

THE EFFECT OF AN AFTERSCHOOL PROGRAM ON STANDARDIZED TESTING
AND BEHAVIOR OF MIDDLE SCHOOL AT-RISK STUDENTS IN A RURAL
COUNTY IN GEORGIA

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The Effect of an Afterschool Program on Standardized Testing and Behavior of Middle
School At-risk Students in a rural County in Georgia

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Abstract

Tracy D. Horton. THE EFFECT OF AN AFTERSCHOOL PROGRAM ON STANDARDIZED TESTING AND BEHAVIOR OF MIDDLE SCHOOL AT-RISK STUDENTS IN A RURAL COUNTY IN GEORGIA. (Under the direction of Dr. Constance Pearson) School of Education, June 16, 2010. The purpose of this study was to examine the effect an afterschool program had on middle school at-risk students' standardized test scores and behavior. The study examined students who participated in the 21st Century Community Learning Center afterschool program at two similar schools in a county in Northwest Georgia. Data were compiled for the two school years, 2007-2008 and 2008-2009. The researcher compared students' math and reading CRCT scale scores from before and after they attended an afterschool program; the number of office referrals for students from before and after they attended the afterschool program were also compared. The researcher also attempted to determine whether the frequency of attendance at an afterschool program affected math and reading CRCT scale scores and/or office referrals. A two-tailed paired t-test was conducted to compare the groups' pre-treatment and post treatment of the CRCT scale score in reading and math, in addition to office referrals. Significant differences were found in math CRCT scale scores and female math CRCT scale scores, while the reading and the number of office referrals did not show a significant difference. Attendance rates were not significantly correlated with math and reading achievement scores or office referrals.

Dedication

This dissertation is dedicated to my family. To my husband, Tony, you have always encouraged me to pursue my educational goals and dreams and have stood by me all the way. I would not have accomplished this without you. You are greatly appreciated and loved.

To my children, Abby and Michael, your sacrifices and understanding have been appreciated. I love you both and am very proud of the young lady, Abby and young man, Michael you each have become.

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CHAPTER 1: INTRODUCTION

Middle school students are just that - in the middle: too young for some programs, but too old for afterschool care. This is an important age; some adolescents begin to experiment with unhealthy behavior, while others begin to think about their future careers and the value of their education (Rinehart, 2008). The time period of 3:00 p.m. to 6:00 p.m. each day is considered the peak period for experimentation with alcohol, drugs and sex along with juvenile crime (Gayl, 2004). Four million middle school students, according to Rinehart (2008), have no one to provide them with a healthy snack, help with homework, take them to sports activities, or enable them to participate in any other enriching activity each afternoon. As a result, there has been increased interest in afterschool programs that can provide adolescents with a safe and supportive environment that provides activities that encourage academic, personal and social development (Durlak & Weissberg, 2007).

The No Child Left Behind legislation holds schools accountable for making sure students meet the required standards, which makes providing extra learning opportunities very important (Gayl, 2004). These standards are measured annually by state adopted assessments. The No Child Left Behind law expects school systems to show Adequate Yearly Progress (AYP) on these assessments. Schools that do not make Adequate Yearly Progress (AYP) for three or more consecutive years are considered a Needs Improvement School. These schools that move into this category of Needs Improvement must provide additional instructional programs, which would include some form of before or afterschool tutoring.

Students in the state of Georgia are tested yearly using the Georgia Criterion - Referenced Competency Test. This standardized test is designed to measure whether or not students have mastered the Georgia Performance Standards (Georgia Department of Education Testing Division, 2009). These performance standards were developed to improve education by providing specific expectations for both the teacher and students (Georgia Department of Education Standards, 2009).

The achievement gap in school performances between race, class and ethnicity is an issue to be explored (Miller, 2003). At-risk students tend to gain the most from afterschool programs, but it is the students who already participate in afterschool programs that are the ones most likely to participate in organized activities (Gayl, 2004). Afterschool programs need to focus on attracting students who will benefit the greatest from extending learning opportunities. These programs can provide at-risk students with: learning opportunities most often available only to the middle and upper class students; experiences that add to their interests and skills, increased positive relationships with peers and adults; and provide a link to their classroom expectations (Miller, 2003).

Afterschool programs vary as does their effectiveness. From the review of literature it is apparent that more research is needed to study these afterschool programs and build on what works. There is a need for more quality afterschool learning programs dealing with math and reading supplemental instruction so the goals of the No Child Left Behind Act can be met. Before funding is appropriated, policymakers want to see more positive results. Some research supports the success of afterschool programs and its effect on achievement, while other research does not support those same findings. Even so, more

rigorous research is essential to evaluate and improve the effectiveness of afterschool programs (Gayl, 2004).

Problem Statement

Very few middle school students are enrolled in afterschool programs. Most of these students look at afterschool as a longer school day and do not want to attend. Funding for these programs can also be very expensive. Two middle schools in a rural county in Georgia were awarded a 21st Century Grant for three consecutive school years, 2008-2011, totaling 1.5 million dollars. The 21st Century Community Learning Center is financed by grants from the U.S. Department of Education and assists school districts in the funding of public schools as community education centers. This grant targets several areas: language arts, math, homework completion and improvements in behavior. There are many benefits an afterschool program can offer: a safe place to go and interact with adults, higher test scores, improved behavior and grades, extracurricular activities and nutritional snacks (Rinehart, 2008).

Purpose

The purpose of this study was to examine the effect an afterschool program would have on middle school students' standardized test scores and behavior. There are many benefits from attending an afterschool program, but afterschool programs can be expensive. Because of the expense of such programs, it is important to determine whether an afterschool program shows a significant amount of success in raising standardized tests scores and improving student behavior.

Research Questions

The study will attempt to answer the following questions:

1. What effect on math achievement, as measured by the Georgia Criterion-Referenced Competency Test, will participation at an afterschool program have on at-risk sixth, seventh, and eighth grade students in a rural county in Georgia?
Null Hypothesis: There will be no significant difference between pre-treatment and post-treatment math scores on the Georgia Criterion- Referenced Competency Test of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.
2. Will there be a difference in the pre-treatment and post-treatment scores on the Georgia Criterion- Referenced Competency Test in math for sixth, seventh, and eighth grade at-risk male students and the scores for sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program?
Null Hypothesis 1: There will be no significant difference between the pre-treatment and post-treatment scores on the math portion of the Georgia Criterion- Referenced Competency Test of sixth, seventh, and eighth grade at-risk male students who participated at an afterschool program.
Null Hypothesis 2: There will be no significant difference between the pre-treatment and post-treatment scores on the math portion of the Georgia Criterion- Referenced Competency Test of sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program.
3. What effect on reading achievement, as measured by the Georgia Criterion-Referenced Competency Test, will participation at an afterschool program have on at-risk sixth, seventh, and eighth grade students in a rural county in Georgia?

Null Hypothesis: There will be no significant difference between pre-treatment and post-treatment reading scores on the Georgia Criterion-Referenced Competency Test of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.

4. Will there be a difference in the pre-treatment and post-treatment scores on the Georgia Criterion- Referenced Competency Test in reading for sixth, seventh, and eighth grade at-risk male students and the scores for sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program?

Null Hypothesis 1: There will be no significant difference between the pre-treatment and post-treatment scores on the reading portion of the Georgia Criterion- Referenced Competency Test of sixth, seventh, and eighth grade at-risk male students who participated at an afterschool program.

Null Hypothesis 2: There will be no significant difference between the pre-treatment and post-treatment scores on the reading portion of the Georgia Criterion- Referenced Competency Test of sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program.

5. What effect on office referrals, as measured by data obtained from student records, will participation at an afterschool program have on at-risk sixth, seventh, and eighth grade students in a rural county in Georgia?

Null Hypothesis: There will be no significant difference between the pre-treatment and post-treatment number of office referrals as measured by data

obtained by student records of sixth, seventh, and eighth grade at-risk students who participate at an afterschool program.

6. Will there be a difference in the number of office referrals obtained from student records for sixth, seventh, and eighth grade at-risk male students and the number of referrals for sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program?

Null Hypothesis 1: There will be no significant difference between the number of office referrals obtained from student records for sixth, seventh, and eighth grade at-risk male students who participated at an afterschool program.

Null Hypothesis 2: There will be no significant difference between the number of office referrals obtained from student records for sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program.

7. Is there a significant relationship between Georgia Criterion- Referenced Competency Test scores in math scores and attendance rates at an afterschool program in a rural county in Georgia?

Null Hypothesis: There will be no significant relationship between pre-treatment and post-treatment Georgia Criterion- Referenced Competency Test scores in math and attendance rates of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.

8. Is there a significant relationship between Georgia Criterion- Referenced Competency Test scores in reading and attendance rates at an afterschool program in a rural county in Georgia?

Null Hypothesis: There will be no significant relationship between pre-treatment and post-treatment Georgia Criterion-Referenced Competency Test scores in reading and attendance rates of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.

9. Is there a significant relationship between the number of office referrals and attendance rates at an afterschool program in a rural county in Georgia?

Null Hypothesis: There will be no significant relationship between pre-treatment and post-treatment number of office referrals and attendance rates of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.

In addressing the research questions, the study will accept or reject the null hypotheses.

Definition of Key Terms

Accommodations- Accommodations are a change in test administration which alters how a student takes the assessment. The accommodations approved on state assessments are grouped into four categories: presentation, response, setting and scheduling (Georgia Department of Education Testing Division, 2009).

Adequate Yearly Progress (AYP) - AYP is a measure of year-to- year student achievement based on statewide assessments (Georgia Department of Testing Division, 2009).

At-Risk Student- An at-risk middle school student is characterized by a history of school failure, retention, low standardized test scores, special education and disabilities, attendance problems, behavioral problems, suspension issues, high poverty, high mobility, and limited English skills (Georgia Graduation Coach Initiative, 2008).

Conditional Accommodations- Conditional accommodations provide access for students with more severe disabilities who would not be able to take the assessment without such assistance. Conditional accommodations will only be provided to students who meet eligibility criteria (Georgia Department of Testing Division, 2009). This rigid criteria is outlined in the *2009-2010 Student Assessment Handbook*. Some examples include the use of a calculator, oral reading of reading passages or extra time.

Criterion-Referenced Competency Test (CRCT) - The CRCT is a standardized test designed to measure whether or not students have mastered the Georgia Performance Standards (Georgia Department of Education Testing Division, 2009). This assessment is administered yearly to students in grades one through eight.

Georgia Performance Standards- Georgia Performance Standards are criteria used for measuring assessment, instruction and student work in Georgia public schools. The performance standards include four major subject areas: English/language arts, mathematics, science and social studies in grades kindergarten through twelfth. These performance standards were developed to improve education by providing specific expectations for both the teachers and students (Georgia Department of Education Standards, 2009).

Graduation Coach- Graduation coaches work at the middle and high school levels, identifying and dealing with at-risk students. The Department of Education provides a program throughout the state of Georgia in which a graduation coach identifies and provides early intervention programs to students at risk of dropping out of school. The program began in the 2006-2007 school year and encourages the placement of a graduation coach in Georgia public high schools (Graduation Coach Initiative, 2008).

The program expanded in 2007-2008 to include graduation coaches in middle schools. Graduation coaches must have a bachelor's degree from an accredited four-year college; credentials must be issued by the Professional Standards Commission, and has three years' experience involving work with students (Georgia Coach Initiative, 2008).

Graduation Coach Work Management System (WMS) - This management system provides a school with the list of students' names based on at-risk criteria. A candidate roster assists the graduation coaches in making data-driven decisions related to implementation of new programs (Graduation Coach Initiative, 2008).

High-Stakes Testing- Testing that is considered high-stakes is used to make important decisions for schools. For example, in Georgia, the Criterion-Referenced Competency Test determines Adequate Yearly Progress for schools, and many decisions about the students and faculty are made based on these scores each year.

No Child Left Behind Act of 2001 (NCLB)- The No Child Left Behind Act requires all states to establish academic standards and a testing system that meet federal requirements. President Bush signed this act that raised expectations for states, local school districts and schools and required that all students meet or exceed state standards in reading and mathematics within twelve years, thus establishing a target deadline for this objective of 2014 (No Child Left Behind, 2005).

Performance Level- Performance level is a range of scores that define a certain level of performance. The CRCT has three performance levels for each content area test: Exceeds the Standard, Meets the Standard, and Does Not Meet the Standard.

Post-Treatment- The treatment for this study was the attendance of sixth, seventh and eighth grade at-risk students to an afterschool program. Therefore, *post-treatment* represents the time period after the students attended the program.

Pre-Treatment- The treatment for this study was the attendance of sixth, seventh, and eighth grade at-risk students at an afterschool program. Therefore, *pre-treatment* represents the time before students attended an afterschool program.

Raw Score- A raw score is the number of test items answered correctly in a content area by a student. This score is the original score before it is statistically adjusted.

Risk-Ratio- A risk-ratio provides a combined measure expressing the degree to which a student may be academically at-risk of not graduating on time (Graduation Coach Initiative, 2008). The risk-ratio scores ranges from 0 to 1, with 1 representing the greatest risk for a student not graduating from high school (Graduation Coach Initiative, 2008). The characteristics used in determining this ratio include: history of school failure, retention, low standardized test scores, special education and disabilities, attendance problems, behavioral problems, suspension issues, high poverty, high mobility, and limited English skills (Georgia Graduation Coach Initiative, 2008).

Scale Score- A scale score is a mathematical transformation of the number of test items answered correctly in a content area. Scale scores provide a common way for interpreting and comparing scores within each grade and content area (Georgia Department of CRCT Score Interpretation Guide, 2009). Students who score at or above 850 demonstrate a level of performance that exceeds the standard for the test. Students who score from 800-849 demonstrate a level of performance that meets the standard for the test. Students

who score below 800 demonstrate a level of performance that does not meet the standard for the test. Students performing at this level may need more instructional help.

