of teaching are especially important to students who are falling behind in school. Learning environments outside of the explicit teaching format bring renewed interest for at-risk students. Constructivism and sociocultural theory are used as the theoretical foundation for this study aiding in the understanding of how afterschool programs can provide an optimal environment for improving achievement and social development of students.

Constructivism

Constructivism is a philosophy of learning founded on the following premise: By

reflecting on our experiences, we construct our own knowledge of the world we live in (Au & Carroll, 1996). Learning is simply the process of adjusting what we already know to accommodate new experiences. Academic content, in a constructivist classroom, is integrated into large or small group activities as well as individual practice. Student desks arranged neatly in rows are usually not found in the constructivist classroom (DeVries, 2002). A constructivist learning environment is one in which "technology is used to keep children actively engaged, constructive, intentional, complex, contextual, collaborative, conversational, and reflective" (Children's Technology Workshop, 2008). In basic learning principles, the student or receiver of knowledge learns from the external world, integrating information from the external world with preexisting schemas of knowledge to interpret their own understanding of meaning (Collay, Gagnon, & Schmuck, 2006). According to Grennon-Brooks and Brooks (1999), constructivism gives control of learning to the learner. It allows the learner's curiosity to lead instruction.

Flexibility for learners to experiment, think, and reflect about what they are learning does not necessarily mean the students are in control; rather, constructivism takes a reconsidered role of the teacher and reinvents the atmosphere. The role of the teacher is to guide students through the learning process via questions, suggestions, concepts, and strategies instead of the traditional transfer of information from teacher to students. The understanding of knowledge is the responsibility of the learner; whereas, the responsibility of the instructor is to provide the opportunity or the resource for facilitating the learning experience by means of questioning and mediation.

Constructivism can be traced to the 18th century and the work of Vico Giambattista (Bhattacharya & Han, 2001). Bhattacharya and Han (2001) maintained that humans are able to understand only what they themselves have constructed. Many philosophers and educators have

worked with these ideas, but Jean Piaget and John Dewey were the first to develop a clear conception of constructivism.

Von Glaserfield (1990) acknowledged that constructivism means "knowledge is not passively received" (p. 22). According to Piaget (1973), students are not just empty heads to be filled with facts from packaged curriculum given out by teachers. Constructivism does not depend on a standardized curriculum. Instead, it promotes using curriculum customized to students' prior knowledge. Also, it emphasizes real world problem solving, experiments, reasoning, and communication (Au & Carroll, 1997). Piaget believed that a constructivist classroom should include a variety of tasks and projects that challenge learners to discover new ideas and build their own knowledge (Ozer, 2004). Constructivism gives students the power to make connections, reformulate ideas, and reach conclusions (Brewer & Daane, 2002). Afterschool programs often focus on teaching students critical thinking skills and how to make connections between content such as mathematics and real life (Huang & Dietel, 2011).

In a constructivist approach to teaching, teachers implement strategies that require student responses and encourage students to analyze, interpret, and predict information (Brewer & Daane, 2002). The constructivist teacher sets up problems and monitors student exploration, guides student inquiry, and promotes new patterns of thinking (Au & Carroll, 1997). According to Little, Wilmer, and Weiss (2008), as part of the Harvard Family Research Project, student achievement improves as a result of afterschool programs by providing opportunities for students to practice new skills through hands-on lessons and project-based activities that require learners to think critically and solve problems. Afterschool teachers are not typically bound by limited class times; therefore, they can spend additional time allowing students to explore, experiment, and participate in problem-based learning and hands-on activities.

It has become increasingly apparent in regard to afterschool programs that students experience improved academic performance and socio-emotional development. It is also important to point out that the quality of the instructional program is significant in evaluating student outcomes (Afterschool Alliance, 2014c). The data used to predict such findings included: survey feedbacks, attendance records, and scores on tests to include skills and knowledge gained. By stringently recording data regarding the progress of students, studies have shown that quality afterschool programs improve not only the academic performance of students but life skills as well (Afterschool Alliance, 2014c).

Data were collected on numerous afterschool programs (Afterschool Alliance, 2014c). One such program, located in Chicago, was launched in 2011 for the benefit of 63 students. Within two years, the program had more than doubled in size, serving 200 seventh and eighth grade students. This particular program served a group of students with more than nine in 10 of them qualifying for the Federal Free or Reduced Price Lunch Program. African American students comprised 80% of the group (Afterschool Alliance, 2014c). Improvements were discovered in the students' self-confidence as well as their ability to communicate with adults. Carol McElvain, director of the Afterschool and Expanded Learning for the American Institutes for Research, stated,

> This recent knowledge that high quality afterschool programs work and make a positive difference is indeed a 'game changer.' This means that we should spend much less time arguing about whether quality afterschool programs work and much more time on working to ensure that all programs are effective and to make high-quality programs more accessible and scalable (Afterschool Alliance, 2014c).

BUILD, another Chicago program that includes mentorship as well as afterschool learning,

found 93% of its students graduated from high school (Afterschool Alliance, 2014c).

Sociocultural Theory

In addition to constructivism, Lev Vygotsky's sociocultural theory of human learning describes learning as a social process and the beginning of human intelligence in culture (John-Steiner & Mahn, 1996). The main theme of Vygotsky's theoretical framework is that social interaction plays an important part in the development of cognition. According to Vygotsky (1978), everything is learned on two levels: first through interaction with others, and then later through the incorporation into the person's psychological makeup.

Sociocultural theory stems from analyzing a variety of settings that promote student learning (Rezaee, 2011). Sociocultural theorists recognize that students learn consistently across a variety of settings whether or not the purpose of the setting is to improve learning. However, certain environments are stronger than others when it comes to supporting learning (Rogoff, 1994). One implication of Vygotsky's theory is that learners should be provided with socially rich environments in which to explore knowledge with other students, teachers, and outside experts (John-Steiner & Mahn, 1996). Afterschool studies typically use the term participation to indicate whether or not students attend afterschool programs. However, in sociocultural learning theory, participation is more than attendance in an afterschool program. It is deep engagement in work that is genuine and meaningful (Honig & McDonald, 2005). Therefore, in the afterschool setting, genuine and meaningful work may be identified by asking the following questions: Is the work valued and authentic? Does the work involve collaboration? Are students involved in the decision-making process? Does the work require planning, performance, and assessment? When looking though the lens of sociocultural theory, one would examine the difference in afterschool programs by focusing on participation, which in turn explains the effect these programs have on

learning. The implications of this theory suggest learning occurs through interaction and collaboration. The goal is to engage students with each other in the activities and language of the content being taught (Scott & Palincsar, 2013).

Many quality afterschool opportunities exist today for school aged children. While studies have validated the immense need for afterschool programs and the benefits from such programs to students, there is a need to take a closer look at the outcomes of afterschool programs for at-risk students, to include SWD. Furthermore, it is important to review the attributes of effective afterschool programs and determine how these elements can be translated and incorporated at the school level.

Related Literature

History of Afterschool Programs

The emergence of afterschool programs began in the late 1800s when Edward Harriman opened a club for boys at Tompkins Square in Manhattan. The turn of the century enlightened society with the notion that structured activities improved the development of the child (Lee, 1915). The decline in the need for American children to work in factories coupled with the desire to occupy and protect these children during after school hours led to a more structured approach to afterschool programs (Durlak, Mahoney, Bohnert, & Parente, 2010). Harriman's program expanded to over 400 children within a period of 14 years. The need for supervision, enrichment, and additional instructional assistance created a source for afterschool programs in the United States. It became more than just childcare to include enhancement of a child's social and academic well-being (Halpern, 2006).

Afterschool programs began as centers to help build relationships between communities and schools. Now they play an integral part in assisting students with academic improvement.

In *Why Dewey Matters*, John Saltmarsh (2008) reviewed the philosophy of John Dewey. According to Saltmarsh, Dewey concentrated on improving society in American public schools. Dewey trained at Johns Hopkins as a philosopher. He was fascinated with the relationship the individual had with society. Schools were laboratories to test his belief that education was an integration of learning with experience. He thought that many unmet needs could be eliminated if schools were available to the community. Dewey's curriculum was based on the child, not the subject matter. The process of learning was just as important as the subject matter learned. For Dewey, curiosity was key.

In 1911, the National Society for the Study of Education produced a book that discussed the significance of schools being accessible to the community outside of school hours, offered opportunities for learning to the community, and expanded the use of sports facilities (Whetten, 2003). Joseph K. Hart (1913) wrote a book regarding the utilization of community resources to educate children. This work, along with books written by John Dewey, led the Michigan Board of Education, in the 1920s, to create recreation programs that connected the community with public schools.

In 1975, 47.4% of mothers with children ages 6–17 years were employed; however, in 2011, 76.5% were employed (U.S. Bureau of Labor Statistics, 2013). Families with both parents working found themselves in situations in which their children were unsupervised between the hours of the ending of a typical school day and the ending of a typical workday. This brought tremendous concern for those studying child development (Mahoney & Parente, 2009). With the development of neighborhoods and childhood safety watches, researchers began to link poor childhood development with unsupervised care (Long & Long, 1983). Additionally, there was a stringent push for safe afterschool care programs (Afterschool Alliance, 2013b).

In the 1960s and 1970s, afterschool programs were increasing in popularity. These programs became even more valuable because they provided a safe refuge where students could go after school and receive extra help with homework. The programs also offered a variety of academic, vocational, cultural, and recreational activities (Whetten, 2003). In the 1980s and 1990s, afterschool programs were not just a safe haven for latchkey kids but also a place for students to be involved in sports, pursue artistic talents, or explore new interests. Federal dollars were offered to low-income households to help parents with the expense of supervised care during the after school hours through the Child Care Development and Block Grant also known as the Child Care Development Fund. Later in 1994, 21st Century Community Learning Centers provided funding for afterschool programs with a budget of around one billion dollars. Today's afterschool programs offer a mixture of activities including homework help, remediation, team sports, arts and crafts, music, table games, and physical fitness (Halpern, 2006).

In 2000, the Charles Stewart Mott Foundation, the U.S. Department of Education, J.C. Penney Company, Inc., Open Society Institute/The After-School Corporation, Entertainment Industry Foundation, and the Creative Artists Agency Foundation established the Afterschool Alliance. The Afterschool Alliance works to ensure all children have access to affordable, quality afterschool programs. According to the Afterschool Alliance (2009), more than 15 million school-age children are unsupervised after school. Furthermore, the hours between 3 p.m. and 6 p.m. are peak hours for juvenile crime and experimentation with drugs, alcohol, cigarettes, and sex. Afterschool programs have now become a common strategy to raise student achievement, provide homework assistance, and reduce juvenile crime in the afternoon hours (Huang & Cho, 2009).

Interest in afterschool programs has been building since the early 2000s for families in

poverty. According to Halpern (2006),

> Four principal factors are driving this growing interest: (1) a belief that public spaces
> such as streets and playgrounds are no longer safe for children's out-of-school time, (2) a
> sense that it is stressful and unproductive for children to be left on their own after school,
> (3) a concern that many children need more time and individual attention than schools
> can provide to master basic academic skills, and (4) a conviction that low-income
> children deserve the same opportunity as their more advantaged peers to explore
> expressive arts, sports, and other developmentally enriching activities. (p. 81)

Need for Afterschool Programs

Efforts to reduce school absences are tied to a need to provide students more time in
quality learning environments. Students who are experiencing failing grades, in particular, can
improve academically if they make it to school every day and spend a few extra hours in
afterschool program activities. These students are suffering academically because they are
absent from school too often. Also, these vulnerable students do not have access to quality
afterschool programs (Chang, 2014). Often the number of states that apply for the 21st Century
Community Learning Centers grants competition are typically two to three times greater than
there are monies available to fund, leaving many neighborhoods and young people without
afterschool programs (O'Donnell & Ford, 2013).

There is much evidence to confirm that quality afterschool programs encourage children
to participate more in school by being engaged where before they were not. It reduces the
likelihood of these children participating in at-risk behaviors or displaying negative behavior in
school, and it helps improve their academic performance (Afterschool Alliance, 2014b). On the
other hand, the superficial benefits of afterschool programs include: provision of a safe

environment for supervised care of youths who would not have any supervision otherwise, incorporation of academic enrichment and extended learning, and emotional and social interaction with peers and mentors. A closer look at the programs shows improvement in attendance, academics, classroom behavior, and behavior outside the classroom (Afterschool Alliance, 2014b).

Beacon Community Centers of New York, NY, indicated that as a result of their afterschool program for at-risk students, 95% of students who participated in the afterschool program stated that they worked harder in school, and 91% noticed an improvement in schoolwork. They further stated that they were better prepared for class and paid attention in class more than before. The attendance rate for the participants in the afterschool program was 93% for eighth graders (Afterschool Alliance, 2014b).

Higher Achievement, an afterschool program for middle-school students in Washington, D.C., found that students showed a significant increase in academic success after only 2 years in the program. Participating students noticed improvements in their reading and problem-solving scores over students not participating in the program. A later evaluation of the program discovered that in comparison with non-participating students, Higher Achievement youth performed similarly after one year; however, after two years, Higher Achievement youth performed better on standardized test scores in math problem-solving and reading comprehension (Afterschool Alliance, 2014b).

At-risk students who live in communities overwhelmed with poverty, fighting, and drugs are in desperate need of programs that provide a safe haven during the after school hours (Randell, Smith, & Steinman, 2015). While afterschool programs may not look the same in different areas of the U.S., the overall impact of the programs is significant. Research results

indicate there are common practices among afterschool programs that ensure the success of their students (Afterschool Alliance, 2014b).

According to Davies and Pelz (2012), afterschool programs improve scores on standardized tests and improve social competence and motivation when used as a supplement to academics outside of the classroom. There is a positive correlation between at-risk students' participation in after-school programs and their academic achievement (Davies & Peltz, 2012). When programs complement the materials given to the students during the day, it is most likely to benefit students the most. It is substantially important for the relationship between the students and their tutors to be strong. Students will improve in standardized testing, social competence, motivation, and confidence. Even when the benefits are seen, afterschool programs tend to come and go because the funding to maintain them is not there. Lack of funding is one of the major complications to program implementation. There is grant money available and school administrators should help districts apply for it (Davies & Peltz, 2012).

Afterschool programs make an impact on educational performance and achievement. Students who participate in afterschool programs have better school attendance records and fewer course failures than students who do not participate. When more time is spent on academics and the completion of homework, testing improves. In a study of about 3,000 low-income, ethnically-diverse elementary and middle school students, it was confirmed that those who regularly attended high-quality afterschool programs demonstrated increased test scores in comparison to their peers. Over a 2-year span, students demonstrated gains of up to 20 percentiles in standardized math test scores when compared to their unsupervised peers during the after school hours who showed gains of only 12 percentiles (Healthy City Advancement Project, 2012). Afterschool programs provide an increased awareness of culture in the students

as well as opportunities for nontraditional learning.

According to the Healthy City Advancement Project (2012), afterschool programs are also responsible for decrease in drug, alcohol, and cigarette use and a decrease in underage sex and teen pregnancy. There is a reduction in juvenile crimes because most crimes are committed in the early after school hours. The social benefits of afterschool programs are over three dollars for each dollar spent on after-school programs (Healthy City Advancement Project, 2012).

Afterschool programs improve social skills, increase self-confidence, build stronger relationships with peers, and increase self-esteem. The Healthy City Advancement Project (2012) conducted a meta-analysis of 73 afterschool evaluations and determined afterschool programs that implemented evidence-based strategies to increase children's social skills were effective in producing numerous additional advantages for students including improvements in academics, self-esteem, social skills, and emotional skills.