Standard Accommodations- Standard accommodation is when the assessment is given without changing to the construct measured by the assessment (Georgia Department of Testing Division, 2009). The procedures and directions in the administration manual must be followed exactly. One example of a standard accommodation would be taking the test in small groups.

Standard Error of Measure (SEM) - The SEM is an index of the random variability in test scores in raw score units (Ary, Jacobs, Razavieh, & Sorensen, 2006).

Title 1 of the Elementary and Secondary Education Act of 1965- The purpose of this title was “to ensure that all children have a fair, equal and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging state academic achievement standards and state academic assessments” (United States Department of Education, 2010, p.1).

Title 1, Part A-Disadvantaged Children- Title 1 is a part of the No Child Left Behind Act of 2001. The act “provides federal funds through the Georgia Department of Education to local educational agencies and public schools with high percentage of poor children, therefore to help ensure that all children meet state academic content and student academic achievement standards” (No Child Left Behind, 2005, p.1).

21st Century Community Learning Centers- The 21st Century Community Learning Centers support community afterschool programs that offer academic help during afterschool hours for students who attend low performing and high poverty schools throughout the school year.

The Study

Middle school afterschool programs are on the increase. Reasons behind this growth include increased safety risks when adolescents are left unsupervised at home and a concern that students are falling behind and therefore need more individual time to achieve the academic standards students must pass (Gayl, 2004).

This study examined the effects an afterschool program had on standardized testing and behavior of at-risk middle school students in two rural Georgia schools. This study reviewed the test scores of students who participated in the 21st Century Community Learning Center afterschool program at two similar schools. The afterschool program was held from 3:20 p.m. to 6:00 p.m. each school day. During that time, the afterschool program was scheduled to provide time for snack/social development (20-25 minutes), homework completion (30 minutes), reading skill enrichment (30 minutes), math skill enrichment (30 minutes), and youth development and enrichment activities (30 minutes). Two computer based programs were used during the reading and math enrichment segments. The afterschool tutoring and enrichment classes were staffed by certified teachers, with additional assistance provided by paraprofessionals and volunteers. After one year of attending the program these students' math and reading scores were compared to their previous year's test scores in math and reading. Students' numbers of office referrals were also compared along with attendance rates and achievement scores.

Organization of Subsequent Chapters

Chapter two of this study consisted of a review of the literature, which included a brief background overview of afterschool programs. Chapter three addressed the design of this study and the methods used to perform the necessary tests. Chapters four presents the

results of the data collection and analysis of the data. Finally, chapter five concludes this study with a discussion of the implications, limitations, and results and provides recommendations for further research.

CHAPTER 2: REVIEW OF LITERATURE

This section discusses literature by categorical topics. It reviews the theoretical framework for this study and a brief background overview of afterschool programs and current trends is discussed to establish the context of the study. This review also explores programs that have shown improvement and those that have not shown improvement. At-risk students, gender, standardized testing and the 21st Century Community Learning Centers were also explored for the purpose of this study.

Theoretical Framework

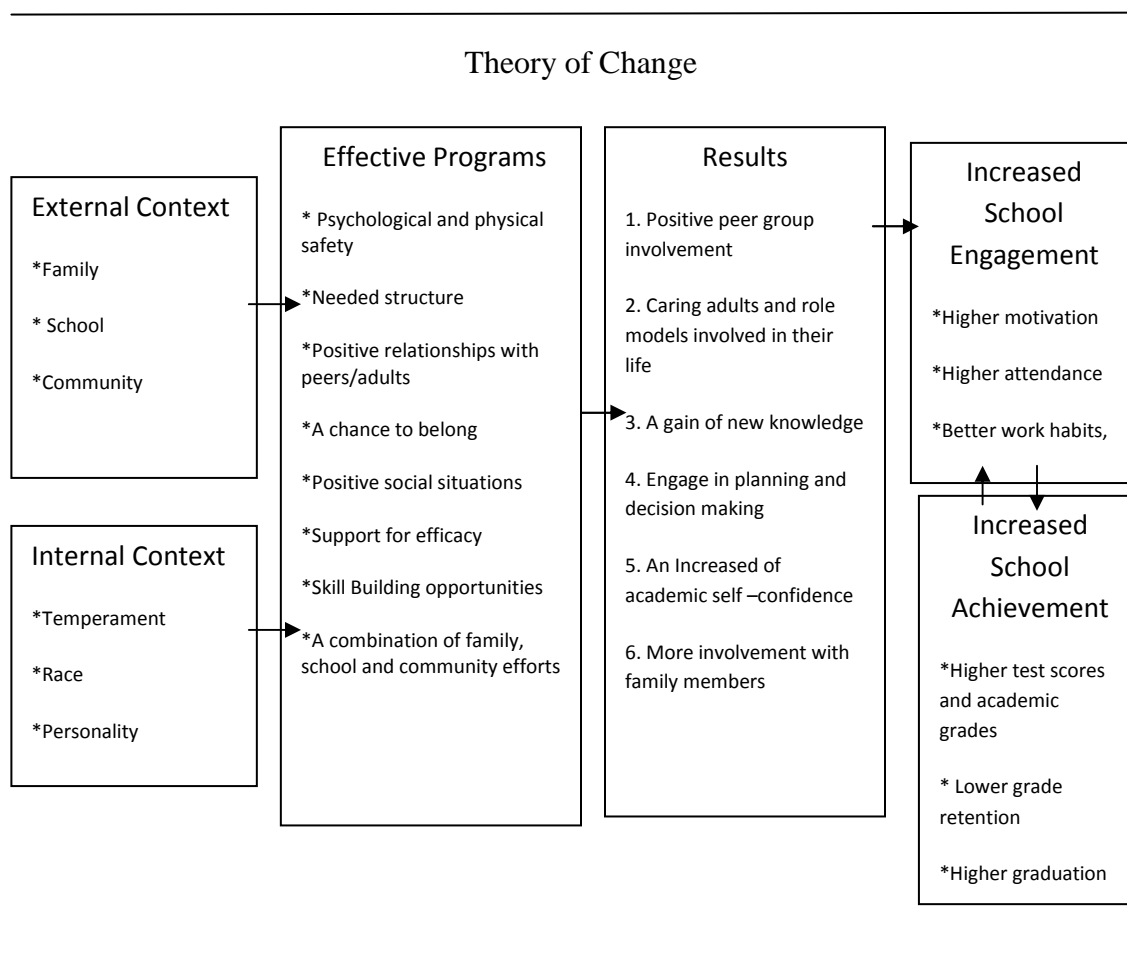
James Connell, the president and cofounder of the Institute for Research and Reform in Education, is known for his research on youth development in urban settings and the “theory of change” approach to planning and evaluation of system change. He has written many articles on this theory of change and developed his design as it relates to educational reforms and youth issues. Connell and Kubisch (1998) defined theory of change as “a systematic and cumulative study of the links between activities, outcomes, and contexts of the initiative” (p. 4). The theory of change has been described by Connell (1999) as a roadmap to get one from here to there.

Beth Miller (2003) took Connell’s approach and described how afterschool programs can help students be more successful. According to Miller (2003), where students spend their free time afterschool can determine what kind of activities they participate in each year. The time spent on various activities can have different effects on learning which, in turn, can affect school performance (Eccles & Barber, 1999). For example, adolescents who come home to an empty house are more likely to watch television in the afternoon

rather than be a part of an afterschool program or activity involving other students or adults. (Posner & Vandell, 1999). Miller (2003) described specific aspects of successful programs and the results of deliberate planning below. The theory of change in educational settings indicates that when students participate in afterschool programs they are likely, over time, to begin showing positive changes in behavior and performance.

Figure 2.1

Theory of Change



Adapted from “Critical Hours: After School Programs and Educational Success,” by Beth Miller, 2003, Nellie Mae Foundation, p. 43.

Miller (2003) concluded that through afterschool program participation, adolescents can:

- Develop meaningful relationships with adults and have positive role models to look up to and interact with each day
- Participate in activities that create new learning
- Participate in planning, decision-making, and problem-solving
- Be a part of a group of peers who have positive ambitions
- Transfer positive experiences found in the program to more positive feelings about school
- See themselves as learners
- See experiences an increase in the involvement of family members in their lives (p.43)

Background of Afterschool Programs and Current Trends

Kanter (2001) reported that in the United States in 2001 six million children out of 54 million in grades kindergarten through eighth grades had attended an afterschool program funded by the community or school district. According to Kanter, since 1994, the number of schools that offered programs afterschool has doubled; while the National Institute on Out of School Time (2003) reported there are 8 million children between the ages of 5 and 14 who are not supervised afterschool.

Afterschool programs have a long history. Organized activities and programs for children outside of school have been around for more than a century. Halpern (2002) tracked the beginning of afterschool programs to concerns in the early 1900s for the care and safety of children who lived in neighborhoods that were not safe and to the need for childcare. The childcare issues were due to the female employment growth in the 1940s. Halpern reported that only lately have policymakers viewed afterschool programs as a

way to improve academic achievement in students. As the movement for more educational standards and accountability grew, the idea of more learning opportunities to help children succeed also increased (Gayl, 2004). According to Kugler (2001), three societal concerns have led to the recent increase in afterschool programs: “the lack of caregivers in the home after school, the belief that economically disadvantaged children can improve their learning given more time and opportunities, and the high incidence of teen crime after school” (p. 4).

In *Critical Hours* (2003), Beth Miller seemed to agree. Over the past ten years in the United States a political agreement has developed which addresses the importance of all students having the academic skills necessary for success in a worldwide economy. Forty-nine states have revised academic requirements into standards, and the use of assessments designed to check students’ progress in accomplishing these standards has increased. Disagreement exists among educational circles and the public about the real value of the high-stakes testing approach to assess students’ academic performance. High-stakes testing requires a certain level of performance needed for promotion to the next grade, graduation, or in some cases both. In *Teaching the New Basic Skills: Principles for Educating Children to Thrive in a Changing Economy*, authors Murnane and Levy (1996) point out that “employers today are interested in filling entry level jobs with applicants who do well on tests of basic skills in math and English. However, companies are equally interested in whether prospective employees possess the soft skills of communication, teamwork and problem-solving- needed for success in today’s workplace” (p. 2). Murnane and Levy (1996) concluded the following are the most important skills needed for an entry level middle class job: “ability to read at the ninth-

grade level or higher; ability to do math at the ninth-grade level or higher; ability to solve semi-structured problems where hypothesis must be formed and tested; ability to work in groups with persons of various backgrounds; ability to communicate effectively; both orally and in writing and lastly, ability to use personal computers to carry out simple tasks like word processing” (p.3).

Afterschool Programs Showing Improvement

There is much evidence that indicates that afterschool programs do benefit our youth. Early adolescences are looking for more responsibility, a sense of identity, more independence and autonomy, and experience in the real world (Miller, 2003). They will find ways to achieve these things, whether through positive activities or negative activities. For example, these needs could be met through school leadership opportunities or gang membership.

The No Child Left Behind (NCLB) Act of 2001 has centered our focus on children’s afterschool time and their activities. Supplemental education services are offered to schools in which children do not reach proficiency. These supplemental educational services must not be during the school day and have adequate evidence that the services are making a difference in student achievement (No Child Left Behind Act of 2001, section 1116[e]). Afterschool programs have proved to have positive effects on the academic achievement of at-risk students in math and reading (Fashola, 1998; Lauer, Akiba, Wilkerson, Apthrop, Snow, & Martin-Glen, 2006).

Kanter, William, Cohen and Stonehill (2000) reported the following achievement data examples from the 21st Century Learning Center programs from the year 2000:

- Students who regularly attended Montgomery, Alabama's Star Search afterschool programs improved in the area of behavior. There was 25% reduction in violence among those who participated in the program.
- At Huock Middle School, in the Salem-Keizer School District in Oregon, the 21st Century Learning Centers grant enabled an expansion of programs that led to a measurable drop in the use of drugs, alcohol, and tobacco among students in the past year.
- A 40% drop in juvenile crime in the surrounding neighborhood of the 21st Century Community Learning Centers afterschool program was reported by Highland Park, Michigan.
- It was reported in McCormick, South Carolina, that 120 students would have failed the year and been retained without the afterschool program.
- Brooklyn, New York's Cypress Hills Center indicated that 72% of the afterschool program participants improved their averages by 5 points on a 100-point scale in one or more of their academic classes.
- Improved attendance was shown in participants in Chattanooga, Tennessee. The report revealed a drop from 568 days to 135 at one school; and at another, the drop was from 148 to 23.
- Palm Beach County, Florida, reported that students who attended an afterschool program funded by the 21st Century Community Learning Center have increased math and reading scores along with interpersonal self-management skills (p. 3).

Research studies such as "After School Learning: A Study of Academically Focused Afterschool Programs in New Hampshire" (Frankel, Streitburge, & Goldman,

2005), have shown that afterschool programs do contribute to students' academic achievement and behavior improvement. The findings of this report were based on data from 13 middle schools. Funding for these programs were from the 21st Century Community Learning Centers and Out-of-School Matters.

Middle School Findings

- 62% showed improvements in overall academic performance
- 51% showed improvements turning in homework
- 51% showed improvement in completing homework
- 51% showed improvements in class participation
- 35% showed improvements in student interaction
- 35% showed improvements in classroom behavior
- 32% showed improvements in attendance to school
- The longer a student participated in an afterschool program, the more likely he or she was to make progress academically.
- Even students with low attendance levels showed improvements

The study concluded that “more than half the elementary and middle level students who attend afterschool programs regularly improve both academically and behaviorally, and middle school participants develop improved learning skills such as homework completion, class behavior and class participation” (p.5).