According to Huang and Dietel (2011), students leave school almost every day with homework to complete. Although homework may serve a number of academic purposes, many students, especially those from economically disadvantaged homes or homes where English is not the primary language, experience much difficulty trying to complete homework assignments (Holstead & Doll, 2015). In response to the need for supervision and academic support during the out of school hours, the demand for afterschool programs is becoming widespread (Afterschool Alliance, 2014b). In addition, since the creation of formal schooling, experts and researchers have questioned how much time is needed for students to be adequately educated. According to the U.S. Department of Education (2010), an increasing number of those who make school policies understand that typical school hours do not meet the needs of all learners.

Researchers have summarized that providing academic opportunities beyond the regular

school day is a promising intervention for at-risk learners (Davies & Peltz, 2012). Furthermore, Shernoff (2010) and Browne (2015) found that participating in afterschool programs improves students' sense of competence and engagement in school.

Some studies have generated concerns about the lack of research examining extended learning programs, their possible effectiveness, and their increasing costs (Lauer et al., 2006; Developmental Services Group, 2010). Slavin (2004) voiced alarm about the impact ineffective afterschool programs have on students and their academic performance. Furthermore, there appears to be a lack of consistency in the components that must be in place for a program to be effective (Huang et al., 2009).

Researchers have summarized that providing academic opportunities beyond the regular school day is a promising intervention for at-risk learners (Davies & Peltz, 2012). In addition, Durlak, Weissberg, Dymnicki, Taylor, and Schellinger (2011) reiterate that afterschool programs keep young people safe and out of trouble. Effective out of school time programs are associated with gains in academic and social skills and decreases in skipping school, fighting, and drug use (Vandell, 2013). While little research-based evidence is available supporting the possibility that student achievement will increase by extending the school day, there is a preponderance of evidence supporting increased engagement in school and improved school attendance (Afterschool Alliance, 2011).

Best Practices for Afterschool Programs

According to O'Donnell and Ford (2013), the key concern is the quality of instruction being presented during the out of school time program. Students enrolled in afterschool programs that were located within the students' home schools and taught by the schools' teachers outperformed students who attended community-based afterschool programs in reading and

mathematics (Rotherman & Henderson, 2011). Collaboration with the classroom teacher is considered vital to an afterschool program's success or failure (Gordon, 2009; Lauver, 2012)

In a review of 68 afterschool programs, Durlack and Weissburg (2013) examined programs that showed improvement in student self-perceptions; reduced discipline problems and drug use; and increased standardized test scores, attendance, and grades. From these effective programs, he identified four common factors: a sequenced step-by-step approach to instruction, active hands-on learning that extended student opportunities to practice new skills, focused time and attention on skill development, and explicit explanations and expectations of new skills being taught.

Huang, Cho, Mostafavi, and Nam (2010) identified 53 afterschool programs that were successful in terms of improving student achievement. These programs shared similar characteristics: experienced leaders, clear goals and practices designed to meet those goals, low employee turnover, and engaging teachers. After reviewing dozens of afterschool program evaluations and synthesizing research, Huang and Dietel (2011) developed a model of five components of successful afterschool programs. The five components included: (a) clearly defined goals, (b) effective leadership, (c) experienced staff, (d) program that allows time for practicing skills and is aligned to the day school program, and (e) internal and external program evaluations.

Other studies identified additional characteristics of a quality afterschool program. Engagement, staff training, a program designed to meet specific needs of targeted students, strategies that build on prior knowledge, project based learning, hands-on activities, and effective program implementation are characteristics of high quality afterschool programs (Hirsch, Mekinda, & Stawicki, 2010; Vandell, 2013). According to Cross, Gottfredson, Wilson, Rorie,

and Connell (2010), a structured, researched-based curriculum; staff quality; and a variety of activities and incentives are identified as important components of effective afterschool programs. Townsend (2009) and Vandell (2013) identified engaging activities, mentoring and enrichment opportunities, and direct academic instruction as components of successful afterschool programs.

The U.S. Department of Education (2010) lists the following as practices found in high-quality afterschool programs: use of extended learning time to address all areas of academic weakness, collaborative planning time for teachers, strong partnerships with outside organizations, activities that are different from those provided during the regular school day, lessons tied directly to college and career readiness, and the use of data to drive after school instruction.

Positive youth development is essential in afterschool programs for fostering the *five Cs* in students: competence, confidence, character, connections, and caring (Hirsch et al., 2010). With the long-standing concern in community psychology, this benefits positive mental health, wellness, and competence. Development is key and comes from positive intervention through programs such as afterschool programs. Psychologists are attracted to afterschool programs because of their benefits to at-risk students (Hirsch et al., 2010).

Effectiveness of Afterschool Programs

Because students spend a good deal of time away from school, it is important to recognize what the student is doing during this time. For some students, the time is spent in sports or art lessons or music lessons; however, for a majority of the students, this time is spent nonproductively. Adults do not supervise most of this time for students. Afterschool programs are highly beneficial for those students who do not have the advantage of sports or lessons in art

or music and who find themselves without adult supervision. For students without adult
supervision or learning opportunities after school, afterschool programs offer an environment
that is safe and nurturing as well as educational (David, 2011). Studies have shown that students
who attend afterschool programs on a regular basis experience improvement in social skills,
mathematics, and work and task oriented skills (David, 2011). It was not determined if the
afterschool program necessarily has to be closely tied to the academic program of the school day.

According to Vandell (2013), there is a need for effective afterschool programs to help
at-risk learners, since students now require more information and skills to master high-stakes
testing. Huang and Dietel (2011) noted that afterschool programs played a significant role in
increasing student academic performance whether learning occurred through specific academic
activities or indirectly through activities that positively motivated them (e.g., mentoring,
enrichment activities, and athletic activities). Results included improvement in reading, math,
completion of homework, and greater self-confidence in reading. The researchers also
confirmed a decrease in grade retention.

An evaluation of 21st Century Community Learning Centers by the U.S. Department of
Education revealed that 75% of parents whose student attended the program believed
participating in the afterschool program would improve their child's performance in school
(James-Burdumy et al., 2005). However, the study found nominal results on actual academic
achievement. The report did suggest that students who attended the program 30 days or more
had a slight improvement in math grades and better school attendance.

McComb and Scott-Little (2003) conducted a review of 27 afterschool program studies
and concluded that students at risk of failure benefited more than students who did not struggle
in school, and students who regularly attended the program showed more gains than students

who attended the program sporadically. In general, the results were questionable about the effects of afterschool programs on student performance.

Research by Huang and Dietel (2011), Durlak et al. (2010), and Vandell, Reisner, and Pierce (2007) revealed participating in afterschool programs resulted in better school attendance. Attendance in afterschool programs also correlated to higher scores on standardized tests in math, reading, and language arts. The studies also revealed that at-risk learners showed more improvement in reading and math. In addition, those students who attended effective afterschool programs consistently over a two-year period demonstrated greater gains on standardized test scores when compared to students who did not participate in afterschool programs.

It has been determined that 8.4 million students attend afterschool programs (Huang & Dietel, 2011). Participation in an afterschool program is beneficial to the overall academic success and social interaction of those who attend. The best programs had several common characteristics: clearly defined goals; program aligned to the regular school day, experienced leadership; certified teachers; and internal and external evaluations. Curriculum for afterschool programs that combines the development of academic skills with opportunities for enrichment and social development is most effective (Huang & Dietel, 2011).

It is stressed that the leadership of the afterschool program is best suited to someone who has many years of experience in dealing with the challenges of afterschool programs. It is important to have a clear vision and mission for the afterschool program and to know who the at-risk students are and how to best benefit them (Huang & Dietel, 2011).

Stability of staff, collaboration with the day program, up-to-date technology, parent involvement, curriculum, and evaluation are key factors in maintaining a quality program. According to Huang and Dietel (2011), it is important for stakeholders to understand the positive

influence afterschool programs can have in affecting change, not only by changing the culture of a school but also on individual students. Since afterschool programs are not bound by curriculum requirements or state standards, they are able to provide students opportunities to explore their own interests and meaningful projects (Hirsch, 2011). When students have the freedom to discover and engage in hands-on activities, they gain a sense of accomplishment and the impact is profound.

Effectiveness of Afterschool Programs on SWD

Statistically, 13% of public school students have been identified with a disability or other special need. This number amounts to approximately 6.4 million students according to the most recent report from the National Center for Education Statistics (Kena et al., 2015). Research also indicates that when SWD graduate from high school, their educational and career prospects become considerably better. In addition, their chances of living an independent and satisfied life also increases (Kena et al., 2015).

These students will face challenges through school and into adulthood compared with students without these disabilities. In the 2010-2011 school year, only 63% of the SWD graduated from high school as compared to 78% for all students (Balfanz, Bridgeland, Bruce, & Fox, 2013).

SWD not only face challenges transitioning to life as adults, they also experience significant challenges at school during their school-age years. SWD are less likely to graduate from high school than nondisabled students. Additionally, 65% of adults with disabilities are unemployed, and 26% live below the poverty level. Section 504 of the Rehabilitation Act and the Americans with Disabilities Act ensure SWD access to afterschool programs (Crabtree, 2013). According to the National Center for Technology Innovation and Center for

Implementing Technology in Education (2006), students with special needs who attend afterschool programs have higher academic achievement, improved school attendance, less behavior issues, and better social acceptance.

Furthermore, the National Institute on Out-of-School Time (2009) at Wellesley College reports that afterschool programs play a critical role by providing SWD opportunities to improve their skills while building on their potential. This is in large part due to the level of personal attention made available to them during afterschool programs (Afterschool Alliance, 2014a). According to the Afterschool Alliance (2014a), SWD can benefit from extra time spent in inclusive programs that can provide help with homework, teach new skills, foster social interaction, and build relationships. Effective afterschool programs can offer the support SWD need while allowing them to flourish alongside students without disabilities and giving them opportunities to explore interests, develop social skills, and build friendships (Smith & Shea, 2013). Afterschool programs can also address the risk factors that lead SWD to drop out of school and provide tools to successfully move them to high school graduation (Afterschool Alliance, 2014a).

Most afterschool programs offer inclusive learning environments. This is beneficial to students of all learning levels and allows them to take part in learning experiences together. The inclusive learning environments offer SWD opportunities for positive growth and foster improvement academically, socially, and emotionally. This encourages students to remain engaged in school, which increases the chances of graduation. Even when SWD are enrolled in inclusive classrooms during the school day, the additional benefit of an afterschool program that is academically enriching and allows SWD to learn alongside peers without disabilities shows positive results (Kena et al., 2015). By including the afterschool program alongside the inclusive

learning classroom, educators are better equipped to combat school disengagement, which is one of the risk factors associated with the dropout rate of students. The belief is centered on the ability to bring together children with and without disabilities and other special needs in a safe environment in order to gain appreciation of others as well as their differences and similarities. This fosters the acceptance of others, builds confidence needed to graduate from school, and gives students the necessary boost to further their life and career.

More and more, educators are realizing the benefits of afterschool and summer learning programs for SWD. The environment is more natural and students can experience learning without the tension and stress of the normal classroom. The demand for afterschool professionals to have access to quality resources and materials to support them in making accommodations for students with special needs, learning difficulties, and challenging behaviors continues to increase (Smith & Shea, 2013). Programs that offer a philosophy of inclusion such as Kids Included Together have seen the benefits of a program to include students of varying levels of disability. Kids Included Together has found the importance of training staff on how to integrate students into the mainstream (Smith & Shea, 2013).

Smith and Shea (2013) stress that although there is a great deal of support for children with disabilities during the school day, the benefits of afterschool and summer learning programs have a greater impact than just attending school during regular hours. It becomes more and more important that the afterschool and summer programs provide (a) the professional development for teachers and (b) include children of varying grade levels and/or ability levels to make these learning opportunities engaging and effective.

After participating in afterschool programs, when students with disabilities graduate from high school, they are more likely to enroll in post-secondary schools, get jobs, and become

independent adults (Afterschool Alliance, 2014a). Afterschool programs can expand students'

opportunities in an informal setting, where the emphasis can be on the activities, rather than the

end result. A student's decision to drop out of school can begin in middle school. Afterschool

programs can provide additional help to fight school disengagement and other factors associated

with student dropout (Afterschool Alliance, 2014a)

In an inclusive setting, such as an afterschool program, SWD are given the opportunity

for additional learning time where they can grow friendships, learn leadership skills, and explore

interests that cannot be accomplished in the normal learning day. Challenges come, however, in

accommodating students of varying levels of disabilities. It is important that the staff of the

afterschool programs receive the training necessary to provide the assistance to SWD. The

Afterschool Alliance (2014a) summarizes by saying:

> Afterschool programs create a safe space where students of all abilities can learn and
> grow side-by-side, respecting and appreciating one another's similarities and differences.
> The flexible and adaptable nature of afterschool programs make them a valuable source
> of support for all students—including students with disabilities and other special needs—
> helping them reach their full potential in school, in work and in life. (p. 8)

Frequency and Duration of Afterschool Programs

Although the review of the literature indicated multiple benefits for students who attend

quality afterschool programs, the results reveal that the frequency with which students attend the

program and the duration of time the learners participate impact the benefits. Durlak et al.

(2011) linked consistent attendance in quality afterschool programs to greater engagement in

learning, higher academic performance, improved behavior in school, better work habits, and

improved homework completion. In addition, students who participated in effective afterschool

programs for 1 year or more showed greater academic gains than students who attended for a shorter period of time.

Huang and Dietel (2011), in a longitudinal study of LA's BEST program, found that students who attended the program consistently and for a long period of time were less likely to drop out of school. A review of the Boys & Girls Clubs of America revealed that students who attended the club regularly were more likely to show an increase in effort and improved academic confidence while decreasing the number of days skipping school (Huang & Dietel, 2011).

Significant gains in standardized test scores and the student's work habits have been linked to regular attendance in afterschool programs as well as improved school attendance and a reduction in behavior problems among disadvantaged students. These programs have a particularly strong impact on low-income and underperforming youth (Healthy City Advancement Project, 2012).

Balfanz et al. (2013) emphasized that in America's high school dropout crisis, the nation is meeting their goal and on track to have a 90% high school graduation rate by 2020. This is based upon the pace of the graduating students from years 2006 to 2010. The amount of students graduating each year must remain on pace with the numbers from 2006–2010 over the next 10 years. More than 200,000 students received their diploma during these years (Balfanz et al., 2013). The greatest gains were found in students where the dropout rate was most apparent: students of color, of low-income, with disabilities, and with limited English proficiency. However, the results were not the same across the nation. There appeared to be gaps. Balfanz et al. (2013) believe the crisis is solvable by collecting better data and becoming aware of the consequences for the student as well as the economy. When the contributing factors of the

dropout crisis are determined, a solution will be reachable nationwide.

The uneven distribution of the dropout rate across states and subgroups of students must be addressed. Balfanz et al. (2013) found that the subgroups for dropouts include students with limited English proficiency, SWD, students from low-income levels, as well as African Americans and Hispanics. Belfanz et al. (2013) recommended the following:

> To repeat the growth in graduation rates in the next ten years experienced in the second half of the last decade, and to ensure progress for all students, the nation must turn its attention to closing the graduation gap by accelerating progress for student subgroups most affected by the dropout crisis. (p. 5)

From the research found, it is evident that attendance and participation in afterschool programs not only improves learning capabilities of culture, academics, and language, but also greatly increases the ability of the student to follow through and graduate from high school.

Hirsch (2011) found that while attendance is necessary in afterschool programs, it is not necessarily sufficient. Participation and active involvement in an afterschool program must be accomplished. Engagement in program activities is essential to beneficial results. Roth, Malone, and Brooks-Gunn (2010) used many examples of studies on program attendance including duration and intensity in which youth engagement was not directly assessed. Also, Roth et al. (2010) reviewed studies that confirm attendance alone does not predict youth outcomes. Youth engagement begins with the design of the program and the quality of the youth's experience in the established settings. While engagement is not the only component of program participation, it and the level of attendance coincide to be important features to be considered when assessing program quality.

Cross et al. (2010) studied the aspects of engagement and the quality of the program, but

did not consider attendance. Cross et al. (2010) used five programs that served middle school students to examine the relationships between measures of implementation quality, youth engagement, and youth self-ratings of enjoyment (Hirsch, 2011). The higher rated programs included high quality staff with positive affective environments and high levels of youth engagement. The self-reported enjoyment from students in the programs corresponded to these same measures.

In contrast, attendance, which varied widely from site to site, was not highly related to observations of other program features. There was no correlation between staff turnover and training, affective environment, or student enjoyment. In the study done by Shernoff (2010), experiences were examined by the relationships between program attendance, youth engagement, and positive youth outcomes. The results showed that afterschool program attendance was related to social outcomes; however, this relationship was accentuated by youth engagement. Engagement corresponded with increased attendance and was a predicting factor in the student self-reports of enjoyment and confidence in social competence. Although the student program attendance was not associated with outcomes, the student self-reports of enjoyment, engagement, and confidence did positively predict outcome (Hirsch, 2011).

In the findings of Cross et al. (2010), simple attendance in afterschool programs did not relate to youth enjoyment for middle school students. Both Cross et al. (2010) and Shernoff (2010) determined that engagement was more a deciding factor than attendance to predict student outcomes and implementation quality. According to Hirsch (2011) and Vandell (2013) continued research is needed to determine if a relationship exists between individual and program-level engagement, program implementation, and youth outcomes. When programs are designed, it would be better to look at the quality of the program and the manner in which the

program is implemented in order to increase student participation and engagement instead of focusing on attendance data (Hirsch, 2011).

Types of Afterschool Programs

Afterschool programs provide help for working parents by providing adult supervision and a structured environment that engages students until parents are able to pick them up in the evening. Activities provided during these programs include classes in math and reading, academic tutoring, homework help, project-based learning, enrichment, sports, and fine arts. In reports by Parsad and Lewis (2009) and Hirsch (2011), types of afterschool programs were identified. The reports looked at programs located on-site at public schools and those held in community organizations:

- Fee-based day care programs for which parents pay an hourly rate. These programs function primarily to provide afterschool supervision for students. Fee-based programs generally include some help with homework, fine arts activities, crafts, and physical fitness activities (Parsad & Lewis, 2009; Hirsch, 2011).

- Stand-alone academic instruction/tutoring programs that provide direct instruction in core content areas, such as reading and math. Most stand-alone programs focus on improving standardized test scores and/or improving student achievement for students who are at risk of failure. Some stand-alone programs provide enrichment activities for gifted and advanced learners (Parsad & Lewis, 2009; Hirsch, 2011).

- 21st Century Community Learning Centers that are federally funded to provide academic support in core content areas and enrichment activities that may include art, music, technology, drama, etc., to students in high poverty and low performing schools. Many 21st Century programs provide free transportation to and from the

program for participating students. In addition, these programs provide educational

support for families of students who participate in the program (Parsad & Lewis,

2009; Hirsch, 2011).

- Science, Technology, Engineering, and Math (STEM) programs that provide design experiences where participants use high-end computer hardware and software to explore meaningful projects. Activities range from building robots, creating animated books and characters, or constructing and designing virtual automobiles. STEM programs tend to attract mostly middle school students (Hirsch, 2011).

- 4-H clubs that provide the largest project-based afterschool program in the nation. Students enrolled in 4-H programs plan and complete projects that are entered in state fairs or other competitions. Many of the projects are science based and include research and experiments. These programs are led by volunteers instead of paid staff and have strong parental involvement (Hirsch, 2011).

- Other types of stand-alone programs that spotlight on one specific topic, such as, violence prevention, fine arts, counseling, sports, drama, etc. (Parsad & Lewis, 2009; Hirsch, 2011).

In *A Guide to Choosing an After-School Program*, Schwartz (1996) provided information

to parents on choosing the right afterschool program for their children. She listed options such

as community programs based on family income, faith-based programs, and those programs

operated by the school. Also, listed were programs funded by public agencies that provide

specific activities, such as recreational sports teams, drama, etc., or gender specific programs

such as Boys Club.

According to a research brief by the National Institute on Out-of-School Time (2009) at

Wellesley College entitled *Making the Case: A 2009 Fact Sheet on Children and Youth in Out-of-School Time*, afterschool programs that focus on the arts (dance, music, theatre, etc.) increase student performance, improve self-esteem, and decrease delinquent activities. A longitudinal study on the function of Boys & Girls Clubs conducted by Arbreton, Bradshaw, Metz, Sheldon, and Pepper (2008) revealed that programs with flexible attendance and a specialized curriculum keep students more engaged. The study also identified a variety of important components for teens when attending Boys & Girls Clubs including friends who attend, leadership opportunities, and a diversity of activities.

Afterschool programs must be in conjunction with, and not a repetition of, the curriculum of the school day. It must offer a safe physical and emotional environment, and an opportunity for students to build relationships with peers and adults. According to the California Department of Education (2015), there are two essential elements for afterschool programs. First, there must be an educational enrichment and literacy element. This should include tutoring and/or homework assistance so that students are capable of meeting the standards in their academic subjects: language arts, mathematics, history, social studies, and science. A wide range of activities can be implemented to tutor and to help students complete assigned work and come to a better understanding of the work expected of them. Secondly, the program should have an educational enrichment element to reinforce and complement the school's program. There are so many avenues an afterschool program can take to bring additional learning experiences to students. Students can find enrichment in visual and performing arts, music, physical activity, health/nutrition, career awareness, community service, and cultural awareness. These elements can be structured in such a way as to enhance the core curriculum.

Middle School Afterschool Programs

In the U.S., 8.4 million students have access to afterschool programs and the support they provide. Of these students, 1.4 million are in middle school. Even with the base of robust research that validates the unquestionable outcomes linked with students who participate in afterschool programs, including improvements in academics and behavior, there are still 15.1 million children who are not supervised during after school hours. Of these students, 3.7 million are in grades 6–8 (Afterschool Alliance, 2013a).

Middle school is a pivotal time for young teens as they face the challenges of transition from elementary school to middle school and middle school to high school. It is a time when it is critical for them to be engaged in school. Although many middle school students feel that afterschool programs are designed for elementary students, they still need a safe opportunity to learn and have fun (Afterschool Alliance, 2011). According to Huang and Matrundola (2012) in a 21st Community Learning Centers policy brief, hurdles to overcome in middle school afterschool programs include (a) lack of student interest and (b) opinion of staff toward the behaviors and negative attitudes of the middle school participants.

Engaging afterschool programs with a variety of relevant activities geared to middle school children can motivate and encourage students while providing instructional support and help in building interpersonal skills and self-esteem. Struggling middle school students are often the least likely to register for afterschool programs but typically show the most improvement when they participate (Wimer & Harris, 2011).

The Afterschool Alliance (2011) indicates that when middle school students do not participate in afterschool activities, they are 3 times more likely to smoke pot, drink alcohol, skip school, and have sex. Experts say the hours between 3:00 p.m. and 6:00 p.m. are the most

dangerous, especially for middle school children (Afterschool Alliance, 2011).

Generally, elementary students participate in afterschool programs for the enrichment opportunities and the families' need for childcare. However, while middle school students still enjoy these opportunities, attendance declines when students transition to middle school. A recent report by the MetLife Foundation (Afterschool Alliance, 2011) listed common barriers middle school students have toward afterschool programs. These barriers include boredom, family responsibilities, and transportation.

James-Burdumy et al. (2005) conducted an evaluation study of middle school students involved in 21st Century Community Learning Centers for the U.S. Department of Education. The evaluation revealed that programs had difficulty recruiting and retaining young teens, and those who did participate attended inconsistently. The middle school students were less likely to participate in academic classes and more likely to be involved in recreational activities.

Miller (2003) stated that afterschool programs serving middle school children must keep students engaged in the program by offering a variety of popular and engaging activities that include sports, fine arts, or technology. She further noted that afterschool programs are successful when participants have motivation to achieve academically.

Developmentally, middle school aged students must deal with diversity. There is a wide variation in normal growth rates. Puberty can range from 6 to 8 years in the physical development of a middle school student even though students are the same chronological age. Because of this, middle school children experience challenges in their physical skills and emotional growth.

According to Afterschool Alliance (2013a), it is important for afterschool programs to accommodate the growing concerns and needs of this difficult age by offering the following:

- Physical activity: Young teenagers need time to move and relax.

- Competence and achievement: Middle school students are very self-conscious and self-aware of the changes taking place in their bodies and the differences in their abilities compared to peers. They long for opportunities to prove themselves and to know those they admire value their work.

- Self-definition: Programs should enhance ethnic and cultural awareness and the student's role in society.

- Creative expression: Middle school students need an avenue to express themselves creatively and to find their inner feelings and interests. Exposure to drama, literature, and music helps. Hands-on activities are beneficial as well.

- Positive social interaction with peers and adults: Relationships with peers is a crucial element for middle school students. Peers offer not only support and companionship but also criticism and exclusion. Relationships can be developed under the supervision of an adult in a positive setting.

- Structure and clear limits: Afterschool programs can help middle school students understand where the limits are and what expectations society, teachers, and parents have on them. It is important that middle school students began to shape and establish their own patterns and rules but in the confines of parental and school order.

- Meaningful participation: Middle school students want the opportunity to use the skills and talents they have. It is important that the afterschool program includes the student in meaningful activities. Students need to view themselves as citizens and contributors. Adults can help shape their identities and encourage confidence in the roles the students play in their own academic success and peer participation.

Summary

Vast amount of studies done on the impact of afterschool programs provide evidence that the benefits of such programs, particularly for disadvantaged students, is overwhelming. Middle school learners benefit from frequent participation in quality afterschool programs that increase engagement in learning, provide a variety of recreational activities, and build key skills necessary for academic success. In the past few years, schools are finding the benefits of having SWD participate in afterschool programs. It has been found that participation in such programs increases the likelihood of the student graduating from high school. Even more importantly, studies are showing for SWDs that there is an element of confidence building and inclusion.

Studies are beginning to show the impact of afterschool programs on math and reading portions of standardized tests and teacher assigned grades, but there is still much to be learned and addressed. Not enough research has been conducted for determining the impact afterschool programs have on the academic achievement of SWD. This study will attempt to determine if SWD in grades 6–8 participating in an afterschool program in a rural middle school in northeast Georgia perform better on the Georgia CRCT in reading and math than SWD in grades 6–8 who did not participate in the program.

CHAPTER THREE: METHODS

Overview

The purpose of this quantitative nonexperimental causal comparative research study is to determine if there is a statistically significant difference in reading and math achievement as measured by the Georgia CRCT for sixth, seventh, and eighth grade students with disabilities (SWD) who attended the afterschool program of one rural Georgia middle school when compared to sixth, seventh, and eighth grade SWD who did not attend the program. This chapter describes the research design, research questions and null hypotheses, participants and setting, instrumentation, procedures, and data analysis of the study.

Design

A quantitative nonexperimental research method using a causal comparative design was used to determine the impact of the afterschool program as an intervention to improve student achievement in reading and math for SWD. A causal comparative research design was used to establish the cause for or the consequences of differences that have already taken place in groups of individuals (Ary, Jacobs, Raxaveih, & Sorensen, 2006).

The study compared groups differing on the preexisting independent variable (i.e., afterschool participation) to determine its effect on the dependent variables (i.e., student achievement in reading and math). The study compared two groups of SWD (i.e., one group attending the afterschool program and the other group not attending the program) from each of three grade levels (i.e., sixth, seventh, and eighth).

Research Questions

The study will attempt to answer the following research questions:

RQ1: Is there a difference in reading achievement as measured by the Georgia CRCT for

sixth grade SWD who participate in an afterschool program when compared to sixth grade SWD who do not participate?

RQ2: Is there a difference in reading achievement as measured by the Georgia CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate?

RQ3: Is there a difference in reading achievement as measured by the Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate?

RQ4: Is there a difference in math achievement as measured by the Georgia CRCT for sixth grade SWD who participate in an afterschool program when compared to sixth grade SWD who do not participate?

RQ5: Is there a difference in math achievement as measured by the Georgia CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate?

RQ6: Is there a difference in math achievement as measured by the Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate?

Hypotheses

The null hypotheses for this study are:

$H_0 1$: There is no significant difference in reading achievement as measured by the Georgia CRCT for sixth grade SWD who participate in an afterschool program when compared to sixth grade SWD who do not participate.

$H_0 2$: There is no significant difference in reading achievement as measured by the

Georgia CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate.

H$_0$3: There is no significant difference in reading achievement as measured by the Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate.

H$_0$4: There is no significant difference in math achievement as measured by the Georgia CRCT for sixth grade SWD who participate in an afterschool program when compared to sixth grade SWD who do not participate.

H$_0$5: There is no significant difference in math achievement as measured by the Georgia CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate.

H$_0$6: There is no significant difference in math achievement as measured by the Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate.

Participants and Setting

This research examined the impact of an afterschool program on sixth through eighth grade SWD who attended the afterschool program of a Title 1 middle school in a rural county in northeast Georgia. The school serves a community that has a diverse and unique combination of cultures, standards of living, and incomes. The community offers a variety of manufacturing, poultry, retail, and service industries. The school serves approximately 500 students in sixth, seventh, and eighth grades. A dramatic rise in the number of minority students and students at the poverty level has occurred in recent years. The free and reduced meal rate increased from 40.08% in 2003 to 73.78% in 2014.

According to the Georgia Department of Education full time equivalency report for October 2014, the student population of the school consists of 51% Caucasian, 42% Hispanic, 3% Asian, 2% African American, and 2% multiracial. Of the 500 students enrolled, 52% are male and 48% are female. Special needs students comprise 16% of the student body. Since the research included SWD over a three-year period, the sixth grade reading group consisted of 94 participants, the seventh grade reading group consisted of 93 participants, and the eighth grade reading group consisted of 86 participants. Additionally, the sixth grade math group consisted of 54 participants, the seventh grade math group consisted of 93 participants, and the eighth grade math group consisted of 81 participants. According to Olejnik (1984), there should be a minimum of 66 participants in the total sample size with a power of .7 and medium effect size when using ANCOVA for data analysis. Scores for each grade level came from a compilation of scores from 2012 through 2014 for each grade level group. For example, a sixth grade student's score from 2012 was included with other sixth grade students' scores from 2013 and 2014 to form the data set for sixth grade for each content area. Covariate scores came from 2011–2013 CRCT scores for each content area and were a student's scores from the previous year.

The organization of the school is based on the middle school concept. Students in each grade level are assigned to a team of teachers who share a common planning period conducive to individual and group planning. This arrangement allows teachers to effectively plan instruction, facilitate parent/student/teacher conferences, and incorporate an interdisciplinary approach to teaching. The administrative staff consists of one principal, one assistant principal, one counselor, one academic coach, and one media specialist.

All teachers at the school are highly qualified under NCLB. Retaining highly qualified teachers is a priority for the county, and the school system has instituted strategies designed to

promote retention. Teachers receive instructional support and job-embedded professional

learning through informal support and formal instruction provided by an academic coach.

From 2008–2014, the school operated a 21st Century Community Learning Center.