The University of California-Irvine examined California's statewide afterschool program known as the Before and Afterschool Learning and Safe Neighborhood Partnership Program (Afterschool Alliance, 2008). The data included information on nearly 100,000 children in elementary and middle schools, including SAT-9 scores and a

California testing program. The data, according to Afterschool Alliance (2008), revealed positive results on student achievement, behavior, attendance, and retention rates. Three groups gained the most from attending an afterschool program: English language learners, students who had high attendance records, and underachieving students. The evaluation also reported that middle and elementary school students exhibited changes in their attitudes toward school. Administrators from the program noted that students seemed to feel more positively toward school and that this was due to their excitement about the afterschool program. The Afterschool Alliance summary (2008) also indicated that students who did not participate in the afterschool program frequently showed declines in performance during that same period of time.

Likewise, a study by researchers at the University of California, Irvine, and the University of Wisconsin-Madison (Vandell, Reisner, & Pierce, 2007) was conducted with the support from the Mott-Foundation. The study evaluated “high quality” afterschool programs and concluded that along with significant academic gains for both middle and elementary students, quality after school programs lowered middle school students’ use of tobacco, alcohol, and drugs.

According to Vandell (2007), disadvantaged students who regularly attended a quality afterschool program for two-years were academically ahead of their peers who spent after school hours in unsupervised activities. The Promising Afterschool Programs Study (2007) examined 35 programs with 2,914 low income elementary and middle school students across eight states.

Researchers divided students into three groups: a program only group of students who attended two or three days a week and did nothing else outside of school; a program plus

group who attended two or three days a week and also participated in other outside of school extracurricular activities; and a low supervised group who attended sporadically during the week. The researchers found over the period of the three-years, those students who were attending and participating in supervised afterschool activities did better on a range of academic, social and behavior outcomes (Vandell et al., 2007).

Vandell (2007) noted sixth and seventh grade students who regularly attended afterschool programs scored 12 percentile points better in math than the low supervised group. The program and program plus groups also reported a reduction in drug and alcohol use as compared with the more sporadic attendance group.

These math gains are being made in programs that are not specifically targeting academic skills. Deborah Vandell (2007) believes children are developing persistence, focus and engagement which are then taken to the classroom and causing these gains.

A similar study by the After School Corporation and LA's BEST afterschool program (Goldschmidt & Huang, 2007) indicated afterschool program participation did improve attendance and academic achievement and lowered juvenile crime. LA's BEST serves 18,000 students in 105 schools. Huang (2007) reported evaluations have shown: 83% of students say they like school more because of participation in afterschool; students who participated on a regular basis scored higher on standardized tests in reading, mathematics, and language arts; and participants had an increase in grade point averages.

Farbman and Kaplan (2005) evaluated several secondary schools in Boston in which more than half of the population of students qualified for reduced or free lunch. There were four schools that exceeded their own district averages in each of the academic content areas. One of the middle schools studied was Murphy; the students reached 48%

proficiency in math compared to the 15% district average. Roxbury Preparatory School, another middle school in the study, achieved 89% proficiency in language arts. Only one comparison out of eight revealed an afterschool program falling below the district average, demonstrating performance which was 1% lower in math.

Likewise, a meta-analysis of 56 studies throughout the United States, ranging from elementary to high school programs revealed that afterschool programs had a positive effect on student achievement and could be statistically significant. Lauer (2003) found afterschool programs had positive effects on the achievement of at-risk students in mathematics and reading. The greatest gain was in reading where one-on-one tutoring techniques were applied. Another finding from this study suggested an afterschool program could have positive results on student achievement without just centering on academic activities (Lauer, Akiba, Wilkerson, Apthrop, Snow, & Martin-Glenn, 2003).

Martin (2007) studied 33 youths who attended an afterschool program in an alternative school setting. The afterschool program was for very high risk teenagers, all had: (1) been suspended from school, (2) missed 40 days of school or had been truant the previous year from school, (3) collected at least 20 discipline referrals and had been assigned to an alternative school due to behavior problems and failure in school, (4) was behind two grade levels in school, and (5) came from low socioeconomic families. The program consisted of tutoring, counseling, enrichment and social activities. Martin and his colleagues (2007) reported after two year of participation in the program, students' basic skill levels improved at least two grade levels, attendance improved, discipline referrals decreased and none of the students were suspended or expelled.

These studies do indicate that afterschool programs are beneficial to students and have an effect on academic achievement and behavior. However, other research revealed that some afterschool programs did not show a significant effect on academic performance and behavior.

Afterschool Programs Failing to Show Improvement

Contrary to the above findings, the following research studies found results that were not statistically significant. Thomas Kane (2004) examined a report from four programs: The After School Corporation (TASC), 21st Century Community Learning Centers (21st CCLC), San Francisco Beacons Initiative (SFBI), and Extended Services Schools Initiative (ESSI). The After School Corporation evaluation showed no effect on math or reading standardized test scores following one year of attendance in an afterschool program, but did show gains in math achievement for the second and third years. The results of the study of the San Francisco Beacons Initiative (Kane, 2004) program indicated that it had no influence on grade point averages, standardized test scores, or school attendance. The Extended Services School Initiative (Kane, 2004) focused only on participation and cost, therefore no data were available on student achievement. Results from the 21st Century programs (Kane, 2004) also failed to show any gains in reading for those participating in the program. Kane concluded that even though gains were not shown in student achievement, these programs did show consistent gains in the areas of parental and student involvement and homework completion habits. Other studies showed that numerous middle school students participating in the 21st Century program demonstrated no significant academic progress while participating in the program and found attendance in the program was not a factor (Dynarski, Moore,

Mullins, Gleason, Burdumy, Rosenburg, Pistorino, Silva, Deke, Mansfield, Heaviside, & Levi, 2003).

The North Carolina End of Grade scores for middle school students who participated in Support Our Students afterschool program were studied for three years by Rodney Roukeina (2005). He concluded that scores in math and reading for students who participated in Support Our Students afterschool program during their three middle school years showed no significant difference from those who did not participate in the program. Roukeina (2005) also found no significant difference in math or reading scores for students who participated in the program from those who did not participate in the minority subgroups, students in the free or reduced price lunch subgroup or gender subgroups. He sorted the groups to determine the differences for various influencing factors and found no significant effect.

Cheri Ogden (2008) examined the impact of afterschool participation in a suburban Title 1 middle school in Augusta, Georgia. The school had a population of around 1000 students. These students were described as 95% minorities and 82% qualifying for free or reduced lunch. The school had also failed to demonstrate Adequate Yearly Progress for the eight years the Georgia Department of Education had recorded information. CRCT scores in math and reading from 2006 and 2007 were compared as pre and post test scores. Participants in the afterschool program were paired with nonparticipants. A t- test failed to give a statistically significant difference between the post-test scores of participants and nonparticipants.

Durlak and Weissberg (2007) believe that unstructured afterschool programs have little or no impact on those students that attend. For example, Lauver (2002) studied the

effects of a middle school afterschool program that took place in the evening from 5pm to 7pm, instead of the afternoon. Lauver (2002) randomly assigned 227 applicants to either the program or a control group and measured the outcomes with achievement test scores and surveys. This program served a disadvantaged middle school in an urban setting and offered many activities. The program was not highly structured in that students had great flexibility in attendance and what activities they participated in each day. The program showed no impact on school attendance, grades, test scores, and behavior in school (Lauver, 2002).

According to Robert Apsler (2009) after studying 73 afterschool programs, 39 programs showed significant, positive personal or social skills outcomes in seven areas: (1) feelings of self-confidence and self-esteem, (2) positive feelings and attitudes toward school, (3) positive social behavior, (4) grades and achievement test scores, (5) decrease in problem behaviors, (6) conduct problems, and (7) drug use (p.5). These positive outcomes came only in programs that used research based training approaches. The 27 other afterschool programs did not use research based training approaches and reported no significant improvement in any of the seven outcome categories.

Frequency and Duration

Academic achievement, better work habits and study skills can all be connected to regular attendance in a good quality afterschool program (Vandell, Reisner, Brown, Dadisman, Pierce, Lee & Pechman, 2005). Regular attendance at the secondary level is difficult to find. Attendance in afterschool middle school programs tends to be sporadic. Middle school students look at after school as just “more school time” (p.5). The Afterschool Alliance (2008) evaluation of afterschool programs noted frequency and

duration of afterschool attendance made a positive impact on the student. According to Chapin Hall's study (2008) of Chicago's Afterschool Matters program, over an entire high school four year period, students participating in the program for three or more semesters and those who participated at the highest levels had higher graduation rates and lower dropout rates than similar students not in the program (Afterschool Alliance, 2008).

Similarly, a study conducted in the state of New Hampshire (2005) concluded that regular attendance contributed to student achievement. At the middle school levels, more students who attended afterschool programs regularly showed academic improvement as compared to students who attended less frequently (Frankel, et al., 2005). Likewise the Texas State Education Agency discovered that academic gain was closely related to the amount of participation in afterschool, 46% of adolescents who attended 25% or less reading tutorials showed less improvement in reading ability at the end of the semester as compared to 64% of adolescents who attended more than 75% of reading tutorials (Afterschool Alliance, 2008).

Vandell (1999) reported that academically at-risk students who attended afterschool programs more often as compared with students, who attended less often, developed better study habits, had better attendance and chose less aggressive ways to resolve conflicts. Vandell (1999) went on to say students did not want to attend programs where the staff had negative attitudes and where the activities were limited, boring and not flexible.

Middle School Afterschool Programs

The term middle school was first used by William Alexander, an education professor at Cornell University in the 1960s (Lounsbury, 2009). Alexander outlined a design that

met the particular needs of adolescents focusing on “project-based learning; differentiated instruction; comprehensive health, physical education and guidance programs; a team structure for teaching; and small heterogeneous homerooms where teachers know each student well” (Morehouse, 2009, p.2). According to Holly Morehouse (2009) the state coordinator for the 21st Century Community Learning Centers at the Vermont Department of Education, these ideas helped create the center of the middle school concept and still direct education reform for middle schools today.

During the middle school years, adolescents go through major physical and emotional changes. Many students experience a decline in school involvement during the middle school years; grades drop along with self-esteem, confidence to complete projects and assignments decrease while truancy and problems increases (Scales & Leffert, 1999). Information from the Search Institute (Scales & Leffert, 1999) agrees that these years are most often a time of less interest, motivation and effort devoted to school. Students who are withdrawn from school also score lower on standardized state assessments, are more apt to misbehave, and more likely than their peers to be caught up in drugs and alcohol and become sexually active at a much earlier age and be in the courts system (Blum, Beuhring & Rinehart, 2000). Afterschool programs are reported to help prevent some of the obstacles adolescents may face. Middle school students are often left out of afterschool activities- too young for many programs, but not yet old enough for other programs, not an adult, yet not a child.

When evaluating after school programs, it is important to acknowledge several aspects of both the afterschool program and those participating in the program (Mahoney & Carry, 2005). Afterschool programs do vary in philosophy, goals, and programming.

Lee (2001) points to some programs that center on sports activities, while others focus on academics by furnishing tutors in academic classes and helping students with homework completion. Many of these afterschool programs also offer enrichment activities, providing students with opportunities to find new interests and develop new skills in activities such as dance, music, and the arts.

The Harvard Family Research Project (2006) has identified key components for middle school afterschool, these include: (1) allowing middle school students to be the creators of their own afterschool experience; (2) quality standards; (3) staff that are well trained to work with middle school age students; (4) programs that connect to school and family.

According to Miller (2003), quality middle school afterschool programs provide the middle school student with the 3 V's- voice, vote and voluntary activities. This would include students in the planning process, help students with conflict resolution, and support the development of communication and decision-making skills, notes Miller. Good quality programs for middle school students must appeal to their interests. Once the students are in, then it is important to make sure they are involved while helping them develop the ability they need to be successful students (Baker & Witt, 1996).

Beth Miller in *Critical Hours* (2003) listed the ingredients needed to provide quality programming for successful afterschool programs:

- Sufficient well trained and compensated staff
- Staff who work in the program over a long period of time and are able to build relationships with the students
- Staff who understand the developmental needs of adolescents

- Low adult-to-youth ratio
- Staff who engages in frequent, positive interactions with students
- Staff who understand the cultural, racial, ethnic and class backgrounds of the students
- Staff with high expectations of all youth
- High quality content
- Clear rules and expectation with consistent consequences
- Good curriculum that is age-appropriate and provides engaging, skill building, hands on activities geared toward the goals of the program
- Flexibility that allows students to choose activities that interest them
- Youth valued for their input
- Strong administration
- A full-time coordinator
- Clarity of mission and goals
- On-going self-assessment and evaluation
- Adequate funding
- Support of the school principal
- Involvement of parents
- Connection to community partners (p.72)

Likewise Holly Morehouse (2009) believes in quality programming and the importance of the adolescent period. This period is characterized by growth and change which can be a big problem for both the student and adults unless middle school afterschool programs are created with certain unique qualities of adolescents in mind.

The Vermont Department of Education assisted the Nellie Mae Foundation in identifying best practices for middle school afterschool programs. As a result, the project developed a new design for middle school afterschool programs based on five components, which are known as the Five Rs of program design: relationships, relevance, reinforcement, real-life projects, and rigor (Morehouse, 2009).

First, the Vermont Project (Morehouse, 2009) found that students and staff must build strong, healthy relationships between one another in order to have a successful middle school afterschool program. Therefore, it is important to find staff members who truly like being with adolescents and have the training needed to work with a specific age group.

Secondly, being relevant permits afterschool programs to develop adolescents' growing interest in their world by working on projects that are significant to them. According to Morehouse (2009) the adolescent will now have a choice and voice in the planning of the afterschool program. Adolescents want to make the world a better place through their strong interests in social causes, environmental issues, and political and current events. Afterschool programs were found to help adolescents realize how real change happens by developing programs based on students' interests and by providing students with opportunities to be involved in relevant activities.

Thirdly, afterschool programs should be designed to reinforce adolescents as they become more responsible and independent (Morehouse, 2009). Afterschool programs need to provide opportunities that require adolescents to be responsible and work more independently through various activities and projects while being encouraged from the adults.

Next, afterschool programs need to be designed with hands-on activity learning strategies and meaningful group projects that deal with the real-world (Morehouse, 2009). These real-life projects aid in the adolescents' social development and provide the adolescent with a healthy sense of self-esteem. Helping students develop their social skills is one of the most important things a school program can do (as cited in Morehouse, 2009). These opportunities can be seen in games, debates, role playing activities and research projects.

Lastly, afterschool programs must have rigor so students are challenged in their learning process and excite them, so they keep coming back and wanting to be a part of the program. The Vermont Project Team (Morehouse, 2009) suggests that "successful afterschool programs should challenge students, set high standards for behavior and performance, and provide opportunities for exploration and for mastery" (p.8). This can be accomplished through hands-on learning experiences and challenging intellectual projects, which can be provided by afterschool programs.

21st Century Community Learning Centers Programs

The 21st Century Community Learning Center program was authorized under the Title X, Part I, of the Elementary and Secondary Education Act. This program was a part of the Clinton-Gore administration's promise to families and their children for a better education. The 21st Century Community Learning Center is funded by grants from the United States Department of Education which help support public schools as community education centers for the afterschool time period.

Congress authorized the 21st Century Community Learning Center (21st CCLC) program, in 1994, which allowed schools to be used in various ways by their

communities. In 1998, the program was updated to include recreational and enrichment activities and provide more time for academics during the afterschool hours. These centers could also assist students before school, on weekends, and during the summer months. Starting from a funding level of \$40 million in 1998, the program grew at a huge rate to \$1 billion in 2002 (Burdury, Dynarski, & Deke, 2007).

The 21st Century Community Learning Centers can be found in public elementary, middle, and high schools. These centers give students access to a place to complete homework with a tutor, participate in enriching and recreational activities and receive a nutritional snack. A typical 21st Century Community Learning Center serves some 156 children in inner city and rural areas. Most of the centers offer programs focused on raising academic achievement in the basic content areas as well as providing enrichment activities (Kanter et al., 2000). Most all of these centers offer programs to help students with math, reading, and science. In addition to academics, 72 % of the centers provide students with opportunities for art and music enrichment, 64 % provide social studies activities, 70 % take part in technology-related activities and 76% provide other types of enrichment.

More urban and rural schools are able to begin summer school programs because of funding from the 21st CCLC programs. Two-thirds of these schools operate summer programs of 25 or more hours during the week. Summer school provides numerous benefits for students, teachers, families, and communities. It provides opportunities for “remediation of students with learning deficits, repetition of failed courses for secondary school students, services for students with disabilities, supplemental help for disadvantaged students, enrichment opportunities for students with special talents, and

options for teachers to further their career development and increase their income” (Kanter et al., 2000, p.6).

Collaboration is a major component of the 21st CCLC program (Kanter et al., 2000). It is essential to communicate with the administration and teachers of the regular school day regarding goals of the afterschool program and progress of each student in the program. These day-to-day connections with the regular school day include referring students, working at the program, providing feedback on students in the program, setting goals and objectives, sharing instructional strategies and discussing school-day curriculum to afterschool staff (Kanter et al., 2000).

To improve students’ CRCT scores in mathematics and reading, the 21st CCLC grant purchased two computer-based programs to be used during the afterschool program. The first, Passport Reading Journeys, is an interactive high interest content reading program for middle and high school students. “Journey’s goal is to accelerate students to proficiency in reading performance by targeting students who score significantly low in reading and providing engaging age and interest appropriate instruction “(Voyager, 2009, p.1). Similarly, Vmath’s goal (Voyager, 2009) is to fill in important learning gaps with the aid of printed materials, regular assessments and online technology.

At-Risk Student Behavior

Many students in the Georgia educational system struggle with issues at home that teachers and administrators are neither aware of nor have the ability to handle. In some cases, students may be dealing with how to obtain basic shelter or food on a daily basis. Not all at-risk students fall into these extreme circumstances, but a significant percentage come from troubled backgrounds. In most cases, these students tend to fall into one of

the following categories: low income family, single parent household, history of poor academic achievement in household, and English as second language/poor literacy skills (Downing & Harrison, 1990).

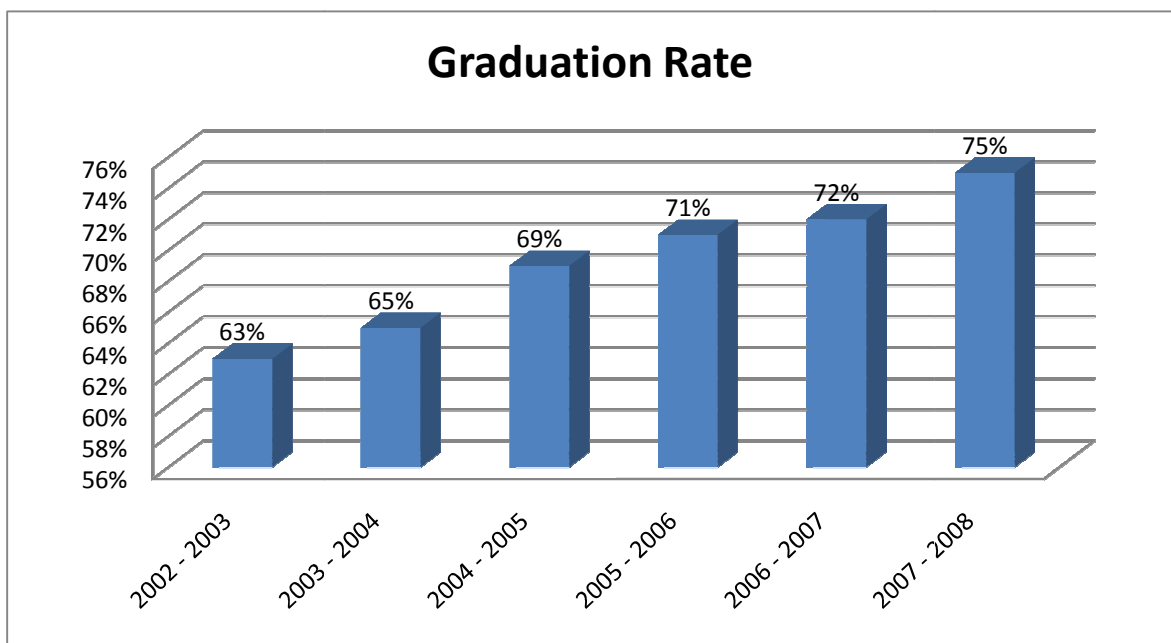
Some behavior traits stand out with at-risk students. Often at-risk students do not have a concept of the future (Divinyi, 1997). Many of these issues students face are daily battles; they do not understand the idea of long-term goals with smaller goals in between. Divinyi (1997), went on to say at-risk students can also have little control over impulses and are more likely to have outbursts when agitated or disappointed by something that has recently happened. These students have also developed defensive mechanisms to respond to certain situations. In some cases, if presented with a threat, their reactions may be stronger than the actual threat, resulting in escalating acts of anger or potential violence (Divinyi, 1997).

Most at-risk students are not experiencing success in school and are potential dropouts. At-risk students tend to have excessive absences, which are damaging to any attempt at achieving academic success. Due to these absences and other factors, the student may have a history of poor academic achievement, often moving from grade to grade with the slimmest of margins. This is not due to their intelligence or academic potential, but is more of a reflection of a lack of interest or inability to complete all their work because of absences. Many students who have been labeled at-risk are capable of doing quality work, but either attitudes towards education or logistics have become obstacles to realizing their full potential (Nichols, 2003). Schools are challenged to create strategies to assist these students.

In 2006, the Governor of Georgia, Sony Perdue, developed a program to place full-time graduation coaches in every high school throughout the state of Georgia. The program was a success, so he then put middle school graduation coaches in all middle schools throughout the state of Georgia for the 2007-2008 school year. The major task of these graduation coaches is to identify and offer early intervention strategies to students at-risk of dropping out of school. In 2007-2008 graduation coaches defined more than 282,400 interventions which included the promotion of afterschool programs.

Georgia's state graduation rate has had a steady increase the last 5 years. The states graduation rate has increased from 72.3% in 2007 to 75% in 2008, which was a record high for Georgia (Georgia Graduation Coach Initiative, 2008). The county in which the study was conducted in had three high schools with a combined graduation rate of 75%. The two high schools that the middle schools in the study fed into had rates of 72% for Middle School A and 70.5% for Middle School B.

Figure 2.2 *Graduation Rate 2002 through 2008 for Georgia*



Adapted from “Georgia Graduation Coach Initiative,” by Georgia Department of Education, 2008, p. 23.

Students can begin heading down the wrong path as early as middle school. Balfanz, Herzog, & Iver (2007) reported in their study that not enough focus has been given to understanding the huge number of student disconnection in high-poverty middle schools, and how this has effected student achievement and the part it plays in the nation’s graduation problem. Balfanz et al. (2007) longitudinal analysis followed almost 13,000 students from 1996 until 2004, looking at how four predictive indicators reflecting attendance problems, behavior problems, and failing grades in middle school can be applied to identify 60% of students who will not graduate from high school. The study suggested that administering entire school changes dealing with attendance rates, behavioral issues and intervention programs that in return graduation rates would be higher (Balfanz, 2007).

Robert Balfanz (2009) reported that in a high poverty setting a middle school student’s experience to a great extent will affect the likelihood of completing high school. For example, sixth grade students had only a 10% to 20% chance of graduating on time if they had failed a major subject such as math or English/reading, had attended less than 80% of school days, or had behavior issues during a main subject area class. Balfanz (2009) went on to point out that the middle school time period in a student’s life does matter and good behavior at this level is an important factor. In many low-performing middle schools, students think classroom policies and rewards are different for each teacher, that school is just to be endured, that misbehavior gets noticed, and doing very little to get by and pass is adequate and acceptable (Balfanz, 2009).

Furthermore, Belfranz (2009) reported the significance of using the data the schools have available to them such as grades, attendance and behavior referrals. Belfranz (2009) went on to say that middle schools are designed with the notion that 15% of students might require extra help and time to be successful about the same amount for acceleration and the majority of students capable of making it through alone. This study pointed out the need for better support for these students attending high-poverty schools and the affect these factors have on middle school students and graduation rates. The challenge, Belfanz (2009) notes, comes in the area of funding those programs that offer the support systems that would make all of these things work.

Gender

Very little is written about specific gender issues in afterschool programs. Most of the information discusses the importance of avoiding stereotyping activities by gender (Froaschi, Sprung, Archer & Fancseli, 2003). For example, more boys than girls associate themselves with science and math, so afterschool programs should provide and encourage the girls to participate in more math and science activities. Other studies as noted in this chapter deal with the differences between how males and females learn.

Dr. Leonard Sax, executive director of National Association for Single Sex Public Education discussed the relevance of brain research of males and females and how they learn differently, which makes the females better suited for most classroom situations. Females tend to be left brain dominant and males right brain dominate, which means the females do well in verbal skills while the boys do well in spatial learning (Sax, 2006). These differences have major implications Dr. Sax reports, implications on how mathematics are taught, especially geometry, algebra and number theory. With males the

teacher can focus on properties of numbering. With females, the teacher needs to tie what is being taught into the real world concludes Sax (2009).

David Kommer (2009) discussed differences between males and females in regards to brain theory, social differences and learning styles in an educational setting. Brian theory refers to the idea that males and females think differently, due to differences in the structure of the brain in males and females. How students think can have a huge impact on academic achievement and how students approach learning opportunities.

Secondly, Kommer (2009) discussed social differences that exist between males and females, which he believes are formed by society. Males and females have certain ways they think they should look and act. For instance males are expected to show less emotion and be in control. Females however, are encouraged to share their feelings and thoughts (Kommer, 2009).

Lastly, learning styles, as mentioned above, are another way in which males and females differ. Males are more abstract thinkers, while females tend to be more concrete thinkers (Kommer, 2009).

All of these differences discussed should be taken into account when designing a quality learning environment for afterschool programs. Gender roles and characteristics are significant factors that can play a role in how students learn and behave.

Criterion-Referenced Competency Tests

For the purpose of this study the Georgia Criterion-Referenced Competency Test (CRCT) was used to measure differences in student performance. The principles of the Georgia Student Assessment Program are to assess student achievement of the state curriculum, to identify students failing to accomplish mastery of content, to supply

teachers and administrators with diagnostic information, and to aid school systems in recognizing strengths and weaknesses so adequate educational programs can be put into place(Georgia Department of Education, 2008).