Students who scored below the state standard in reading or math on the CRCT, failed their math

or reading class the previous year, qualified for free or reduced lunch, or received services as a

SWD or English language learner were recruited for the afterschool program. A convenience

sample was used to determine the treatment and comparison groups for this study. The treatment

group for this study was made up of SWD in grades 6–8 who attended the afterschool program

30 days or more and had at least two consecutive years of CRCT scores in reading, math, or

both. The intervention group consisted of 35 females and 57 males ages 11–13 for a total of 92

participants. The comparison group was all other SWD at the same school who did not attend

the afterschool program and had at least two consecutive years of CRCT scores in reading, math,

or both. The comparison group was made up of 24 female students and 39 male students ages

11–13 for a total of 63 participants. Overall, there were 155 SWD participants. There were

more males than females in both groups. White students represented over half of both groups

with Hispanic students comprising the next largest group. About 20% of each group was English

Language Learners, while more than three-fourths of the students in the study were economically

disadvantaged. Table 1 shows the demographics for the comparison group and intervention

group.

Table 1

Demographics for the Comparison Group and the Intervention Group

Demographic	Comparison		Intervention		Total	
	n	%	*n*	%	*n*	%
Gender						
Female	24	38.10	35	38.04	59	38.06
Male	39	61.90	57	61.96	96	61.94
Total	63	100.00	92	100.00	155	100.00
Ethnicity/Race						
Hispanic	27	42.86	37	40.22	64	41.29
Asian	1	1.59	2	2.17	3	1.94
Black	1	1.59	3	3.26	4	2.58
Multiracial	0	0.00	1	1.09	1	0.64
White	34	53.97	49	53.26	83	53.55
Total	63	100.00	92	100.00	155	100.00
ED	45	71.43	75	81.50	120	77.42
ELL	13	20.63	18	19.57	31	20.00

Note. ED stands for economically disadvantaged and represents those who received free or reduced meals. ELL stands for English language learner.

Teachers who taught in the afterschool program were employed by the school system and all were certified and highly qualified under NCLB. The program operated Monday through Thursday from 3:30–5:30 p.m. during the school year. During this time, each child attended three 35-minute classes: math, language arts, and enrichment. Academic teachers utilized a variety of hands-on activities that included the use of manipulatives, project-based learning, and engaging academic software (i.e., SuccessMaker, Lexia, and Study Island). Enrichment classes included: visual arts, health and fitness, culinary arts, science experiments, and Lego robotics. A homework help room facilitated by a certified teacher was also available to students. As an incentive to attend the program, participants who attended regularly were given free admission to home football games, basketball games, and dances. Students received a snack each day and transportation was provided. There was no cost to students for this program.

Table 2 shows gender information for reading participants. The reading group was made up of 62% male SWD in sixth, seventh, and eighth grade and 38% female SWD in the same grade levels. The reading comparison group consisted of 35% females and 65% males while the reading intervention group consisted of 41% females and 59% males.

Table 2

Reading Group Demographics: Gender

	Grade 6 Reading				Grade 7 Reading				Grade 8 Reading			
	Comparison		Intervention		Comparison		Intervention		Comparison		Intervention	
Gender	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Female	9	31.03	14	40.00	17	33.33	17	40.48	17	39.53	18	41.86
Male	20	68.97	21	60.00	34	66.67	25	59.52	26	60.47	25	58.14
Total	29	100.00	35	100.00	51	100.00	42	100.00	43	100.00	43	100.00

Table 3 shows ethnicity/race information for reading participants. Each grade level had very similar intervention groups with the smallest grade level represented being sixth grade. White students had the highest representation in the comparison (60%) and intervention (61%) groups. The Hispanic group was the second largest group represented with 37% in the comparison group and 33% in the intervention group.

Table 3

Reading Group Demographics: Ethnicity/Race

	Grade 6 Reading				Grade 7 Reading				Grade 8 Reading			
	Comparison		Intervention		Comparison		Intervention		Comparison		Intervention	
Ethnicity/Race	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Hispanic	10	34.08	15	42.86	19	37.25	14	33.33	16	37.21	10	23.26
Asian	1	3.45	1	2.86	1	1.96	1	2.38	0	0.00	0	0.00
Black	1	3.45	2	5.71	1	1.96	1	2.38	0	0.00	2	4.65
Multiracial	0	0.00	0	0.00	0	0.00	1	2.38	0	0.00	0	0.00
White	17	58.62	17	48.57	30	58.82	25	59.52	27	62.79	31	72.09
Total	29	99.60	35	100.00	51	99.99	42	100.00	43	100.00	43	100.00

Demographic information including economically disadvantaged and English language learners for reading participants is shown in Table 4. There were more economically disadvantaged students in the intervention group for the sixth grade, but more in the comparison group in grades 7 and 8. The comparison group was 76% economically disadvantaged while the intervention group was 81% economically disadvantaged. Only 17% of the comparison group and 13% of the intervention group were English language learners.

Table 4

Reading Group Demographics: Economically Disadvantaged and English Language Learners

| | Grade 6 Reading | | | | Grade 7 Reading | | | | Grade 8 Reading | | | |
| | Comparison | | Intervention | | Comparison | | Intervention | | Comparison | | Intervention | |
Demographic	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
ED	19	65.52	29	82.86	38	74.51	34	80.95	36	83.72	34	79.07
ELL	1	3.45	8	22.86	10	19.61	5	11.90	10	23.26	2	4.65

Note. ED stands for economically disadvantaged and represents those who received free or reduced meals. ELL stands for English language learner.

Table 5 shows gender information for math participants. The math group was made up of 63% male SWD in sixth, seventh, and eighth grade and 37% female SWD in the same grade levels. The math comparison group consisted of 35% females and 65% males while the math intervention group consisted of 40% females and 60% males.

Table 5

Math Group Demographics: Gender

| | Grade 6 Math | | | | Grade 7 Math | | | | Grade 8 Math | | | |
| | Comparison | | Intervention | | Comparison | | Intervention | | Comparison | | Intervention | |
Gender	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Female	9	31.03	10	40.00	18	33.96	16	40.00	17	39.53	15	39.47
Male	20	68.97	15	60.00	35	66.04	24	60.00	26	60.47	23	60.53
Total	29	100.00	25	100.00	53	100.00	40	100.00	43	100.00	38	100.00

Table 6 shows ethnicity/race information for math participants. White students had the highest representation in the comparison (58%) and intervention (58%) groups with the Hispanic group being the second largest group represented. Hispanics made up 38% of the comparison group and 34% of the intervention group.

Table 6

Math Group Demographics: Ethnicity/Race

| Ethnicity/Race | Grade 6 Math | | | | Grade 7 Math | | | | Grade 8 Math | | | |
| | Comparison | | Intervention | | Comparison | | Intervention | | Comparison | | Intervention | |
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Hispanic	10	34.48	9	36.00	21	39.62	15	37.50	17	39.53	11	28.95
Asian	1	3.45	1	4.00	1	1.89	1	2.50	0	0.00	1	2.63
Black	1	3.45	1	4.00	1	1.89	2	5.00	0	0.00	1	2.63
Multiracial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	2.63
White	17	58.62	14	56.00	30	56.60	22	55.00	26	60.47	24	63.16
Total	29	100.00	25	100.00	53	100.00	40	100.00	43	100.00	38	100.00

Demographic information, which includes economically disadvantaged and English language learners for math participants, is shown in Table 7. Interestingly, the sixth grade group had fewer students than the other two grade levels in both the comparison and intervention groups. The comparison group was 75% economically disadvantaged while the intervention group was 83% economically disadvantaged. Only 18% of the comparison group and 16% of the intervention group were English language learners.

Table 7

Math Group Demographics: Economically Disadvantaged and English Language Learners

	Grade 6 Math				Grade 7 Math				Grade 8 Math			
	Comparison		Intervention		Comparison		Intervention		Comparison		Intervention	
Demographic	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
ED	19	65.51	21	84.00	39	73.58	34	85.00	36	83.72	30	78.95
ELL	1	3.45	6	24.00	11	20.75	9	22.50	10	23.26	1	2.63

Note. ED stands for economically disadvantaged and represents those who received free or reduced meals. ELL stands for English language learner.

Instrumentation

The instrument used in this study is the Georgia Criterion Referenced Competency Test or CRCT (Georgia Department of Education, n.d.-b). The Georgia CRCT has been used in numerous studies (Feng et al., 2013; McDowell, 2013; Randall & Engelhard, 2010). Since the CRCT was a highly secured testing document, the Georgia Department of Education does not give permission for the testing instrument to be printed in doctoral studies. The researcher compared CRCT scale scores in reading and math for SWD in sixth, seventh, and eighth grades who attended the afterschool program with SWD in sixth, seventh, and eighth grades who did not participate in the program to determine if there is a significant difference in their academic achievement.

From 2000 to 2014, the Georgia CRCT was given annually to students in Grades 1–8 and was designed to measure how well students acquired the skills and knowledge described in the Georgia Performance Standards and later in the Common Core Georgia Performance Standards. Additionally, the CRCT served as an accountability measure and was part of the AYP requirements of the federal NCLB. As part of meeting federal requirements for state standards

and assessments systems, the CRCT was peer reviewed by a team of external experts in the fields of standards and assessments. This team was convened by the U.S. Department of Education and considered evidence in the following areas: content and academic achievement standards, technical quality, alignment, inclusion, and scoring and reporting. The CRCT was found to meet nationally recognized professional and technical standards for assessment programs (Georgia Department of Education, 2012).

Reliability and validity are crucial to any instrument used in a study and are also essential components of technical quality in testing and measurement. Georgia used the CRCT to measure how well students have grasped the state's curriculum each school year (Georgia Department of Education Assessment Research and Development Department, 2014). In order to ensure construct validity, the Georgia Department of Education ensured "alignment of the CRCT with the state's curriculum and the reliance of input from Georgia educators at every phase of test development" (Georgia Department of Education Assessment Research and Development Department, 2014, p. 3). In addition, the Georgia Department of Education provided content weight, content descriptors, and score interpretation guides as a means to make sure the result were used as intended. The Georgia Department of Education served a vital role in the development of the CRCT and followed the *Standards for Educational and Psychological Testing* as established by the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education (Georgia Department of Education Assessment Research and Development Department, 2014).

According to the *CRCT Score Interpretation Guide* (Georgia Department of Education, 2014a), reliability asks whether the same measurement will give the same or similar results for the same student every time. Cronbach's alpha reliability coefficient and standard error of

measurement (SEM) were statistical measures used to depict test score reliability for the CRCT.

Cronbach's alpha measures the internal consistency over the responses to a set of items

measuring an underlying trait, while the standard error of measurement is an index of the random

variability in tests scores in raw score units (Georgia Department of Education Assessment

Research and Development Department, 2014). Table 8 displays the alpha coefficients and

standard error of measurement for all middle school grades and subjects for the 2014 CRCT.

Table 8

Reliability Indices (Cronbach's Alpha) and Raw Score SEM for 2014 CRCT

Grade	Reading		Math	
	Alpha	SEM	Alpha	SEM
6	0.87	2.43	0.92	3.21
7	0.88	2.44	0.93	3.17
8	0.88	2.21	0.92	3.16

Note. SEM = Standard Error of Measurement.

For this study, the reading and math portions of the Georgia CRCT were used. The

reading test consisted of multiple-choice questions for the subscales of (a) literary

comprehension, (b) information and media literacy, and (c) reading skills and vocabulary

acquisition. The math tests consisted of multiple-choice questions for the subscales (a) number

and operations, (b) geometry and measurement (sixth grade), (c) geometry (7th and eighth

grade), (d) algebra, and (e) data analysis and probability. Table 9 shows the number of items for

each reading and math subscale by grade levels.

Table 9

Number of Items for Reading and Math Subscales for the 2014 CRCT

	Grade 6	Grade 7	Grade 8
READING			
Literary Comprehension	16	16	16
Information and Media Literacy	18	18	18
Reading Skills and Vocabulary Acquisition	6	6	6
MATH			
Number and Operations	17	14	12
Geometry and Measurement	11		
Geometry		14	16
Algebra	21	20	25
Data analysis and probability	11	12	7

The CRCT scores ranged from 650–900 or above. Scores below 800 signified a student did not master the curriculum for this content. Scores from 800–849 signified a level of proficiency indicating the student met the standard. Scores at 850 or above signified the student exceeded the standard. A scale score was reported for each content area and was equivalent across test forms with the same content area and grade. The Georgia Department of Education cautions that it is not appropriate to compare scale scores across content areas and grade levels. However, results for the same content area and grade may be compared across years. According to the Georgia Department of Education (2014a), "Scale scores are comparable across all test forms and administrations for the same content area and grade."

The CRCT was administered each spring under highly secure procedures according to guidelines provided to each test examiner in the *Test Examiners Manual Grades 3–8* (Georgia

Department of Education, 2014b). The CRCT was administered according to the schedule provided by the school district's testing coordinator and took approximately 115 –170 minutes for each of the four content areas. Upon completion, all test booklets were submitted to the Georgia Department of Education for scoring. Permission to use the test results for this study is included in Appendix A.

Procedures

Following approval from the district superintendent (see Appendix A) and Liberty University's Internal Review Board (see Appendix B), the researcher began collecting data for the project. The data for this study included 2011–2014 CRCT scale scores in the areas of reading and mathematics for sixth, seventh, and eighth grade SWD who attended the study school from August 2011 to June 2014. Participants for this ex post facto study were a convenience sample of all SWD who attended the study school at any time beginning in August 2011 and ending in June 2014 and who had 2 consecutive years of CRCT scores for reading, math, or both. A total of 155 SWD participated in this study. According to Ary et al. (2006), a convenience sample includes the selection of students from easily accessible data, in this case from the school in this study. From this group, the intervention group was those SWD who attended the afterschool program at the school and the comparison group was those SWD who did not attend the afterschool program. In order to participate in the afterschool program, students had to score below the state standard in reading, math, or both on previous year's CRCT, had to receive a failing score in reading, math, or both on their previous year's report card, had to qualify for free or reduced lunch, or had to receive services as SWD or English language learner.

Upon IRB approval, the program manager for the afterschool program provided a list of

students who were enrolled in the afterschool program from August 2011 to June 2014 and attended for 30 days or more during the school year(s) under study. The school's data coordinator provided a report from the school's information database that includes CRCT reading and math scores for all SWD for the 2011–2012, 2012–2013, and 2013–2014 school years along with demographic information including gender, ethnicity, economically disadvantaged, and English language learner. The school's data coordinator assigned an alphanumeric code to each student before releasing data to the researcher. To maintain confidentiality, there was no identifying information for any student. Data for the study were stored on a password protected laptop computer and in a locked filing cabinet in the researcher's office. After a period of three years, all data will be destroyed.

Once the data were received from the school district's data coordinator, the researcher organized the data by grade levels, content area, and group using Excel. Demographic information was compiled for all groups. Scores were analyzed based on grade level and content area. In each data set, there were two scores for each student (i.e., 2 consecutive years of CRCT scores in the same content area). These data sets were analyzed using Statistical Package for the Social Sciences (SPSS) version 22 to determine if the afterschool program was effective in improving student achievement.

<center>**Data Analysis**</center>

Data sets were analyzed using a one-way analysis of covariance (ANCOVA) to test each hypothesis. For causal comparative studies, a researcher is not always able to select a comparison group that is equal to the intervention group on all relevant variables except for the study's independent variable (Gall, Gall, & Borg, 2003). Therefore, an ANCOVA is sometimes used to adjust for differences that may previously exist between groups (Ary et al., 2006; Gall,

Gall, & Borg, 2003; Tabachnick & Fidell, 2007). An ANCOVA is a parametric statistical

procedure that assesses whether the means of two or more groups are statistically different while

controlling for the effects of at least one other variable. ANCOVA is similar to analysis of

variance (ANOVA) but incorporates at least one additional independent variable, a covariate,

into the model. Covariates are continuous and are included to adjust for relevant differences in

participants (Rovai, Baker, & Ponton, 2013). For this study, the covariate was previous student

achievement as measured by CRCT scores in the same content area for the previous year. For

example, the math score of a SWD for 2011 was used as a covariate to adjust for initial

differences in math achievement along with the student's 2012 CRCT math score to conduct the

ANCOVA. Therefore, all participants had, at a minimum, two consecutive years of CRCT

scores.