Norm-referenced testing is mandated in Georgia by state law for grades three, five and eight. The rationale of this testing, according to the Georgia Department of Education, is to compare the assessments of Georgia students with a national sample (Georgia Department of Education NRT Guide, 2008). Students in grade three read the test themselves for the first time instead of the test being read to them. Grades five and eight are transitional grades to middle and high school. Students must pass the test in grades three, five and eight in order to be promoted. Students in first through eighth grades must take a criterion-referenced test each year. Students are tested in reading, language arts, math, and in science and social studies for grades three through eight. Kindergarten through second grade students are tested only in math, reading and language arts. The CRCT is designed to measure how well students master the skills and information in the Georgia Performance Standards (GPS). This measurement is also used to establish whether a school is making Adequate Yearly Progress (AYP) under the guide lines of the No Child Left Behind Act. AYP is determined by the percentage of students in a school that meet or exceed the standard on the annual state assessment. If a school fails to make Adequately Yearly Progress, the school must then offer more educational opportunities to those students who did not score high enough on the yearly assessment. Administration of the CRCT supports goal 5 of the state's Superintendent's Strategic Plan: Improve the SAT, ACT, and achievement scores of Georgia Students, which is achieved through providing an effective curriculum and assessment system (Testing Brief, 2009).

Figure 2.3

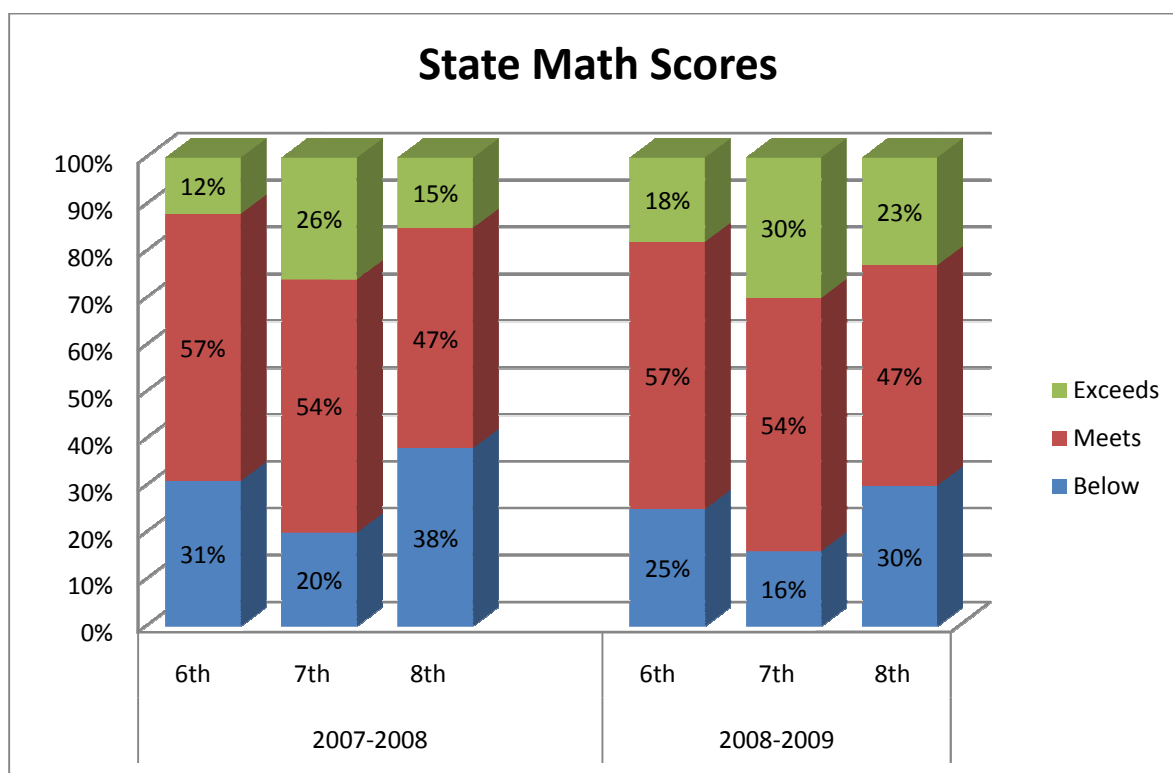
Georgia CRCT Math Scores

Figure 2.3 shows the state scores for each grade, six, seven and eight in math for the two years the study compared scores.

In the state of Georgia, for the 2007-2008 school year, the percentage of sixth, seventh and eighth grade students who met or exceeded the standard in math was 69 %, 80% and 62%, respectively. During the 2008-2009 school year, the percentage of sixth, seventh and eighth grade students who met or exceeded the standard in math was 75%, 84% and 70%, respectively.

In the area of reading, for the 2007-2008 school year, the percentage of sixth, seventh and eighth grade students who met or exceeded the standard was 92%, 88% and 90%, respectively. The following school year, 2008-2009, the percentage of sixth, seventh and

eighth grade students who met or exceeded the reading standard was 90%, 89%, and 93%, respectively.

Figure 2.4 *Georgia CRCT Reading Score*

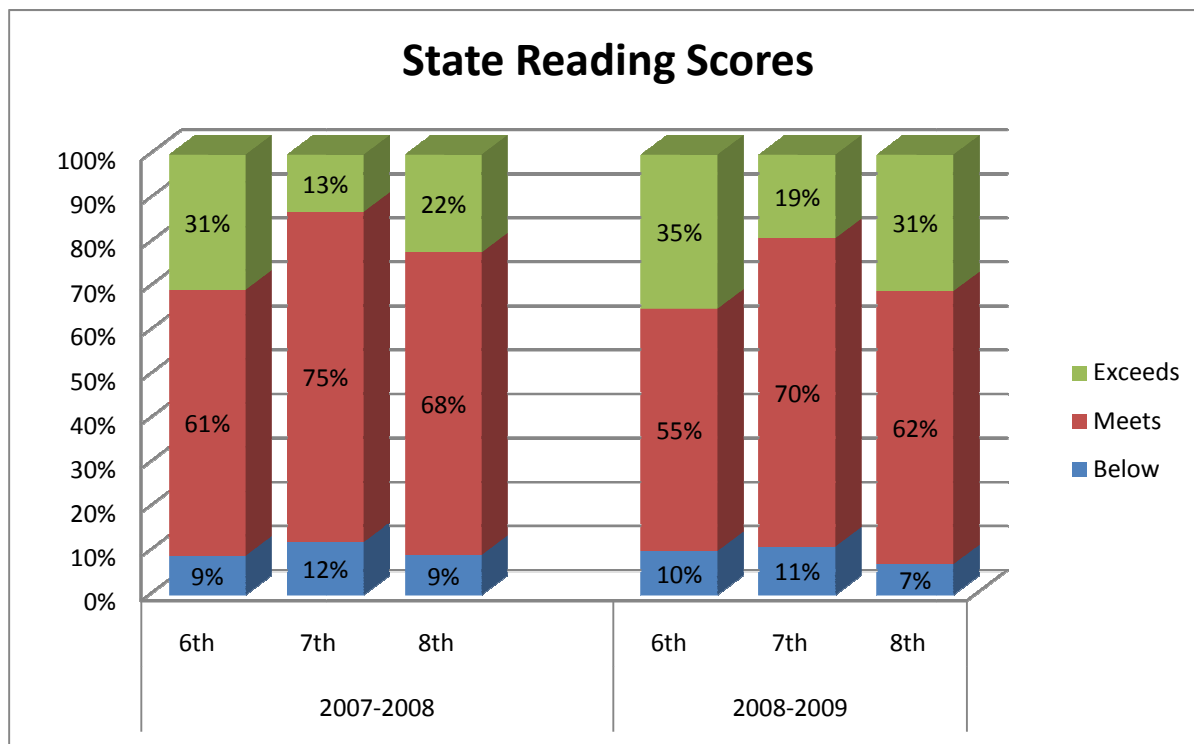


Figure 2.4 shows the state scores for grades, six, seven and eight in reading for the two years the study compared scores.

Summary

Afterschool programs can have a positive impact on the lives of children each year. Improved parent/school communication, better social skills, reduced crime, and improved safety are all reasons for the success of afterschool programs (Miller, 2003). Some studies do indicate academic gains for students who attend afterschool, while other research does not show such gains for those students who participate in afterschool programs. Afterschool programs are evaluated in many ways. It is when an afterschool program's success is measured by student gains on standardized assessments that it

becomes difficult for researchers to find data to support such programs (Evan & Bechtel, 1997; Miller, 2003).

High quality afterschool programs can have significant effects on student achievement, just as low quality programs can fail to show significant effects (Frankel, 2005). Research from the Harvard Family Research Project (2006) compiled four key themes from 13 recent reports and presents insight into how programs can use evaluations for program improvements: (1) get feedback from the key stakeholders; (2) talk with parents; (3) inform other afterschool initiatives; and (4) improve the staff.

Another finding on quality afterschool programs is that connections matter (Frankel, 2005). Relationships between staff, schools, families, youth and the communities are very important. It is important to keep this in mind when the staff is recruited and trained.

This study looked at the data of two afterschool programs who received a 21st Century Community Learning Centers grant to see if significant gains could be found in the areas of standardized testing and behavior improvements. The CRCT was used to measure differences in student performances. Chapter three will discuss the research design and methodology used to carry out this study. A detailed description will be presented of the participants and instruments used in the research procedure and analysis of the data.

CHAPTER 3: METHODOLOGY

This quantitative study was designed to evaluate the effectiveness of two middle school afterschool programs as measured by state standardized testing and the number of office referrals. This section describes the methodology used to carry out the study. It includes an overview of the study, participants in the study, the instruments used to collect data, the procedures used to carry out the design and how the data were analyzed.

Overview

This study examined students who participated in the 21st Century Community Learning Center afterschool program at two similar schools. Data were compiled for the two school years, 2007-2008 and 2008-2009. The data consisted of CRCT scale scores in reading and math along with the number of office referrals for each of the students in the sample. CRCT scores are reported to each school at the end of each school year. A report is also compiled at the end of each school year which contains a summary of behavior reports. The study compared the math and reading CRCT scale scores before the students attended an afterschool program to the math and reading CRCT scale scores after the students attended an afterschool program. The numbers of office referrals were also compared; before they attended the afterschool program to after attendance at the afterschool program. In addition, attendance rates were collected to see if more frequent attendance had a bigger effect on CRCT scores and the number of office referrals than less frequent attendance at an afterschool program.

The study attempted to answer the following questions:

1. What effect on math achievement, as measured by the Georgia Criterion-Referenced Competency Test, will participation at an afterschool program have on at-risk sixth, seventh, and eighth grade students in a rural county in Georgia?
Null Hypothesis: There will be no significant difference between pre-treatment and post-treatment math scores on the Georgia Criterion-Referenced Competency Test of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.
2. Will there be a difference in the pre-treatment and post-treatment scores on the Georgia Criterion-Referenced Competency Test in math for sixth, seventh, and eighth grade at-risk male students and the scores for sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program?
Null Hypothesis 1: There will be no significant difference between the pre-treatment and post-treatment scores on the math portion of the Georgia Criterion-Referenced Competency Test of sixth, seventh, and eighth grade at-risk male students who participated at an afterschool program.
Null Hypothesis 2: There will be no significant difference between the pre-treatment and post-treatment scores on the math portion of the Georgia Criterion-Referenced Competency Test of sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program.
3. What effect on reading achievement, as measured by the Georgia Criterion-Referenced Competency Test, will participation at an afterschool program have on at-risk sixth, seventh, and eighth grade students in a rural county in Georgia?

Null Hypothesis: There will be no significant difference between pre-treatment and post-treatment reading scores on the Georgia Criterion-Referenced Competency Test of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.

4. Will there be a difference in the pre-treatment and post-treatment scores on the Georgia Criterion-Referenced Competency Test in reading for sixth, seventh, and eighth grade at-risk male students and the scores for sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program?

Null Hypothesis 1: There will be no significant difference between the pre-treatment and post-treatment scores on the reading portion of the Georgia Criterion-Referenced Competency Test of sixth, seventh, and eighth grade at-risk male students who participated at an afterschool program.

Null Hypothesis 2: There will be no significant difference between the pre-treatment and post-treatment scores on the reading portion of the Georgia Criterion-Referenced Competency Test of sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program.

5. What effect on office referrals, as measured by data obtained from student records, will participation at an afterschool program have on at-risk sixth, seventh, and eighth grade students in a rural county in Georgia?

Null Hypothesis: There will be no significant difference between the pre-treatment and post-treatment number of office referrals as measured by data

obtained by student records of sixth, seventh, and eighth grade at-risk students who participate at an afterschool program.

6. Will there be a difference in the number of office referrals obtained from student records for sixth, seventh, and eighth grade at-risk male students and the number of referrals for sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program?

Null Hypothesis 1: There will be no significant difference between the number of office referrals obtained from student records for sixth, seventh, and eighth grade at-risk male students who participated at an afterschool program.

Null Hypothesis 2: There will be no significant difference between the number of office referrals obtained from student records for sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program.

7. Is there a significant relationship between Georgia Criterion-Referenced Competency Test scores in math scores and attendance rates at an afterschool program in a rural county in Georgia?

Null Hypothesis: There will be no significant relationship between pre-treatment and post-treatment Georgia Criterion-Referenced Competency Test scores in math and attendance rates of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.

8. Is there a significant relationship between Georgia Criterion-Referenced Competency Test scores in reading and attendance rates at an afterschool program in a rural county in Georgia?

Null Hypothesis: There will be no significant relationship between pre-treatment and post-treatment Georgia Criterion Competency Test scores in reading and attendance rates of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.

9. Is there a significant relationship between the number of office referrals and attendance rates at an afterschool program in a rural county in Georgia?

Null Hypothesis: There will be no significant relationship between pre-treatment and post-treatment number of office referrals and attendance rates of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.

A rejection of the null hypotheses would support the assumption that the at-risk population benefit from an afterschool program which provides assistance in the areas of math, reading, and behavior. If the null hypotheses are accepted, those involved in the facilitation of the afterschool programs should examine and address these areas of concern.

Participants

The participants involved in the study were chosen from two rural middle schools in a county in northwest Georgia. As seen in Figure 3.1 and Figure 3.2 the schools were not ethnically diverse. Middle School A had approximately 750 students enrolled, 90% white, 4% black, 2% Hispanic, 2% Asian and 2% multiracial. Middle School A had 62% of the population qualify for free or reduced lunch. Middle School B had approximately 770 students enrolled, 90% white, 4% percent black, 2% Hispanic, 2% Asian and 2%

multiracial. Middle School B had 51% of the population qualify for free or reduced lunch.

Figure 3.1

Ethnic Breakdown of Middle School A

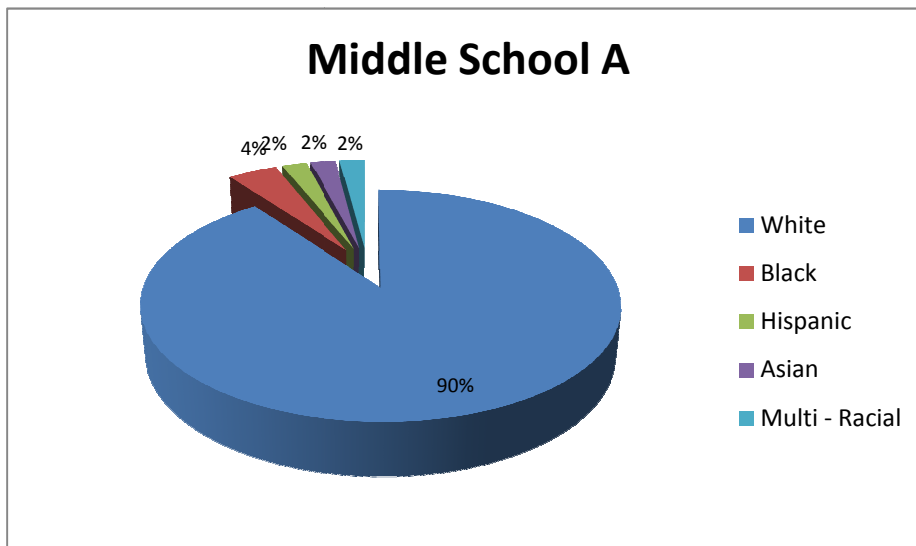
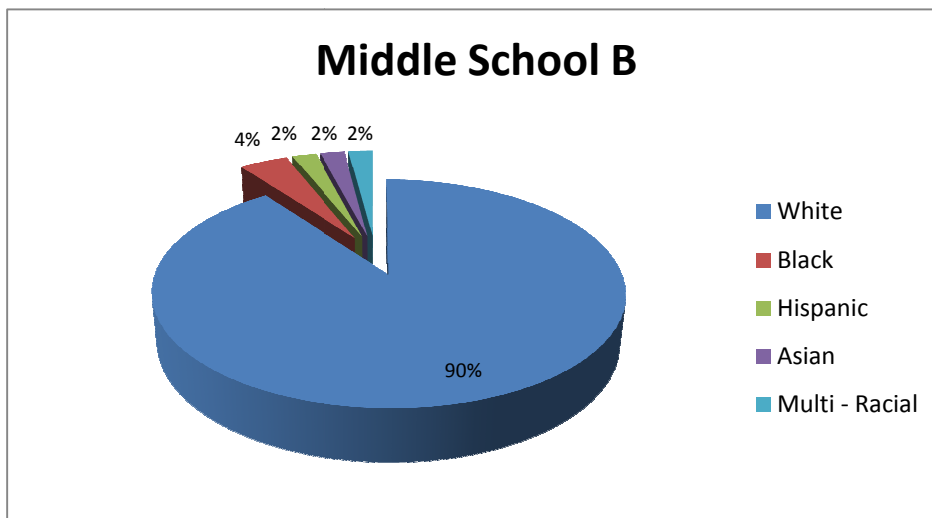


Figure 3.2

Ethnic Breakdown of Middle School B



An at-risk population was identified from sixth, seventh and eighth grade students at each school using the Candidate Roster component of the Work Management System on the Georgia Department of Education website. The sample for this study consisted of ten sixth grade students, eight seventh grade students and seven eighth grade students who were at-risk from Middle School A and 13 sixth grade students, 13 seventh grade students and seven eighth grade students who were at-risk from Middle School B. This is a combined total of 58 students. Both middle schools were awarded a 21st Century grant together for 1.5 million dollars for a three year period, beginning with the 2008-2009 school year.

Overall, 217 students were enrolled in this afterschool program. The enrolled participants attended the afterschool program an average of 25% of the days on which it was offered. Those 58 students used for the study had an average attendance of 30% or more participation in the afterschool program. This percentage of 30% was arbitrarily chosen for this study. More students were chosen from Middle School B, 33 students, than from Middle School A, 25 students, due to the identified attendance criteria. The distribution of students was nearly even across the three grade levels: six, seven and eight. Little ethnic diversity was found in this population of students: 86% white, 7% black, 3% Hispanic and 3% multiracial.

Figure 3.3

Demographic Information of the Students Chosen for the Study

Demographic Information			
	Middle School A	Middle School B	Total
6th Grade	10	13	23
7th Grade	8	13	21
8th Grade	7	7	14
			<hr/> 58
Male	12	18	30
Female	13	15	28
			<hr/> 58

Instruments

The Georgia Criterion-Referenced Competency Test was used to measure student achievement for the 2007-2008 and 2008-2009 school years. This test is given in the spring of each year to assess students in grades one through eight in reading, language arts, math, science, and social studies. This test measures how well students have mastered the skills and information mandated by Georgia's curriculum standards. This test is used to decide if students in grades three, five and eight will be promoted, and it also measures students' progress from grade to grade.

There are two ways the test can be administered: standard and conditional administration. Standard administration refers to a testing environment in which the procedures and directions given in the administration manual are followed exactly. Standard administration includes standard accommodations, even allowing for being tested in a small group setting or given large-print material (NRT System Test Coordinator Guide, 2008).

Conditional administration refers to providing conditional accommodations.

Conditional administration offers access to the testing by students with more severe disabilities or very limited English proficiency. Only students meeting strict criteria qualify for conditional accommodations (NRT System Test Coordinator Guide, 2008). Test results of students who are given conditional administration must be interpreted with this accommodation in mind. Accommodations do not alter what the evaluation is intended to determine, nor do they decrease the significance of the scores. The biggest objective of any accommodation is to acquire a significant measurement of what the student has learned (Georgia Department of Testing Division, 2009).

Each content area has two sections. Some field items may be included for all grades and content. A scripted examiner's manual is used by all those administering the test. School systems are permitted to select an eight day test window within the set time period. Students who are absent are allowed to make up any missed section during a set time period.

Only students who score at level one (does not meet standard) in a promotion/retention content area and grade level can be retested. Scoring at level one in content areas of math and reading and in grades three, five and eight are the criteria for which students may be retested. For example, if a student is in the eighth grade and scores at a level one in reading the student must take the test again and score at a level two or higher in order to be promoted to the ninth grade.

Individual and school-wide reports are sent home before the school year ends. Interpretations of the scores are important for making decisions for the next academic year. According to the Georgia Department of Education 2008-2009 CRCT

Interpretation Guide, score reports consist of raw score, scale scores and performance levels. A raw score indicates how many questions the student answered correctly. Scale scores are determined from the raw scores by means of mathematical measures and a particular formula. The number of correct answers (raw scores) is converted to a CRCT scale. All middle grade subjects have changed to Georgia's Performance Standards (GPS) and contain scale scores in the range of 650-900. For GPS courses, scores below 800 do not meet the standard, scores of 800-849 meet the standard, and scores of 850 and above exceed the standard (Georgia Department of CRCT Score Interpretation Guide, 2008).

Performance levels are similar across all content areas and grade levels. These performance levels compare students in other grades, content areas and other schools in the state. The performance level information is also used to demonstrate Adequate Yearly Progress as required by the No Child Left Behind Act. This Act creates benchmark levels of performance each school and school system must demonstrate. Adequate Yearly Progress (AYP) is determined by the percentage of students in a school that meet or exceed the standard on yearly state evaluations.

Reliability and Validity

Reliability and validity are essential to any instrument used in a study. Georgia uses the CRCT to measure academic achievement each school year. The Georgia Department of Education (GaDOE) plays a big role in the development of the Criterion Reference Competency Test (CRCT) and follows the Standards for Educational and Psychological Testing as established by the American Educational Research Association (AERA), the American Psychological Association (APA), and the National Council on Measurement

in Education (NCME) (Validity and Reliability, 2009). Reliability and validity are two key components of the technical quality in testing and measurement.

Reliability is one of the two cornerstones in testing and measurement (Georgia Department of CRCT Score Interpretation Guide, 2008). According to the CRCT Scores Interpretation Guide (2008) reliability asks whether the same measurement will give the same or similar result for the same student every time. There are two statistical procedures used to explain test score reliability for CRCT, Cronbach's alpha reliability coefficient and standard error of measurement (SEM) (Validity and Reliability, 2009). The 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. For example, a reliability coefficient 1.0 would show that all test score variance is true and there is no error in the measurement. A coefficient of 0.0 would show no true variance, showing there is no error in the measurement (Ary, Jacobs, Razavieh, & Sorensen, 2006). Figure 3.4 indicates the alpha coefficients and standard error of measurement for all middle school grades and subjects for the 2009 CRCT. Measurement specialists believe a reliability of 0.90 is the least that should be considered and 0.95 should be the target when decisions are being made based on assessments (Ary et al., 2006). According to the Validity and Reliability for the CRCT (2009), the reliabilities for 2009 CRCT were consistent with earlier administrations and suggest that scores reported in 2009 provide a reliable image of student performance.

Figure 3.4

Reliability Coefficients (Cronbach's Alpha) and Raw Score SEM for Subject Area Test by Grade

	Reading		English		Math		Science		Social Studies	
	Alpha	SEM	Alpha	SEM	Alpha	SEM	Alpha	SEM	Alpha	SEM
6th	0.88	2.49	0.90	2.71	0.92	3.26	0.91	3.44	NA	NA
7th	0.86	2.62	0.90	2.7	0.92	3.16	0.94	3.21	NA	NA
8th	0.87	2.42	0.89	2.73	0.92	3.2	0.91	3.37	0.92	3.39

Adapted from “Validity and Reliability for the 2009 Criterion-Referenced Competency Test,” by Georgia Department of Education, 2009, p. 4

The other cornerstone of technical quality in testing and measurement is validity, which starts with the purpose of the assessment and continues through item writing and review. There are a number of important elements when dealing with validity. According to the Validity and Reliability for CRCT (2009), “validity exists in context, that is, a test may have a high degree of validity for one use but less validity for another” (p.1). Validity is not an all or nothing, but an issue of degree and is related to a multi-faceted process and gathering of evidence over time (Validity and Reliability, 2009).

The CRCT is designed to measure the performance of students in grades one through eight in reading, English language arts, and mathematics and in grades three through eight in science and social studies. Along with measuring how well students have obtained the skills and information described in the Georgia Performance standards (GPS), the CRCT has other objectives associated with areas of student improvement, notifying stakeholders of the progress toward meeting academic achievement standards

of the state, meeting the requirements of the No Child Left Behind Act, and looking at the value of education in the state of Georgia (Validity and Reliability, 2009). The assessments offer valuable information on student achievement for the individual, class, school system, and state. The validity of the CRCT depends mostly on how well the evaluation instrument matches the proposed curriculum and how the score reports inform the students, parents, and educators about the students' performance (Validity and Reliability, 2009).

All test items are written by professional, experienced content specialists just for the Georgia CRCT. These specialists and Georgia educators evaluate the items after they are written. These items were evaluated for quality and clarity, how well the content was covered and appropriateness, alignment to the curriculum, and grade level, relevance, and possible bias (Georgia Department of CRCT Scores Interpretation Guide, 2008). The review committee can keep the item as it is written, change it, or throw out the item. Items that are accepted are put on field tests. These field test items are placed on a test that has been approved, to insure the field test items are taken by a group of students who want to do well under standard conditions. To guarantee validity, the Georgia Technical Advisory Committee (TAC) meets periodically to review test development and the implementation process (Georgia Department of CRCT Scores Interpretation Guide, 2008).

Work Management System

The Candidate Roster component of the work management system on the Georgia Department of Education (GDOE) website was used in determining the at-risk population of students for this study. According to the Georgia Graduation Coach Initiative Report

of 2007-2008, the Work Management System serves as an instrument to assist educators and graduation coaches in making data- driven decisions related to the service they must provide. This data is given to the Department of Education by each school. Graduation coaches use specific components designed by the National Dropout Prevention Network to recognize middle and high school students who are at- risk of not finishing high school. For middle school students, these characteristics include the following: history of school failure, retention, low standardized test scores, special education and disabilities, attendance problems, behavioral problems, history of suspension, high poverty, high mobility, and limited English (Georgia Graduate Coach Initiative, 2008).

According to this report from 2007-2008, a ratio is calculated, providing a “risk-ratio” for each student. The risk-ratio gives a combined measure that represents the level at which a student may be at-risk of not graduating from high school on time. The ratio examines the total number of academic factors, that have been identified as at- risk while considering the total number of factors for which a student was evaluated (Georgia Graduate Coach Initiative, 2008). This risk ratio ranges from 0 to 1, with 0 signifying a student not exhibiting any risk and a value of 1 signifying a student demonstrating risk on all of the characteristics that were considered. Graduation coaches, for example, might use a risk-ratio of greater than .5 or greater than .75, to determine which students to put on their caseloads.