According to Rovai et al. (2013), much consideration should be given when selecting a

covariate. Covariates should be selected based on theory and should correlate significantly with

the dependent variable. Part of the statistical testing for this study included determining if the

two years of CRCT scores correlated significantly. This testing was done prior to conducting the

ANCOVA. Results of these correlations are found in Chapter 4.

Descriptive statistics were calculated, including the mean and standard deviation for each

data set, and are presented in Chapter 4. Assumptions for a one-way ANCOVA were reported

and included normality, independence of observations, linearity, homogeneity of regression

slopes, and homogeneity of variance (Green & Salkind, 2008; Rovai et al., 2013; Tabachnick &

Fidell, 2007). A box and whisker plot was used with each group and/or variable to look for

outliers and extreme outliers. Kolmogorov-Smirnov and Shapiro-Wilks were used to test

assumption of normality along with visual analysis of histograms. The assumption of linearity

was assessed by examining scatterplots between the covariate (previous year's CRCT scores or pretest) and the dependent variable (CRCT scores or posttest) for each group. Additionally, the Pearson correlation coefficient was calculated for each pretest variable and posttest variable to determine linearity. In order to test for the homogeneity of regression slopes, the interaction term in the general linear model of SPSS was assessed. Levene's test of equality of error variance was used to test the assumption of equal variances. An alpha level of .05 was used for all statistical testing.

Results for each hypothesis are presented in Chapter 4. These results helped determine the effect of the afterschool program on the achievement of SWD in reading and math in sixth, seventh and eighth grades who participated in the afterschool program as compared to SWD who did not participate.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this quantitative, causal comparative research study was to determine if there was a statistically significant difference in reading and math achievement as measured by the Georgia Criterion-Referenced Competency Test (CRCT) for sixth, seventh, and eighth grade students with disabilities (SWD) who attended the afterschool program of one rural Georgia middle school when compared to sixth, seventh, and eighth grade SWD who did not attend the program. This chapter contains the results of the analysis of the data collected from SWD in grades six, seven, and eight who participated in the afterschool programs and those who did not participate. This chapter is organized into five sections: research questions, demographics, descriptive statistics, assumptions, and results of the inferential testing.

Research Questions

The study will attempt to answer the following research questions:

RQ1: Is there a difference in reading achievement as measured by the Georgia CRCT for sixth grade SWD who participate in an afterschool program when compared to sixth grade SWD who do not participate?

RQ2: Is there a difference in reading achievement as measured by the Georgia CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate?

RQ3: Is there a difference in reading achievement as measured by the Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate?

RQ4: Is there a difference in math achievement as measured by the Georgia CRCT for

sixth grade SWD who participate in an afterschool program when compared to sixth grade SWD who do not participate?

RQ5: Is there a difference in math achievement as measured by the Georgia CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate?

RQ6: Is there a difference in math achievement as measured by the Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate?

Null Hypotheses

The null hypotheses for this study are:

$H_0 1:$ There is no significant difference in reading achievement as measured by the Georgia CRCT for sixth grade SWD who participate in an afterschool program when compared to sixth grade SWD who do not participate.

$H_0 2:$ There is no significant difference in reading achievement as measured by the Georgia CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate.

$H_0 3:$ There is no significant difference in reading achievement as measured by the Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate.

$H_0 4:$ There is no significant difference in math achievement as measured by the Georgia CRCT for sixth grade SWD who participate in an afterschool program when compared to sixth grade SWD who do not participate.

$H_0 5:$ There is no significant difference in math achievement as measured by the Georgia

CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate.

$H_0$6: There is no significant difference in math achievement as measured by the Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate.

Descriptive Statistics

Table 10 presents the descriptive statistics for reading and math CRCT scores for grades 6-8. The CRCT mean scores for the intervention group are greater than those of the control group except for the sixth grade reading, which has scores that are within half a point of each other. Only the eighth grade reading group has equal sample sizes for the comparison and intervention groups; all other groups are not balanced. The smaller group in each grade level group is more variable.

Table 10

Descriptive Statistics for Reading and Math CRCT Scores for All Groups

	n	*M*	*SD*
READING GROUPS			
Grade 6 Comparison	28	813.75	21.83
Grade 6 Intervention	35	820.06	19.85
Grade 7 Comparison	51	802.14	18.50
Grade 7 Intervention	42	814.43	19.71
Grade 8 Comparison	43	805.09	16.48
Grade 8 Intervention	43	821.84	15.42
MATH GROUPS			
Grade 6 Comparison	29	802.79	22.45
Grade 6 Intervention	25	802.24	25.39
Grade 7 Comparison	53	799.11	19.05
Grade 7 Intervention	38	816.74	22.95
Grade 8 Comparison	43	792.53	15.74
Grade 8 Intervention	35	812.09	32.58

Assumption Tests

The following assumptions must be met before conducting ANCOVA: normality, homogeneity of variance, independence of observations, linearity, and homogeneity of regression slopes (Green & Salkind, 2008; Tabachnick & Fidell, 2007). Since all hypotheses testing for this study used ANCOVA or planned to use ANCOVA, the results for assumption testing are presented below for all six hypotheses. In cases where the normality assumption was

not met (i.e., seventh and eight grade math groups) results of an independent samples *t* test were used to determine whether to reject or fail to reject the null hypothesis since an independent samples *t* test is robust to violations to normality when the sample size is at least 15 cases per group (Green & Salkind, 2008). The homogeneity of variance assumption results for the independent samples *t* tests are presented in the results section for Null Hypotheses 5 and 6.

Normality

The normality assumption requires that the "dependent variable is normally distributed in the population for any specific value of the covariate and for any one level of a factor" (Green & Salkind, 2008, p. 212). Histograms were examined as one means of assessing normality. Normality was also assessed using Kolmogorov-Smirnov and Shapiro-Wilk tests of normality. Table 11 shows these results. It was determined that both the seventh and eighth grade math data sets were not normally distributed. The normality assumption was met for all CRCT reading scores but only for sixth grade CRCT math scores.

Table 11

Normality Tests for CRCT Scores for All Groups

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.
READING GROUPS						
Grade 6 Comparison	.12	28	.200	.97	28	.605
Grade 6 Intervention	.12	35	.200	.94	35	.055
Grade 7 Comparison	.06	51	.200	.98	51	.416
Grade 7 Intervention	.10	42	.200	.93	42	.018
Grade 8 Comparison	.10	43	.200	.96	43	.100
Grade 8 Intervention	.10	43	.200	.95	43	.039
MATH GROUPS						
Grade 6 Comparison	.08	29	.200	.98	29	.919
Grade 6 Intervention	.16	25	.124	.90	25	.022
Grade 7 Comparison	.17	53	.000	.91	53	.001
Grade 7 Intervention	.20	38	.001	.89	38	.001
Grade 8 Comparison	.12	43	.099	.91	43	.002
Grade 8 Intervention	.17	35	.009	.87	35	.001

[a]Lilliefors Significance Correction

Outliers

Examination of box plots revealed outliers for nine of the 12 data sets (see Figure 1).

Three of the comparison groups (grade 6 reading, grade 8 reading, and grade 8 math) had no

outliers. Because all assumptions were met (with the exception of normality for Hypotheses 5

and 6) and due to relatively small sample sizes for some groups, the decision to keep all data

points was determined to be the best course of action (Tabachnick & Fidell, 2007).
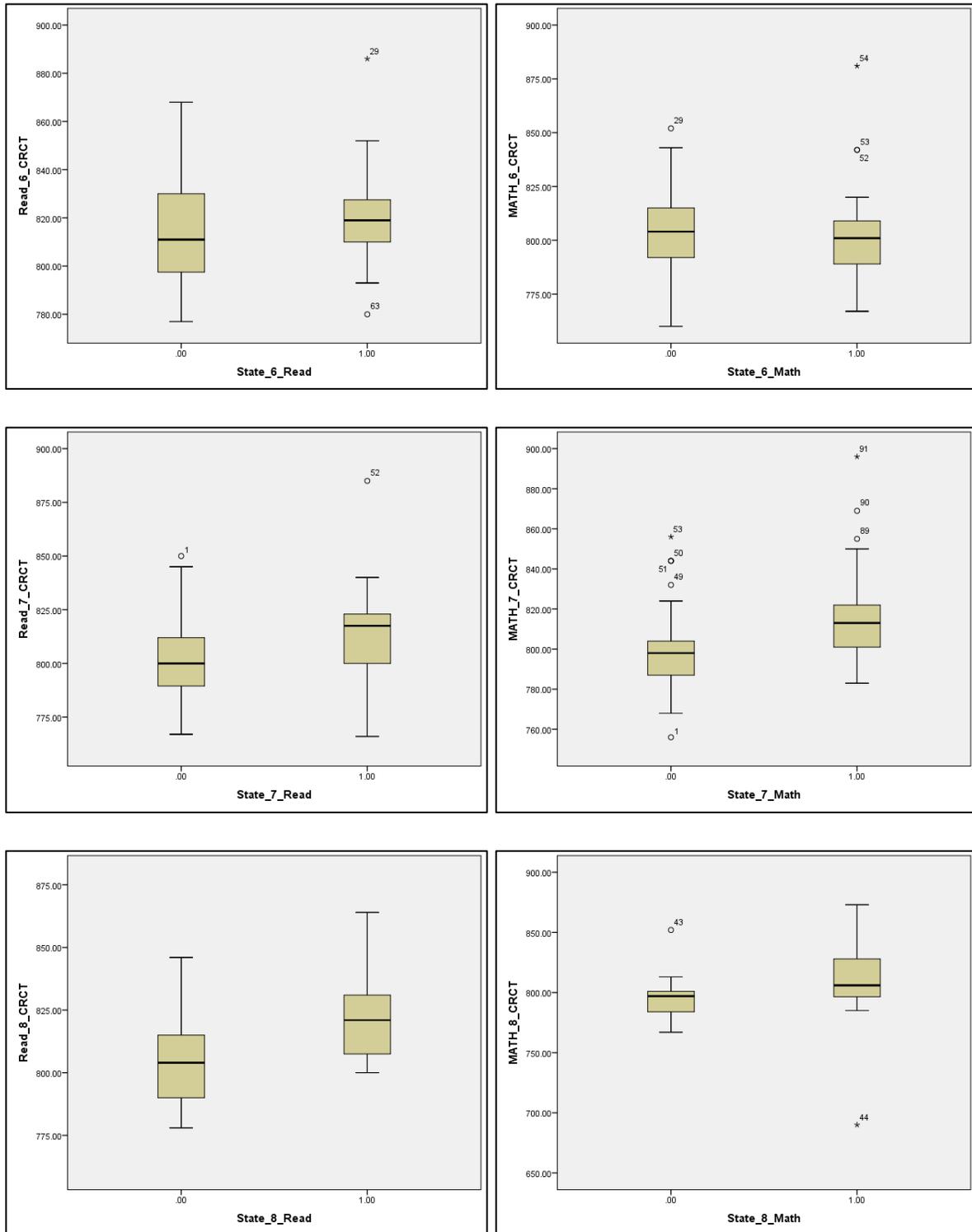

Figure 1. Boxplots for reading and math for grades 6–8.

Homogeneity of Variance

Homogeneity of variance assumes that scores for all groups have the same variance. A commonly used test is Levene's Test for Equality of Error Variances which tests to determine that the error variance of the dependent variable is equal across all groups. A significant result indicates that the variances are different. Table 12 presents results of Levene's test for each set of scores. Results of all data sets indicated no significant difference at the alpha level of .05 when comparing variances. The assumption of homogeneity of variance was met for all groups for ANCOVA.

Table 12

Results from Levene's Test of Equality of Error Variances for All Groups

Group	F	$df1$	$df2$	p value
Grade 6 Reading	2.30	1	61	.134
Grade 7 Reading	2.21	1	91	.141
Grade 8 Reading	0.19	1	84	.663
Grade 6 Math	0.53	1	52	.470
Grade 7 Math	0.41	1	89	.523
Grade 8 Math	3.61	1	76	.061

Independence of Observations

The assumption of independence of observations requires that the scores on the dependent variable (CRCT math and reading scores) are independent of one another (Green & Salkind, 2008). Participants were placed in either the comparison group or the treatment group. A participant's score was entered only once into the data set. Due to the strict test administration rules of the CRCT, the scores of other students did not influence a student's score.

Linearity

The linearity assumption requires a linear relationship between the covariate (CRCT scores from the previous year) and the dependent variable (CRCT scores) in order for results to be generalized to the population. To assess linearity, scatterplots were created for each set of scores. All data sets met the linearity assumption.

Figure 2 shows the linear relationship for sixth grade reading CRCT scores (dependent variable) and fifth grade reading CRCT scores (covariate). Additionally, the Pearson correlation coefficient, r, of 0.76, $p < .001$, indicates a strong linear relationship between the covariate and the dependent variable.
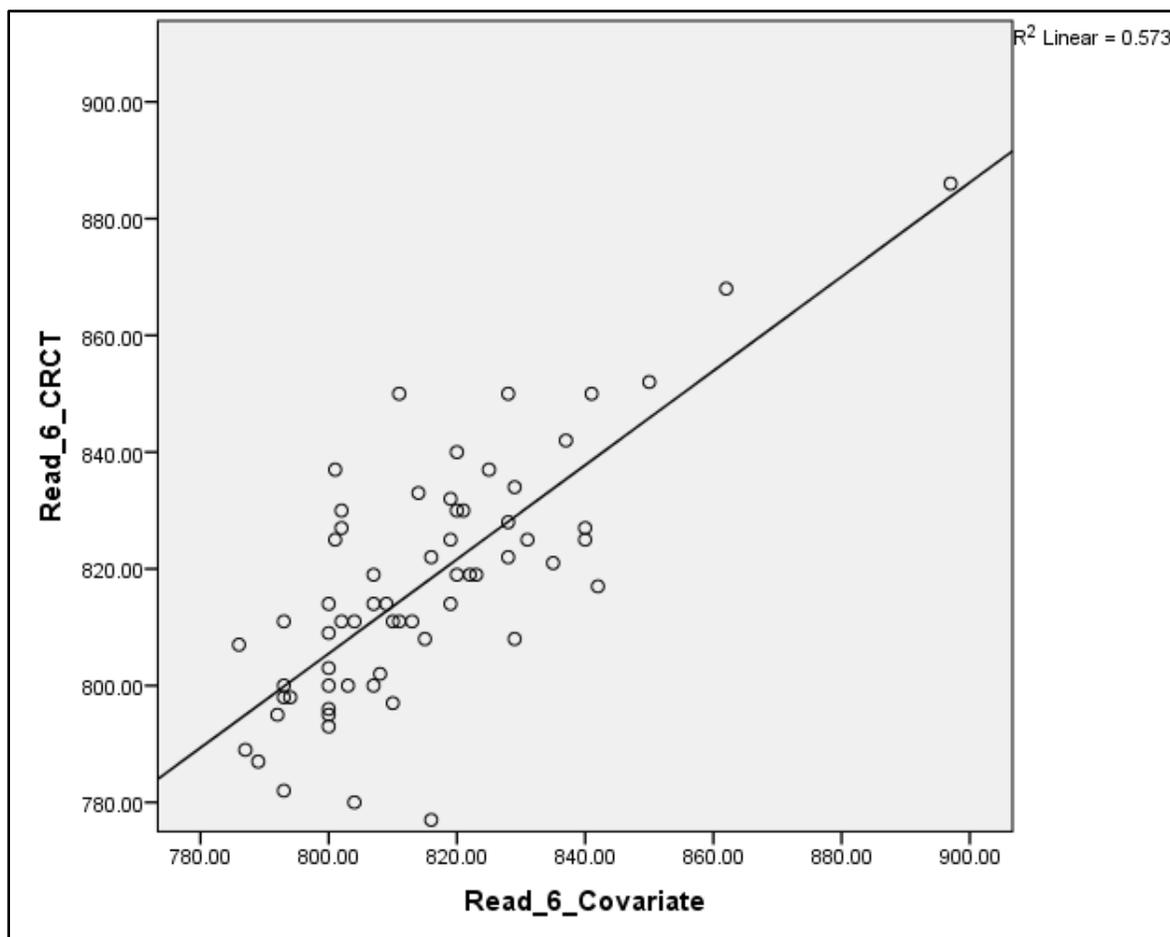
Figure 2. Scatterplot for sixth grade reading scores vs. fifth grade reading scores (covariate).