For this study each of the two schools invited the top 125 students with the highest risk ratio for not graduating to attend their afterschool program. These 125 students were divided among each grade level, sixth, seventh and eighth at each school. Those students who brought back the signed invitations began the afterschool program in October of

2008. A combined total of 217 at-risk students attended the afterschool program for Middle school A and Middle school B during the 2008-2009 school year. This number does appear high, but the overall percentage of attendance to the afterschool program was only 25%. As discussed in chapter two of this study, middle school afterschool attendance can be sporadic.

Infinite Campus, a computer program used by the county school system, was used to acquire student information. Office referrals on each student are kept from their elementary grades through their high school period. The data are put in by each school administrative assistant. These risk ratios and office referrals were used to identify afterschool participants. Those with the highest risk ratio were given opportunity to attend the afterschool program.

Procedures

In the summer of 2008, two middle schools from northwest Georgia collaborated to write a grant for an after school program. Both schools are Title 1 schools and have not made AYP (annual yearly progress) at least once in the past 4 years. In the fall of 2008, the 21st Century Community Learning Center Grant was awarded to each school. Over three years the schools split 1.5 million dollars. A coordinator was hired to oversee both sites and two site coordinators were hired later as the school year began. Both middle schools began their after school program the second nine weeks of the school year, each with a staff of 10 and slots for 75 middle school students.

The 21st Century Community Learning Center targets several areas and data were collected by the researcher from these target areas related to the study. The focus for the program was reading and language arts, math, homework completion, class participation

and improvements in behavior. The data for this study was obtained from CRCT scale scores in the areas of reading and mathematics. Data were also collected on student behavior, which was measured by the number of office referrals each student had for the school year. Additionally, attendance was collected from the coordinator to each of the afterschool programs.

A letter was sent out to an estimated 125 students at each school that were identified as at-risk from the Candidate Roster at the beginning of the 2008-2009 school year. The graduation coach assisted in the process. The Candidate Roster was the tool used by graduation coaches in Georgia. Their caseloads are often built around this system. Counselors, along with the classroom teachers, encouraged the students to attend the new program.

The average attendance in the afterschool program was 25%. For this study, all sixth, seventh and eighth grade students who attended the after school program 30% or more during the school year were targeted for the study. The data on attendance and CRCT scores in the areas of reading and mathematics from the 2007-2008 and 2008-2009 test administrations were collected from the after school program coordinator(see Appendices A, B, C, and D). The number of office referrals for 2007-2008 and 2008-2009 was collected from the school systems database (see Appendices E and F). Data for the CRCT ended the last day before the test was given, while office referral data continued to be collected until the last day of the 2008-2009 school year.

Analysis of Data

Permission was given from the Institutional Review Board (IRB) of Liberty University to conduct this study. Permission to obtain data essential for the study was

also granted from the schools' principals and the Department of Curriculum at the county office. The graduation coach provided the list of at-risk students for the 2008-2009 school year. The afterschool site coordinator provided the attendance data and a copy of CRCT scores of the participants.

Attendance at an afterschool program is important. The program coordinator reported that the average attendance for the year was 25% to the afterschool program. A cut off of 30% attendance to the program was arbitrarily chosen for this study. Students from each of the two middle schools who attended 30% or more of the program were used in this study. Correlations were calculated to see if there was a significant relationship between achievement scores/behavior referrals and attendance rates.

This study consisted of a combination of causal-comparative and correlational design. In this study the researcher wanted to see if there was a significant difference in achievement scores and behavior after treatment as stated in the first six questions. The researcher also wanted to know if a significant relationship existed between achievement scores /behavior and attendance rates as stated in the last three questions, seven, eight and nine.

This one-group pre-treatment-post-treatment design collected data of students who attended 30% or more of the afterschool program at both schools. This study compared the CRCT (pre-treatment) scale scores for 2007-2008 in reading and math, to the CRCT scale scores for 2008-2009 (post-treatment) in reading and math. The Georgia Criterion-Referenced Competency Test was used to measure differences in student performance. Those same students' office referrals were compared, along with pre-treatment and post-treatment and attendance rates. The dependent variables were the students' scale scores

on the Criterion-Referenced Competency Test, and the number of office referrals, while the independent variable was the after school program.

A paired-sample two-tailed t-test was conducted to compare the groups' pre-treatment and post-treatment CRCT scale scores in reading and mathematics in addition to office referrals. Correlations were also calculated to see if attendance rates were significantly correlated with test scores and behavior.

Summary

This study examined the effect of afterschool participation in two Title 1 middle schools in rural Georgia. The participants were predominately white and considered economically disadvantaged due to the high percentage of free and reduced lunches. The group studied consisted of 58 sixth, seventh and eighth grade at-risk students attending an afterschool program at least 30% or more of the time the program was offered. A comparison was made of pre-treatment CRCT 2007-2008 scale scores in reading and mathematics and post-treatment CRCT 2008-2009 scale scores in reading and mathematics for each of the three grades, six, seven, and eighth. Along with the CRCT scale scores, the numbers of office referrals were examined to see if the treatment (afterschool program) had made a difference on the group of students. Correlations were also calculated to see if attendance rates were related to math and reading achievement scores and behavior referrals. This chapter examined the methodology that was used in this study. Chapter four will begin looking at the results and clarify the information found in the data analysis.

CHAPTER 4: RESULTS

This quantitative study examined the effectiveness of an afterschool program on the achievement and behavior of 58 at-risk students who attended afterschool programs at two Northwest Georgia middle schools based on their performance on the Georgia Criterion-Referenced Competence Test (CRCT) in the areas of math and reading scores and their number of office referrals. Two middle schools in a rural county in the state of Georgia were awarded a 21st Century Grant for three consecutive school years, 2008-2011, totaling 1.5 million dollars. The focus for this study was the first year of the program. The group studied consisted of 58 sixth, seventh, and eighth grade at-risk students attending an afterschool program at least 30% or more of the time the program was offered. Any students that did not have two years of data were excluded from the study. An at-risk middle school student was characterized by a history of school failure, retention, low standardized test scores, special education and disabilities, attendance problems, behavioral problems, suspension issues, high poverty, high mobility, and limited English speakers (Georgia Graduation Coach Initiative, 2008). The analysis of the data will be presented in this chapter.

Data Analysis

A combination of causal comparative and correlational designs was used in this study to address the nine research questions presented in chapter one. The nine research questions are stated and the statistical information is given following each of the questions. To answer the first six questions comparison of the means using a two-tailed, paired t-test at the alpha 0.05 level was applied. Correlations were also calculated to

address attendance rates for questions seven, eight and nine, which may or may not be correlated with test scores or office referrals as discussed in chapter two. The data were computed using the Statistical Package for the Social Sciences (SPSS) and Graphpad, both computer software programs.

Research Questions

Research question one asked what effect on math achievement, as measured by the Georgia Criterion-Referenced Competency test, would participation at an afterschool program have on at-risk sixth, seventh, and eighth grade students in a rural county in Georgia. Table 4.1 gives the mean and standard deviation of the pre-treatment and post treatment scores in mathematics.

Table 4.1

Means, Standard Deviations, and t-tests (Mathematics)

Group	n	M	SD	t	p<
Pre-test	58	792.66	25.97		
				2.48	.016
Post-test	58	799.84	21.03		

When looking at the average scale scores before and after treatment, there was a 7 point increase and a decrease in the standard deviation. An analysis of the comparison of the mean using a two-tailed, paired t-test at the alpha = 0.05 level showed that there was a significant difference (p< .016) in math scores.

In addressing research question one, the study rejects the following null hypothesis: There is no significant difference between pre-treatment and post treatment math scores

on the Georgia Criterion-Referenced Competency Test of sixth, seventh and eighth grade students who participated at an afterschool program.

Research question two asked if a significant difference existed in the pre-treatment and post-treatment scores on the Georgia CRCT in math for sixth, seven, and eighth grade at-risk male and female students. The data were broken down by gender, and Tables 4.2 and Table 4.3 outline the means and standard deviations of the pre-treatment and post treatment math scores. It was found that the males scores were not significantly different ($p < .130$) while the females' scores were significantly different ($p < .046$) with a seven point increase in the scale score mean. It should also be noted the males' post-treatment mean score did meet proficiency while the females' post-treatment mean score did not meet proficiency.

Table 4.2

Means, Standard Deviations, and t-tests (Mathematics/males)

Group	n	M	SD	t	p<
Pre-test	58	797.83	29.96		
				1.56	.130
Post-test	58	805.20	20.23		

Table 4.3

Means, Standard Deviations, and t-tests (Mathematics/Females)

Group	n	M	SD	t	p<
Pre-test	58	787.11	19.96		
				2.09	.046
Post-test	58	794.11	20.61		

In addressing research question two, the study accepts the null hypothesis 1: There will be no significant differences between the pre-treatment and post-treatment scores on the math portion of the Georgia Criterion-Referenced Competency Test of sixth, seventh, and eighth grade at-risk male students who participated at an afterschool program. On the other hand, a significant difference was found among the females, so the study rejects the null hypothesis 2: There will be no significant differences between the pre-treatment and post-treatment scores on the math portion of the Georgia Criterion-Referenced Competency Test of sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program.

Research question three asked what effect on reading achievement, as measured by the Georgia Criterion-Referenced Competency Test, will participation at an afterschool program have on at-risk sixth, seventh, and eighth grade students in a rural county in Georgia. Table 4.4 gives the means and standard deviations of the pre-treatment and post treatment scores in reading.

When looking at the average scale scores before and after treatment, there was a 2.35 increase and a decrease in the standard deviation. The results of the two-tailed paired t-test showed a difference ($p < .333$), but it was not a statistically significant difference. In addressing research question three, the study accepts the following hypothesis: There is no significant difference between pre-treatment and post treatment reading scores on the Georgia Criterion Reference Competency test of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.

Table 4.4

Means, Standard Deviations, and t-tests (Reading)

Group	n	M	SD	t	p<
Pre-test	58	806.84	19.37		
				0.98	0.333
Post-test	58	809.19	17.44		

Research question four asked if a significant difference existed in the pre-treatment and post-treatment scores on the Georgia CRCT in reading for sixth, seventh, and eighth grade at-risk male and female students. Again the data were broken down by gender; Tables 4.5 and Table 4.6 outline the means and standard deviations of the pre-treatment and post treatment reading scores. It was found that the male and female scores were not significantly different ($p < .364$ and $p < .663$), respectively. Both males and females showed an increase in the mean scores and each met proficiency.

Table 4.5
Means, Standard Deviations, and t-tests (Reading/Males)

Group	n	M	SD	t	p<
Pre-test	58	811.57	16.75		
				0.92	.364
Post-test	58	814.67	16.75		

Table 4.6
Means, Standard Deviations, and t-tests (Reading/Females)

Group	n	M	SD	t	p<
Pre-test	58	801.79	20.96		
				0.44	.663
Post-test	58	803.32	16.47		

In addressing research question four, the study accepts the null hypothesis 1: There will be no significant differences between the pre-treatment and post-treatment scores on the reading portion of the Georgia Criterion-Referenced Competency Test of sixth, seventh, and eighth grade at-risk male students who participated at an afterschool program. Also in relation to question four, the study accepts the null hypothesis 2: There will be no significant differences between the pre-treatment and post-treatment scores on the reading portion of the Georgia Criterion-Referenced Competency Test of sixth,

seventh, and eighth grade at-risk female students who participated at an afterschool program.

Research question five asked what effect on office referral would participation in an afterschool program have on at-risk sixth, seventh, and eighth grade students in a rural county in Georgia, as measured by data obtained from student records. Table 4.7 gives the means and standard deviations of the number of office referrals before the treatment and after the treatment. There was not a significant difference using a two-tailed paired t-test ($p < .737$). It should be noted there was an increase in the number of referrals. Therefore, in addressing research question five, the study accepts the following null hypothesis: There is no significant difference between pre-treatment and post treatment number of office referral, as measured by data obtained by student records of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.

Table 4.7

Means, Standard Deviations, and t-tests (Behavior)

Group	n	M	SD	t	p<
Pre-test	58	1.86	3.35		
				0.34	.737
Post-test	58	1.98	3.24		

Research question six asked if a significant difference existed in the number of office referrals obtained from student records for sixth, seventh, and eighth grade at-risk male and female students. Again the data were broken down by gender; Tables 4.8 and Table

4.9 outline the means and standard deviations of the pre-treatment and post treatment number of office referrals. It was found that the male and female scores were not significantly different ($p < .733$ and $p < .256$), respectively. Therefore in addressing question six, the study accepts the following null hypothesis 1: There will be no significant difference between the number of office referrals obtained from student records for sixth, seventh, and eighth grade at-risk male students who participated at an afterschool program. Also in relation to question six, the study accepts the following null hypothesis 2: There will be no significant difference between the number of office referrals obtained from student records for sixth, seventh, and eighth grade at-risk female students who participated at an afterschool program.