Figure 3 shows the linear relationship for seventh grade reading CRCT scores (dependent variable) and sixth grade reading CRCT scores (covariate). Additionally, the Pearson correlation coefficient, *r*, of 0.70, p < .001, indicates a strong linear relationship between the covariate and the dependent variable.
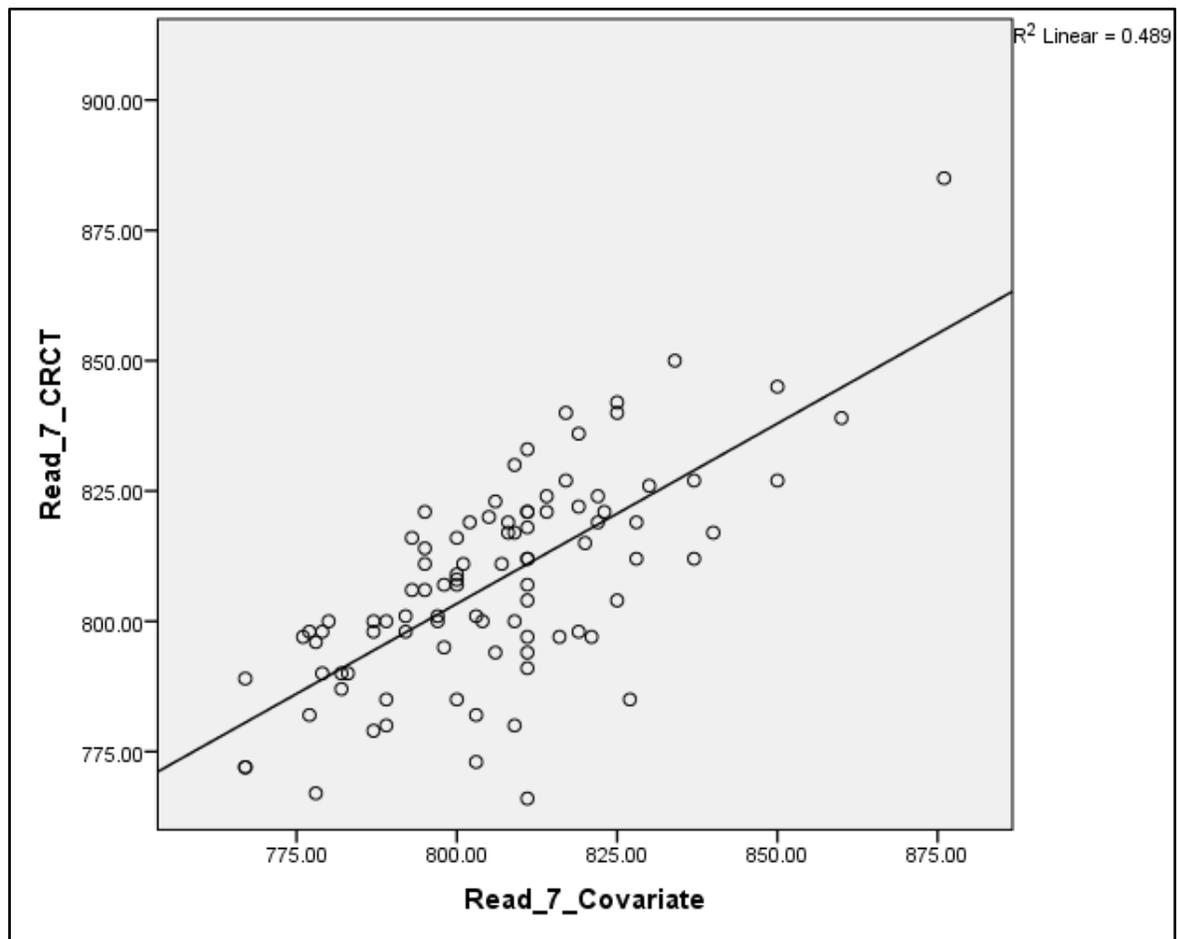

Figure 3. Scatterplot for seventh grade reading scores vs. sixth grade reading scores (covariate).

Figure 4 shows the linear relationship for eighth grade reading CRCT scores (dependent variable) and seventh grade reading CRCT scores (covariate). Additionally, the Pearson correlation coefficient, *r*, of 0.75, p < .001, indicates a strong linear relationship between the covariate and the dependent variable.
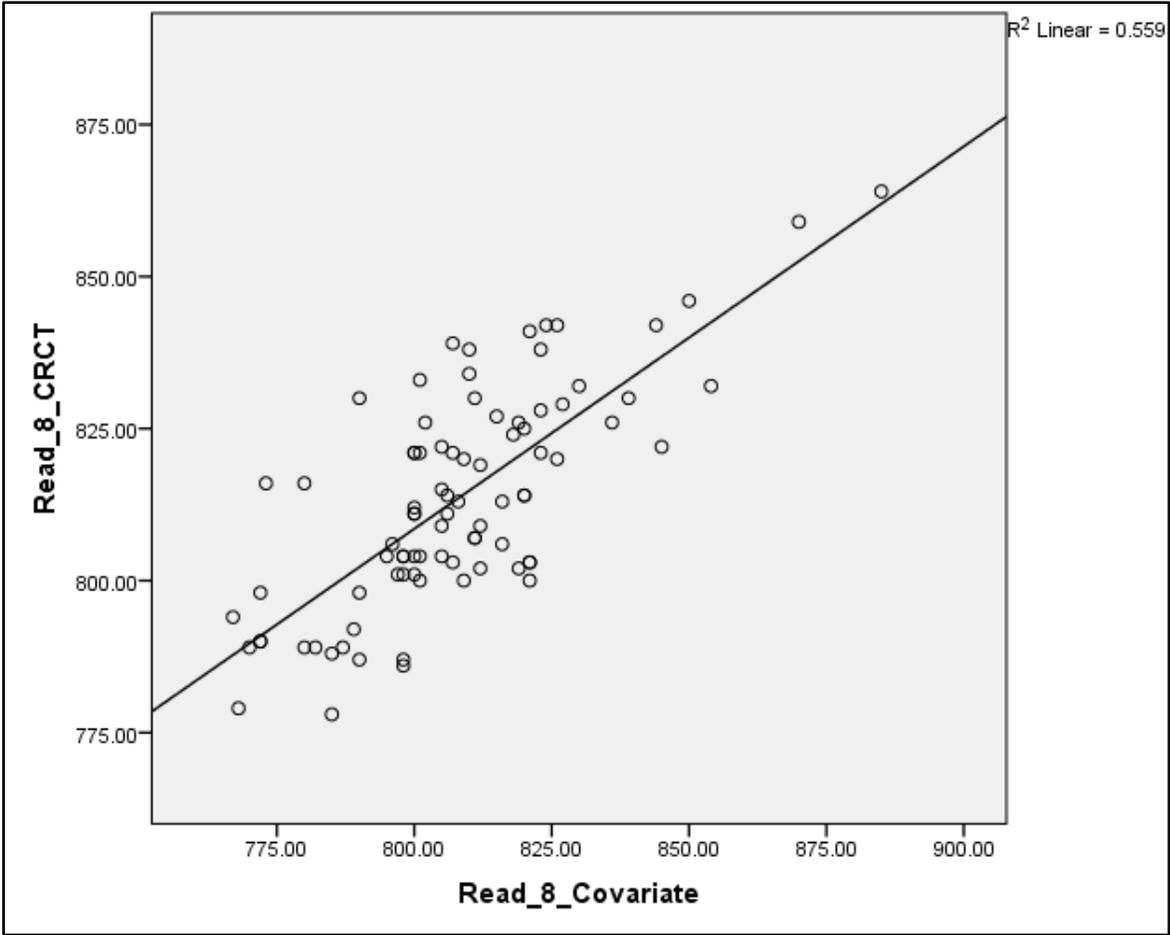

Figure 4. Scatterplot for eighth grade reading scores vs. seventh grade reading scores (covariate).

Figure 5 shows the linear relationship for sixth grade math CRCT scores (dependent variable) and fifth grade math CRCT scores (covariate). Additionally, the Pearson correlation coefficient, *r*, of 0.71, p < .001, indicates a strong linear relationship between the covariate and the dependent variable.
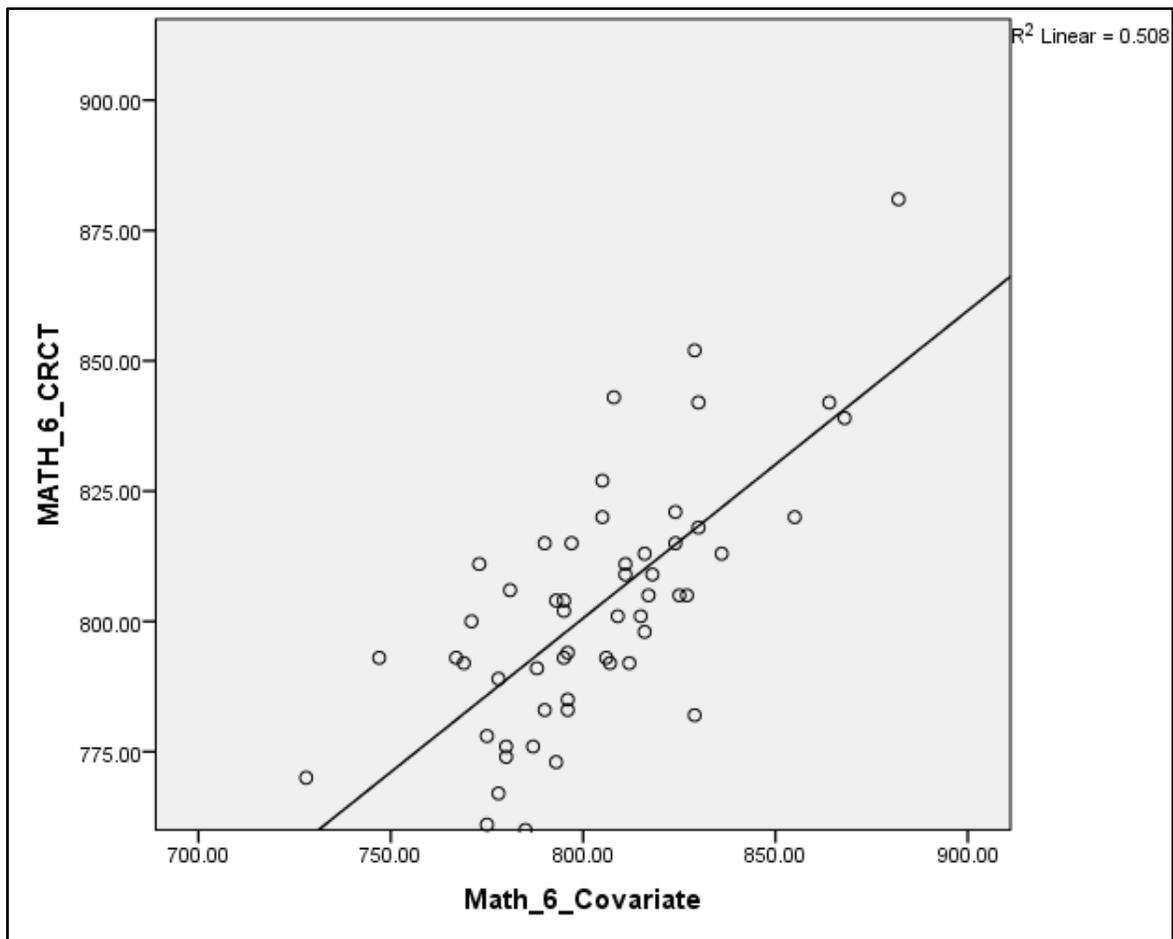

Figure 5. Scatterplot for sixth grade math scores vs. fifth grade math scores (covariate).

Figure 6 shows the linear relationship for seventh grade math CRCT scores (dependent variable) and sixth grade math CRCT scores (covariate). Additionally, the Pearson correlation coefficient, *r*, of 0.69, p < .001, indicates a strong linear relationship between the covariate and the dependent variable.
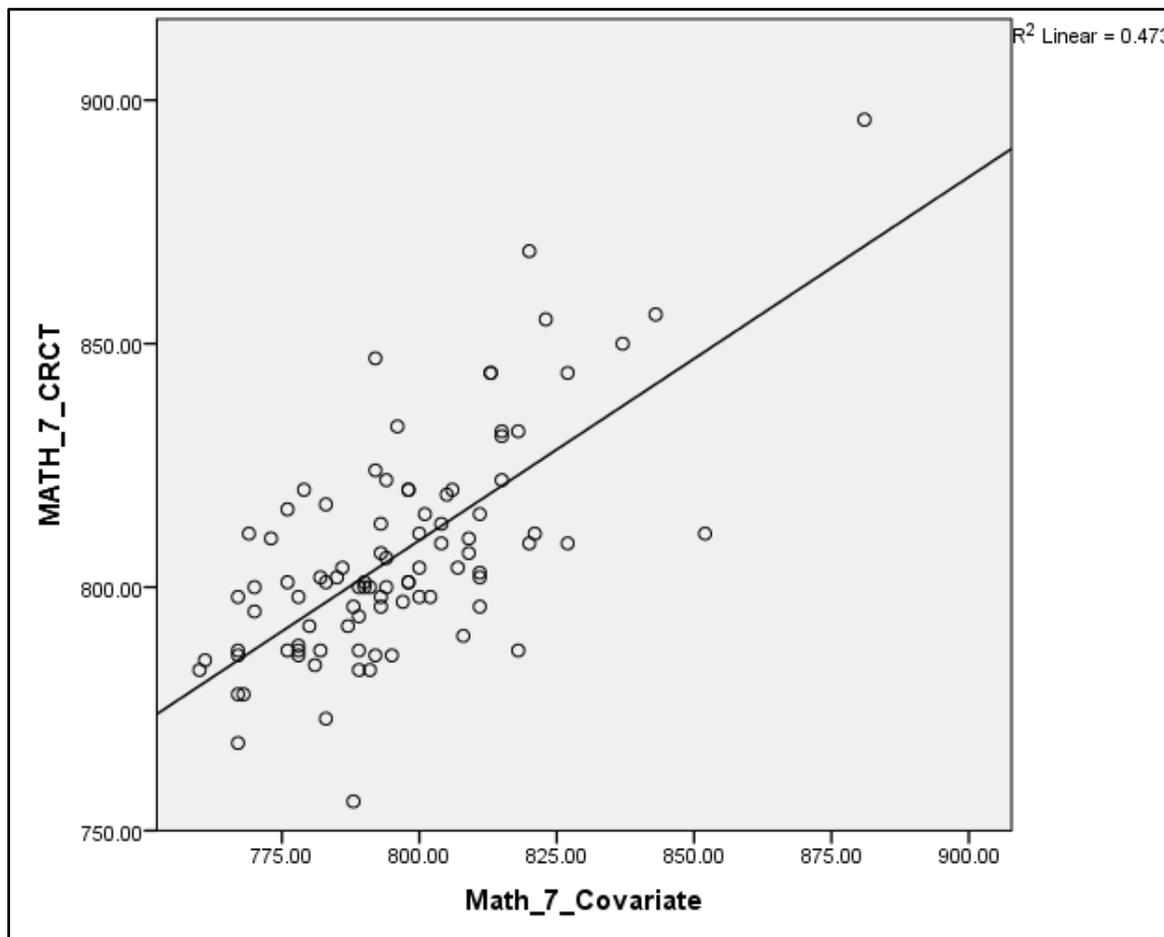

Figure 6. Scatterplot for seventh grade math scores vs. sixth grade math scores (covariate).

Figure 7 shows the linear relationship for eighth grade math CRCT scores (dependent variable) and seventh grade math CRCT scores (covariate). Additionally, the Pearson correlation coefficient, *r*, of 0.63, p < .001, indicates a strong linear relationship between the covariate and the dependent variable.

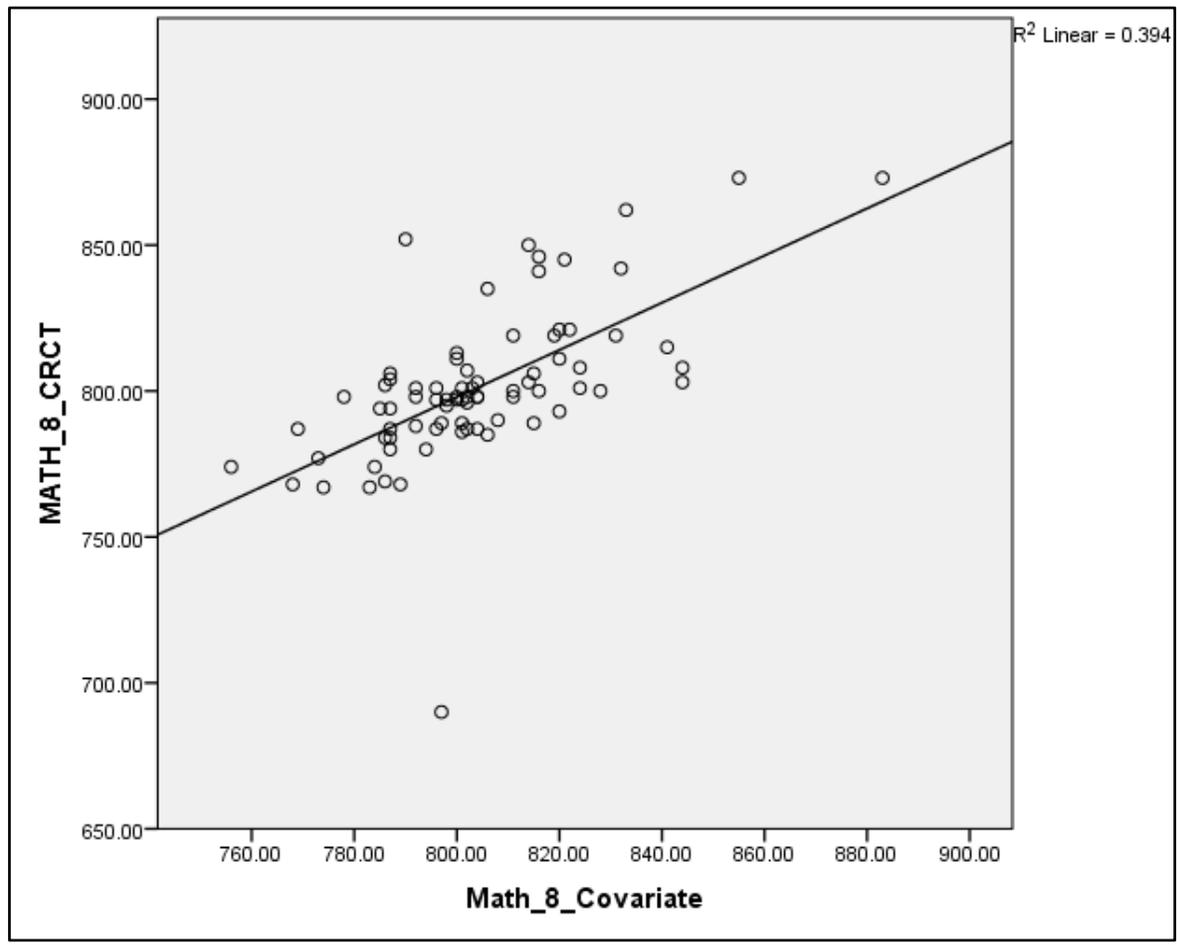*Figure 7*. Scatterplot for eighth grade math scores vs. seventh grade math scores (covariate).

Homogeneity of Regression Slopes

Homogeneity of regression slopes is one of the most important assumptions that must be met in order to conduct ANCOVA. Failure to meet this assumption implies that there is an interaction between the dependent variable (CRCT scores for each group) and the covariate

(CRCT scores for the previous year). In order to test for the homogeneity of regression slopes, the interaction term in the general linear model of SPSS was assessed. The interaction of CRCT scores and intervention status for each group is presented in Table 13. The interaction of CRCT scores and intervention status was not significantly different at the alpha level of .05 for all tests. The homogeneity of regression slopes assumption was met for all groups except for eighth grade math.

Table 13

Homogeneity of Regression Slopes Assumption Testing Results

Group	df	Mean Square	F	p value	Partial Eta Squared
Grade 6 Reading	1	3.54	0.02	.893	.000
Grade 7 Reading	1	4.89	0.02	.878	.000
Grade 8 Reading	1	15.16	0.12	.745	.001
Grade 6 Math	1	84.64	0.29	.591	.006
Grade 7 Math	1	286.99	1.35	.248	.015
Grade 8 Math	1	3269.52	8.24	.005	.100

Table 14 provides a summary of assumption testing results for all six hypotheses. All assumptions were met for sixth, seventh, and eighth grade reading and sixth grade math. However in seventh and eighth grade math, at least one of the assumptions was not met; therefore, ANCOVA was not appropriate. As a result, independent samples t tests were conducted for Null Hypotheses 5 and 6.

Table 14

Summary of Assumption Testing for ANCOVA

Group	Normality	Homogeneity of Variance	Linearity	Homogeneity of Regression Slopes
Grade 6 Reading	Pass	Pass	Pass	Pass
Grade 7 Reading	Pass	Pass	Pass	Pass
Grade 8 Reading	Pass	Pass	Pass	Pass
Grade 6 Math	Pass	Pass	Pass	Pass
Grade 7 Math	Fail	Pass	Pass	Pass
Grade 8 Math	Fail	Pass	Pass	Fail

Results

Hypothesis 1

H₀1: There is no significant difference in reading achievement as measured by the

Georgia CRCT for sixth grade SWD who participate in an afterschool program when compared

to sixth grade SWD who do not participate.

In order to test the first hypothesis, an ANCOVA was conducted as all assumptions for

ANCOVA for sixth grade CRCT reading scores were met. The independent variable,

intervention status, included two levels: attending the afterschool program for a minimum of 30

days or not attending the program. The dependent variable was student achievement as

measured by sixth grade CRCT reading scores. The covariate was fifth grade CRCT reading

scores. Table 10 includes the descriptive statistics for the sixth grade reading CRCT scores for

both groups.

The general linear model was analyzed with only the main effects: intervention status and

CRCT reading scores, without the interaction term. The adjusted mean for the comparison group was 816.53 and was 817.84 for the intervention group with a difference of only 1.31. The covariate, fifth grade reading CRCT, proved to be significantly related to the sixth grade reading CRCT with $F(1, 60) = 77.55$, $p < .001$, partial eta squared $= .56$. This indicates that the inclusion of the fifth grade reading CRCT score explained 56% of the variation in sixth grade reading CRCT scores. The results suggested that there was not a statistically significant difference between the adjusted means of the two groups when adjusting for the covariate: $F(1, 60) = 0.14$, $p = .714$. While the mean score for the sixth grade reading intervention group was slightly greater than the mean score for the sixth grade reading comparison group, the difference was not significant at an alpha level of .05. The researcher failed to reject the null hypothesis.

Hypothesis 2

H₀2: There is no significant difference in reading achievement as measured by the Georgia CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate.

In order to test the second hypothesis, an ANCOVA was conducted as all assumptions for ANCOVA for seventh grade CRCT reading scores were met. The independent variable, intervention status, included two levels: attending the afterschool program for a minimum of 30 days or not attending the program. The dependent variable was student achievement as measured by seventh grade CRCT reading scores. The covariate was sixth grade CRCT reading scores. Table 10 includes the descriptive statistics for the seventh grade reading CRCT scores for both groups.

The general linear model was analyzed with only the main effects: intervention status and CRCT reading scores, without the interaction term. The adjusted mean for the comparison group

was 805.86 and was 809.91 for the intervention group with a difference of 4.05. The covariate, sixth grade reading CRCT, proved to be significantly related to the seventh grade reading CRCT with $F(1, 90) = 72.38$, $p < .001$, partial eta squared $= .45$. This indicates that the inclusion of the sixth grade reading CRCT score explained 45% of the variation in seventh grade reading CRCT scores. The results suggested that there was not a statistically significant difference between the adjusted means of the two groups when adjusting for the covariate: $F(1, 90) = 1.68$, $p = .198$. While the mean score for the seventh grade reading intervention group was greater than the mean score for the seventh grade reading comparison group, the difference was not significant at an alpha level of .05. The researcher failed to reject the null hypothesis.

Hypothesis 3

H_0**3:** There is no significant difference in reading achievement as measured by the Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate.

In order to test the third hypothesis, an ANCOVA was conducted as all assumptions for ANCOVA for eighth grade CRCT reading scores were met. The independent variable, intervention status, included two levels: attending the afterschool program for a minimum of 30 days or not attending the program. The dependent variable was student achievement as measured by eighth grade CRCT reading scores. The covariate was seventh grade CRCT reading scores. Table 10 includes the descriptive statistics for the eighth grade reading CRCT scores for both groups.

The general linear model was analyzed with only the main effects: intervention status and CRCT reading scores, without the interaction term. The adjusted mean for the comparison group was 811.10 and was 815.83 for the intervention group with a difference of 4.73. The covariate,

seventh grade reading CRCT, proved to be significantly related to the eighth grade reading CRCT with $F(1, 83) = 68.48$, $p < .001$, partial eta squared = .45. This indicates that the inclusion of the seventh grade reading CRCT score explained 45% of the variation in eighth grade reading CRCT scores. The results suggested that there was not a statistically significant difference between the adjusted means of the two groups when adjusting for the covariate: $F(1, 83) = 2.58$, $p = .112$. While the mean score for the eighth grade reading intervention group was slightly greater than the mean score for the eighth grade reading comparison group, the difference was not significant at an alpha level of .05. The researcher failed to reject the null hypothesis.

Hypothesis 4

H₀4: There is no significant difference in math achievement as measured by the Georgia CRCT for sixth grade SWD who participate in an afterschool program when compared to sixth grade SWD who do not participate.

In order to test the fourth hypothesis, an ANCOVA was conducted as all assumptions for ANCOVA for sixth grade CRCT math scores were met. The independent variable, intervention status, included two levels: attending the afterschool program for a minimum of 30 days or not attending the program. The dependent variable was student achievement as measured by sixth grade CRCT math scores. The covariate was fifth grade CRCT math scores. Table 10 includes the descriptive statistics for the sixth grade math CRCT scores for both groups.

The general linear model was analyzed with only the main effects: intervention status and CRCT math scores, without the interaction term. The adjusted mean for the comparison group was 801.88 and was 803.30 for the intervention group with a difference of only 1.42. The covariate, fifth grade math CRCT, proved to be significantly related to the sixth grade math CRCT with $F(1, 51) = 52.87$, $p < .001$, partial eta squared = .51. This indicates that the inclusion

of the fifth grade math CRCT score explained 51% of the variation in sixth grade math CRCT scores. The results suggested that there was not a statistically significant difference between the adjusted means of the two groups when adjusting for the covariate: $F(1, 51) = 0.10$, $p = .758$. While the mean score for the sixth grade math intervention group was slightly greater than the mean score for the sixth grade math comparison group, the difference was not significant at an alpha level of .05. The researcher failed to reject the null hypothesis.

Hypothesis 5

H_05: There is no significant difference in math achievement as measured by the Georgia CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate.

In order to test the fifth hypothesis, an ANCOVA was planned; however, the normality assumption for ANCOVA for seventh grade CRCT reading scores was not tenable as shown in Table 15. Because of this violation, ANCOVA was not used to test this hypothesis.

Table 15

Normality Tests for CRCT Scores for Seventh Grade Math

Math Group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.
Grade 7 Comparison	.17	53	.000	.91	53	.001
Grade 7 Intervention	.20	38	.001	.89	38	.001

[a]Lilliefors Significance Correction

An independent samples *t* test was conducted since it is robust to violations to the normality assumption when there are at least 15 cases per group (Green & Salkind, 2008). The intervention group consisted of 38 participants while the comparison group consists of 53 participants for a total of 91 participants. The independent variable, intervention status, included

two levels: attending the afterschool program for a minimum of 30 days or not attending the

program. The dependent variable was student achievement as measured by seventh grade CRCT

math scores. The mean math CRCT score for the seventh grade comparison group was 799.11

with a standard deviation of 19.05 and was 816.74 for the intervention group with a standard

deviation of 22.95. The intervention group scored 17.63 points higher on the posttest.

Before conducting the independent samples t test, the homogeneity of variance

assumption had to be tested since the Levene's test for ANCOVA accounted for the covariate in

its calculations. Therefore, the Levene's test of equality of error variances was conducted for the

t test and was not significant, $F(1, 89) = 0.73$, $p = .394$. The homogeneity of variance

assumption was met. The t test was significant, $t(89) = -3.99$, $p < .001$, partial eta squared =

.152. This indicates that 15.2% of the variability in CRCT math test scores can be accounted for

by the intervention status (afterschool program participation or not). There was a significant

difference in math achievement as measured by the Georgia CRCT for seventh grade SWD who

participated in an afterschool program when compared to seventh grade SWD who do not

participate. The researcher rejected the null hypothesis.

Hypothesis 6

H$_0$6: There is no significant difference in math achievement as measured by the Georgia

CRCT for eighth grade SWD who participate in an afterschool program when compared to

eighth grade SWD who do not participate.

In order to test the sixth hypothesis, an ANCOVA was planned; however, the

assumptions for ANCOVA for eighth grade CRCT reading scores were not met since the data

violated both the normality assumption (see Table 16) and the homogeneity of regressions slopes

(see Table 17) assumption. Due to these violations, ANCOVA was not appropriate and was not

used to test this hypothesis.

Table 16

Normality Tests for CRCT Scores for Eighth Grade Math

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
Math Group	Statistic	*df*	Sig.	Statistic	*df*	Sig.
Grade 8 Comparison	.12	43	.099	.91	43	.002
Grade 8 Intervention	.17	35	.009	.87	35	.001

[a]Lilliefors Significance Correction

Table 17

Homogeneity of Regression Slopes Assumption Testing Results for Eighth Grade Math

Group	*Df*	Mean Square	*F*	*p* value	Partial Eta Squared
Grade 8 Math	1	3269.52	8.24	.005	.100

An independent samples *t* test was conducted since it is robust to violations of the normality assumption when the sample size is at least 15 cases for each group and does not require the homogeneity of regression slopes assumption (Green & Salkind, 2008). The intervention group consisted of 35 participants while the comparison group consists of 43 participants for a total of 78 participants. The independent variable, intervention status, included two levels: attending the afterschool program for a minimum of 30 days or not attending the program. The dependent variable was student achievement as measured by eighth grade CRCT math scores. The mean math CRCT score for the eighth grade comparison group was 792.53 with a standard deviation of 15.74 and was 812.09 for the intervention group with a standard deviation of 32.58. The intervention group scored 19.56 points higher on the posttest.

Before conducting the independent samples t test, the homogeneity of variance assumption had to be tested since the Levene's test for ANCOVA accounted for the covariate in its calculations. Therefore, the Levene's test of equality of error variances was conducted for the t test and was significant, $F(1, 76) = 8.01$, $p = .006$, so the homogeneity of variance assumption was not met. An independent samples t test assuming unequal variances was conducted. The independent samples t test was significant, $t(46.79) = -3.26$, $p = .002$, partial eta squared $= .137$. This indicates that 13.7% of the variability in CRCT math test scores can be accounted for by the intervention status (afterschool program participation or not). There was a significant difference in math achievement as measured by the Georgia CRCT for eighth grade SWD who participated in an afterschool program when compared to eighth grade SWD who did not participate. The researcher rejected the null hypothesis.

CHAPTER FIVE: CONCLUSIONS

Overview

This chapter includes a discussion of the findings from this study, implications and limitations of the research, and provides a conclusion. In addition, recommendations for future research based on the findings are presented.

Discussion

The purpose of this quantitative research study was to determine if there was a statistically significant difference in reading and math achievement, as measured by the Georgia CRCT, for sixth, seventh, and eighth grade SWD who attended the afterschool program of one rural Georgia middle school when compared to sixth, seventh, and eighth grade SWD who did not attend the program. Six research questions guided this study.

Summary of the Results

Research Question 1: Is there a difference in reading achievement as measured by the Georgia CRCT for sixth grade SWD who participate in an afterschool program when compared to sixth grade SWD who do not participate? This study hypothesized there would be no significant difference in reading achievement as measured by the Georgia CRCT for sixth grade SWD who participated in an afterschool program when compared to sixth grade SWD who do not participate in the same program. The data were analyzed using ANCOVA to compare the differences between CRCT reading scores of sixth grade SWD who attended the after school program and sixth grade SWD who did not attend the program. After reviewing the data analysis, there was no significant difference between the sixth grade reading comparison group and the sixth grade reading intervention group when controlling for CRCT reading scores from the previous year. Since there was no significant difference between the control group and the

treatment group, the researcher failed to reject the null hypothesis.

Research Question 2: Is there a difference in reading achievement as measured by the Georgia CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate? This study hypothesized there would be no significant difference in reading achievement as measured by the Georgia CRCT for seventh grade SWD who participated in an afterschool program when compared to seventh grade SWD who do not participate in the same program. The data were analyzed using ANCOVA to compare the differences between CRCT scores of seventh grade SWD who attended the after school program and seventh grade SWD who did not attend the program. After reviewing the seventh grade CRCT reading data there was no significant difference between the comparison group and the intervention group when controlling for the CRCT reading scores from the previous year. Therefore, the researcher failed to reject the null hypothesis.

Research Question 3: Is there a difference in reading achievement as measured by the Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate? This study hypothesized there would be no significant difference in reading achievement as measured by the Georgia CRCT for eighth grade SWD who participated in an afterschool program when compared to eighth grade SWD who do not participate in the same program. The data were analyzed using ANCOVA to compare the differences between CRCT scores of eighth grade SWD who attended the after school program and eighth grade SWD who did not attend the program. After reviewing the eighth grade CRCT reading data, there was no significant difference between the comparison group and the intervention group when controlling for the CRCT reading scores from the previous year. Therefore the researcher failed to reject the null hypothesis.

Research Question 4: Is there a difference in math achievement as measured by the Georgia CRCT for sixth grade SWD who participate in an afterschool program when compared to sixth grade SWD who do not participate? This study hypothesized that there would be no significant difference in math achievement as measured by the Georgia CRCT for sixth grade SWD who participated in an afterschool program when compared to sixth grade SWD who do not participate in the same program. The data were analyzed using ANCOVA to compare the differences between CRCT math scores of sixth grade SWD who attended the after school program and sixth grade SWD who did not attend the program. After reviewing the data analysis of sixth grade CRCT math data, there was no significant difference between the comparison group and the intervention group. Therefore, the researcher failed to reject the null hypothesis.

Research Question 5: Is there a difference in math achievement as measured by the Georgia CRCT for seventh grade SWD who participate in an afterschool program when compared to seventh grade SWD who do not participate? This study hypothesized there would be no significant difference in math achievement as measured by the Georgia CRCT for seventh grade SWD who participated in an afterschool program when compared to seventh grade SWD who do not participate in the same program. Since the assumption of normality was not met, the data were analyzed using an independent samples *t* test to compare the differences between CRCT scores of seventh grade SWD who attended the after school program and seventh grade SWD who did not attend the program. After reviewing the data analysis of seventh grade CRCT math data, there was a significant difference between the comparison group and the intervention group. Therefore, the researcher rejected the null hypothesis.

Research Question 6: Is there a difference in math achievement as measured by the

Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate? This study hypothesized there would be no significant difference in math achievement as measured by the Georgia CRCT for eighth grade SWD who participate in an afterschool program when compared to eighth grade SWD who do not participate in the same program. Since the assumptions of normality and homogeneity of regression slopes were not met, the data were analyzed using an independent samples t test to compare the differences between CRCT math scores of eighth grade SWD who attended the after school program and eighth grade SWD who did not attend the program. After reviewing the data analysis of eighth grade CRCT math data, there was a significant difference between the comparison group and the intervention group. Therefore, the researcher rejected the null hypothesis.

Results in Relation to the Theoretical Framework

Through the lens of the constructivist and sociocultural theoretical frameworks, this study compared groups differing on the preexisting independent variable (i.e., afterschool participation) to determine its effect on the dependent variables (i.e., student achievement in reading and math). In a constructivist approach students have the flexibility to experiment, think, and reflect about what they are learning. The role of the teacher is to guide instruction through questions, suggestion, concepts, and strategies rather than the traditional transfer of information from teacher to student. Since afterschool teachers and programs are not bound by limited class times, students have more time to explore, experiment, and participate in hands-on activities. The sociocultural theory describes learning as a social process. Students should be provided a variety of socially rich environments in which to learn. Participation in afterschool programs provides students with opportunities to engage in learning through interaction and

collaboration. Many studies have documented the need for quality afterschool programs. This study aimed at examining the impact of a specific afterschool program on reading and math CRCT scores of SWD in sixth, seventh, and eighth grades when compared with SWD students who did not attend the afterschool program.

Results in Relation to the Literature Review

The findings of this project did not support other research findings regarding increased student achievement of afterschool participants as measured by standardized test scores. The Healthy City Advancement Project (2012) conducted a meta-analysis of 73 afterschool evaluations and determined afterschool programs that implemented evidence-based strategies to increase children's social skills were effective in producing numerous additional advantages for students including improvements in academics, self-esteem, social skills, and emotional skills. The Healthy City Advancement Project confirmed that those who regularly attended high-quality afterschool programs demonstrated increased test scores in comparison to their peers. Over a 2-year span, students demonstrated gains of up to 20 percentiles in standardized math test scores when compared to their unsupervised peers during the after school hours who showed gains of only 12 percentiles (Healthy City Advancement Project, 2012). However, this study examined the effect of the afterschool program of one Georgia middle school on CRCT scores in reading and math of SWD in sixth, seventh, and eighth grades and found mixed results between those SWD who attended the program and those that did not attend the program. Only seventh and eighth grade math groups were significantly different.

In a review of 68 afterschool programs, Durlack and Weissburg (2013) examined programs that showed improvement in student self-perceptions; reduced discipline problems and drug use; and increased standardized test scores, attendance, and grades. From these effective

programs, he identified four common factors: a sequenced step-by-step approach to instruction, active hands-on learning that extended student opportunities to practice new skills, focused time and attention on skill development, and explicit explanations and expectations of new skills being taught. The participants in this study included only SWD who attended the afterschool program of one Georgia middle school. The results were mixed: all reading groups and the sixth grade math group did not reveal a significant difference in academic achievement of SWD as measured by the CRCT; however, seventh grade and eighth grade math groups revealed a significant difference. These students were regular attenders and benefitted from a free after school program that provided supervision during the after school hours, hands-on learning, nutritious snacks, tutoring in math and reading by certified teachers, and enrichment activities.

Research by Huang and Dietel (2011), Durlak et al. (2010) and Vandell et al. (2007) revealed that participating in afterschool programs resulted in better school attendance. Attendance in afterschool programs also correlated to higher scores on standardized tests in math, reading, and language arts. The studies also revealed that at-risk learners who attended afterschool programs showed better grades in reading and math. In addition, those students who attended effective afterschool programs consistently over a 2-year period demonstrated greater gains on standardized test scores when compared to students who did not participate in afterschool programs. This study did reveal a significant difference of SWD CRCT scores in seventh and eighth grade math between those who attended the afterschool program of one rural Georgia middle school and those who did not attend. However, all reading groups and the sixth grade math group did not reveal a significant difference. According to an external evaluation conducted in 2014 by an external evaluator from the school district's Regional Education Service Agency, the afterschool program in this study had a total of 260 regular attendees. Of those

students who attended the program 30 days or more, 63% did improve their reading/language arts grade and 59% improved their math grade.

Although the review of the literature indicated multiple benefits for students who attend quality afterschool programs, the results reveal that the frequency with which students attend the program and the duration of time the learners participate impact the benefits. Durlak et al. (2011) linked consistent attendance in quality afterschool programs to greater engagement in learning, higher academic performance, improved behavior in school, better work habits, and improved homework completion. In addition, students who participated in effective afterschool programs for 1 year or more showed greater academic gains than students who attended for a shorter period of time.

According to the Afterschool Alliance (2014a), SWD can benefit from extra time spent in inclusive programs that can provide help with homework, teach new skills, foster social interaction, and build relationships. Effective afterschool programs can offer the support SWD need while allowing them to flourish alongside students without disabilities and giving them opportunities to explore interests, develop social skills, and build friendships (Smith & Shea, 2013). Afterschool programs can also address the risk factors that lead SWD to drop out of school and provide tools to successfully move them to high school graduation (Afterschool Alliance, 2014a). Participants in this study were limited to SWD who attended the afterschool program of one Georgia middle school for 30 days or more. These SWD were provided additional time to practice math and reading skills and complete homework; they benefitted from nutritious snacks and supervised afterschool time during program hours. Since there was a significant difference for seventh and eighth grade math students in this study, perhaps these students spent more time on homework during the afterschool program. Students attended the

afterschool program in this study on a voluntary basis and school attendance and discipline data were not considered in this research. In addition, the program in this study did not provide specialized services for SWD or English learners.

Implications

There is a plethora of robust research that supports the positive impact on students who participate in afterschool programs. However, the research on the effect of afterschool programs on the student achievement of SWD is limited. This study of one afterschool program in a rural Georgia middle school revealed mixed results for SWD; it is difficult to determine the impact that an afterschool program has on the achievement of SWD since there are other factors that can influence the results that were beyond the scope of this study.

The results of this study will be beneficial to school administrators who are planning to implement an afterschool program. While this study did not indicate significant gains on the Georgia CRCT performance in sixth, seventh, and eighth grade reading and sixth grade math, the students enrolled in this program were supervised during afterschool hours, given opportunities to practice skills learned during the regular school day, and provided opportunities for enrichment. There are many factors that need to be taken into consideration when planning an afterschool program that might impact student achievement for SWD including amount of time spent on homework, the amount of time spent on each academic area, experience and certification of teachers, number of teachers who are certified in special education, and types of instructional activities being utilized by teachers.

Administrators should recognize that afterschool programs provide many benefits for students, but those benefits may not include statistically significant differences in standardized test scores for SWD when compared to SWD who do not attend an afterschool program. With

robust research suggesting significant improvements in standardized test scores for students involved in quality after school programs, this study implies SWD students may not experience the same results as students who do not receive special education services.

Limitations

Many factors influenced this study on the effect of an afterschool program on the student achievement of SWD participants from one rural Georgia middle school. This project only included SWD who had attended the program 30 days or more. However, among these students the attendance ranged from 31 days to 140 days.

In addition, those teachers who taught in the afterschool program had varying years of experience and education levels. Teaching experience ranged from first year teachers to those who had 20 plus years of teaching experience. Some of these teachers held a bachelors degree in a middle school content area while some had held masters and education specialist degrees. Furthermore, while there may have been a teacher with special education certification, this was not a requirement of the program.

During the years 2011–2014, the state of Georgia offered an alternate grade level assessment called the Criterion-Referenced Competency Tests-Modified (CRCT-M) for SWD who met certain criteria. The CRCT-M was designed to assess the same grade level curriculum as the CRCT. According to the *2011 Georgia CRCT-M: 2011 Score Interpretation Guide* (Georgia Department of Education, 2011), only SWD who were receiving special education services and whose IEP team determined the student met the CRCT-M participation guidelines set forth by the state of Georgia were assessed using this alternate state assessment. When students had a CRCT-M score, their scores were removed from the data set for the appropriate grade level group. This factor restricted the sample sizes for each grade level group by reducing

the number of students who had two consecutive years of data, which was a requirement for participation.

Recommendations for Further Research

Additional research is needed based on the insufficient research available on the effect of afterschool programs on SWD coupled with the limitations of this study. Since a plethora of studies validate the improvement of standardized test scores of the general population who attend afterschool programs, further study of SWD is suggested asking the question of why SWD who participate in afterschool programs do not show a significant difference on standardized test scores when compared to SWD who do not participate in after school programs. Since this study revealed mixed results, a study focusing on the additional factors within an afterschool program that may impact the results (e.g., more time spent on math homework than reading homework, teacher experience and/or certification, inclusion of special education teachers for SWD to provide accommodations during the afterschool program, etc.) would be helpful in pinpointing specific strategies that promote academic achievement for SWD in an afterschool setting. A longitudinal study of the impact of SWD students attending an afterschool program for multiple years would be beneficial for those considering implementing a new program, those seeking funding for a program, and for those pursuing evidence and documentation regarding the sustainability of an afterschool program. In addition, further research is needed on the impact of an afterschool program on students who are at risk due to other reasons such as the economically disadvantaged, English learners, etc. Finally, further study on the impact of afterschool programs on SWD school attendance and grades is needed to expand the limited body of research currently available.

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Appendix A: Approval by Director of Secondary Schools to Conduct Research

	Mail – Permission to conduct dissertation research	8/18/16, 6:06 PM

Constance Franklin

Permission to conduct dissertation research
1 message

Thu, Aug 18, 2016 at 6:00 PM

To: Connie Franklin <

Mrs. Franklin,

You have permission to conduct your research for your dissertation in the ▮▮▮▮▮ School system. You may contact our technology staff to request their assistance in securing the data you need.

Thank you,

Appendix B: Institutional Review Board Approval

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

December 5, 2016

Constance Franklin
IRB Exemption 2700.120516: Effects of the Afterschool Program on Student Achievement of Students with Disabilities in a Rural Georgia Middle School

Dear Constance Franklin,

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

Your study falls under exemption category 46.101(b)(4), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:101(b):

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

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

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

Sincerely,
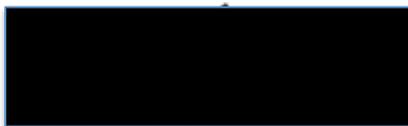
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