Table 4.8

Means, Standard Deviations, and t-tests (Behavior/Males)

Group	n	M	SD	t	p<
Pre-test	58	2.29	3.10		
				0.34	.733
Post-test	58	2.10	3.45		

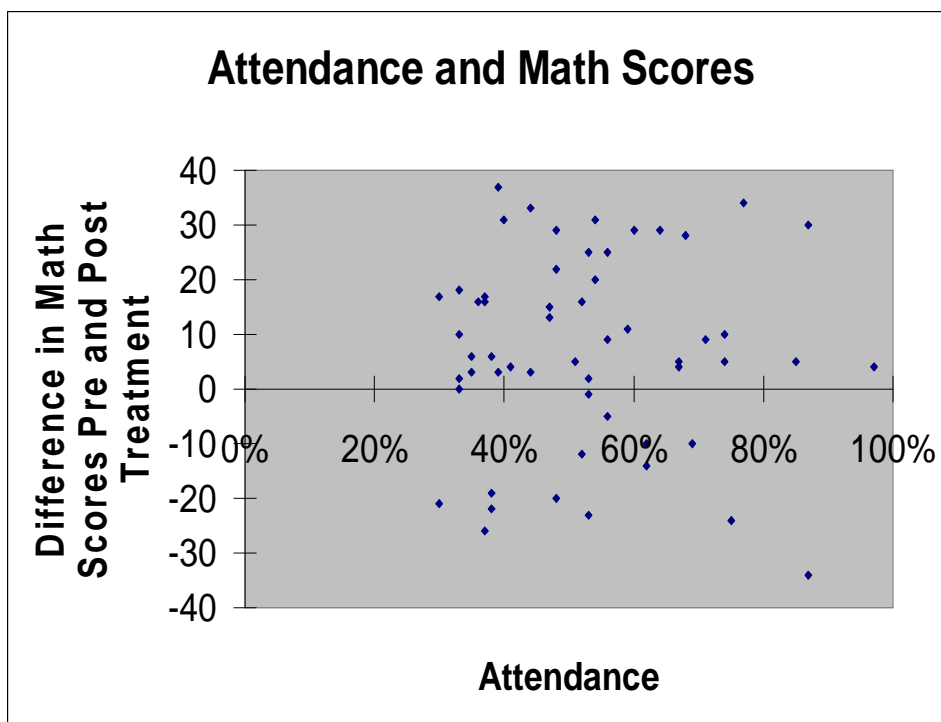
Table 4.9
Means, Standard Deviations, and t-tests (Behavior/Females)

Group	n	M	SD	t	p<
Pre-test	58	1.32	3.56		
				1.16	.256
Post-test	58	1.79	3.01		

As noted in chapter two, the review of literature, regular attendance at an afterschool program can be a factor in achievement and behavior. Those students who attended the afterschool program 30% or more of the time were used for this study. The range for attendance was 30% through 97%. When looking at attendance, it was thought that increased attendance in an afterschool program would increase test scores and decrease behavior referrals.

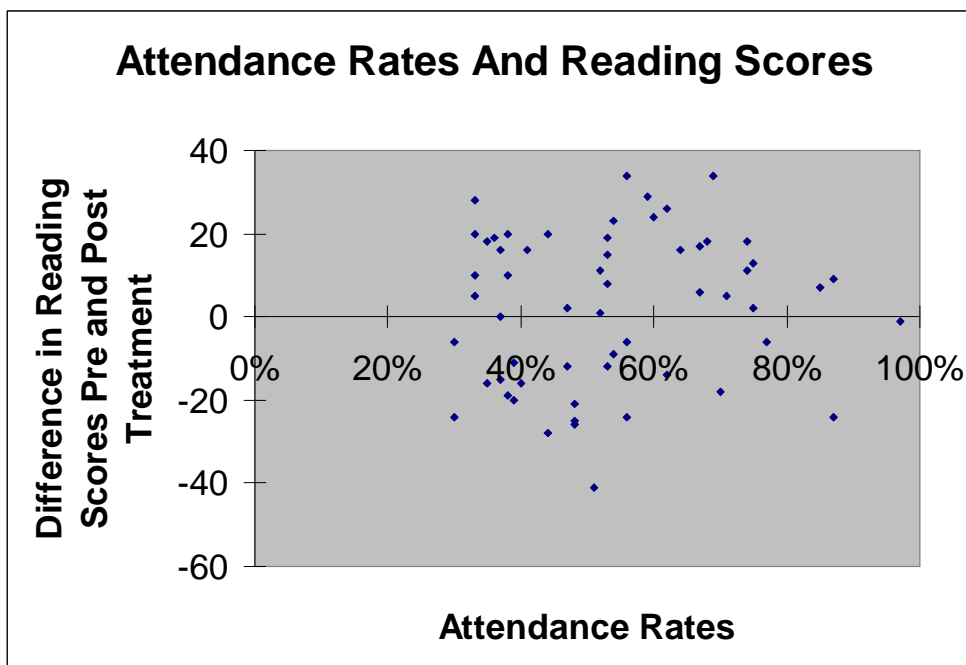
Question seven asked whether or not a significant relationship existed between math Georgia Criterion-Referenced Competency Test scores and attendance rates. Correlations were calculated and it was found the difference in math test scores pre-treatment and post treatment, was loosely negatively correlated ($r = -.02$). Therefore the study accepts the following null hypothesis: There will be no significant relationship between pre-treatment and post-treatment Georgia Criterion-Referenced Competency Test scores in math and attendance rates of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.

Figure 4.1

Attendance Rate and Math Scores

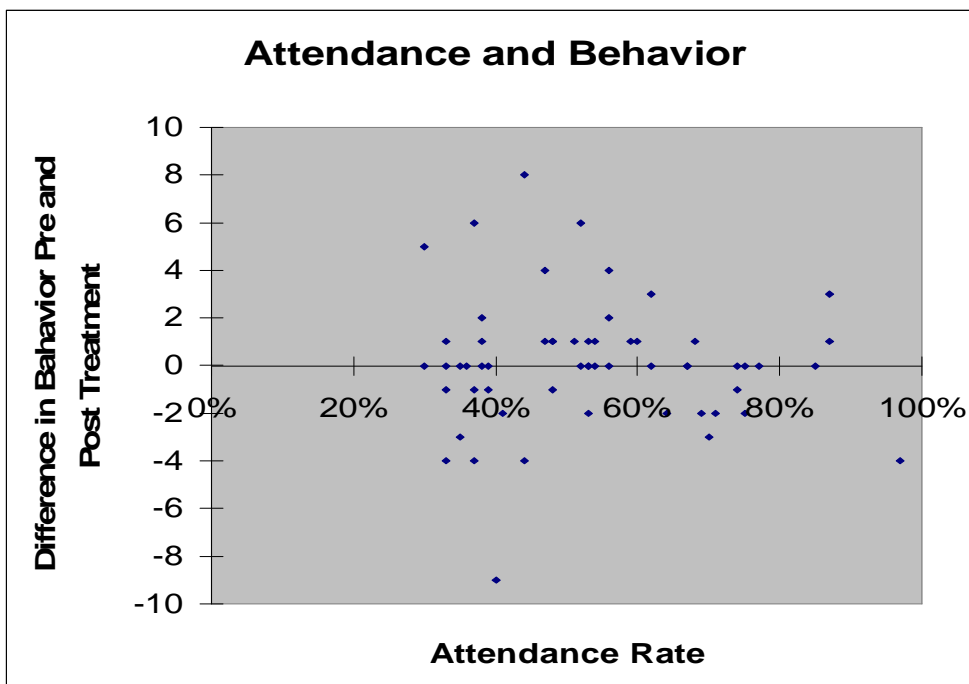
Question eight asked whether or not a significant relationship existed between reading Georgia Criterion-Referenced Competency Test scores and attendance rates. Correlations were calculated and it was found the difference in reading test scores pre-treatment and post treatment, was somewhat positively correlated ($r = .01$). Therefore the study accepts the following null hypothesis: There will be no significant relationship between pre-treatment and post-treatment Georgia Criterion-Referenced Competency Test scores in math and attendance rates of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.

Figure 4.2

Attendance Rates and Reading Scores

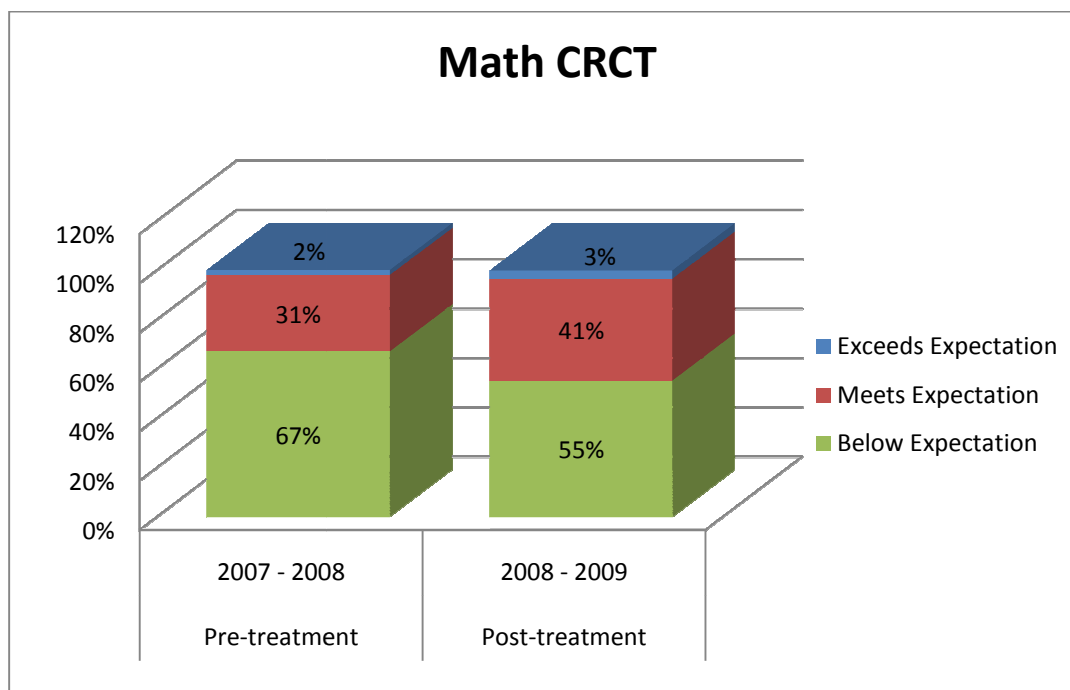
Question nine asked whether or not a significant relationship existed between the number of office referrals and attendance rates. Correlations were calculated and it was found the difference in office referrals, pre-treatment and post-treatment, was negligibly negatively correlated ($r = -.06$). Therefore the study accepts the following null hypothesis: There will be no significant relationship between pre-treatment and post-treatment number of office referrals and attendance rates of sixth, seventh, and eighth grade at-risk students who participated at an afterschool program.

Figure 4.3

Attendance Rate and Office Referrals**Findings**

The Department of Education in Georgia uses three performance levels for content area on the Criterion-Referenced Competence Test (CRCT): exceeds the standard, meets the standard, and does not meet the standard. Scale scores provide a common way for interpretation and comparing scores within each grade and content area (Georgia Department of CRCT Score Interpretation Guide, 2009). Students who score at or above 850 meet a level of performance that exceeds the standard for the test. Students who score 800-849 meet the standard for the test. Students who score below 800 do not meet the standard for the test. They are deemed not proficient in that content area. Figures 4.4, 4.5 and 4.6 show a comparison between the pre-treatment and post treatment CRCT scores and figure 4.7 shows a comparison between the pre-treatment and post treatment number of office referrals for the 2007-2008 and 2008-2009 school years.

Figure 4.4

Georgia CRCT Math Scores for Pre-treatment and Post-treatment

Percentages are often used to display and compare the CRCT data for the state and within the school districts. The increased scores in math were statistically significant, before treatment 33% of the 58 at-risk students were meeting or exceeding in math. After treatment the number had increased to 45%. This was a 12% gain in math, with the females and grades seventh and eighth showing the largest gains.

For the gender related questions, the difference in the math Criterion-Referenced Competency Test mean scores for the female sample was considered to be statistically significant. Pre-treatment 29% of the 28 at-risk female students were meeting or exceeding in math, while post-treatment the number had increased to 31%. This was a 2% gain in math. One goal of most afterschool programs is to help students meet proficiency on standardized tests. These results did show a concern for a large percentage of females not meeting proficiency.

Figure 4.5

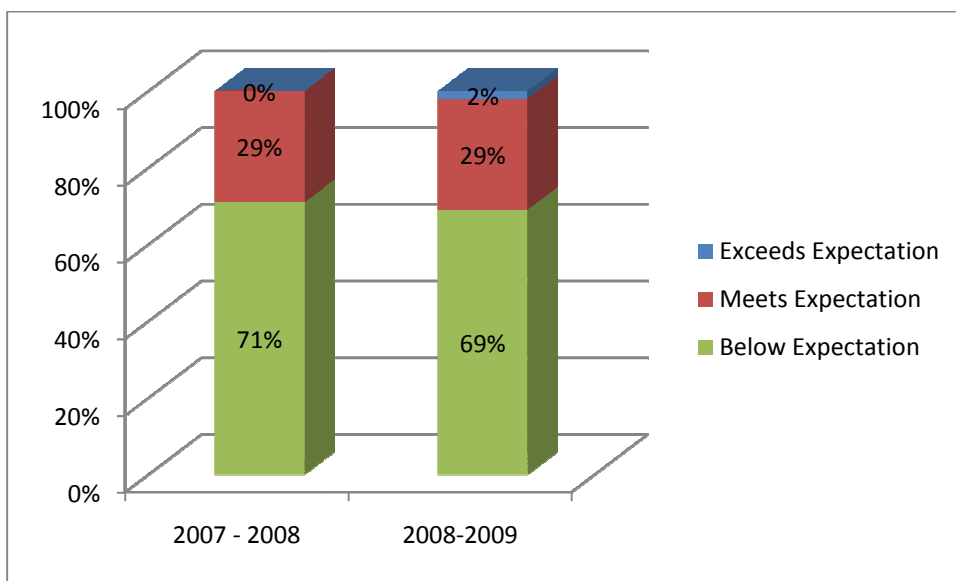
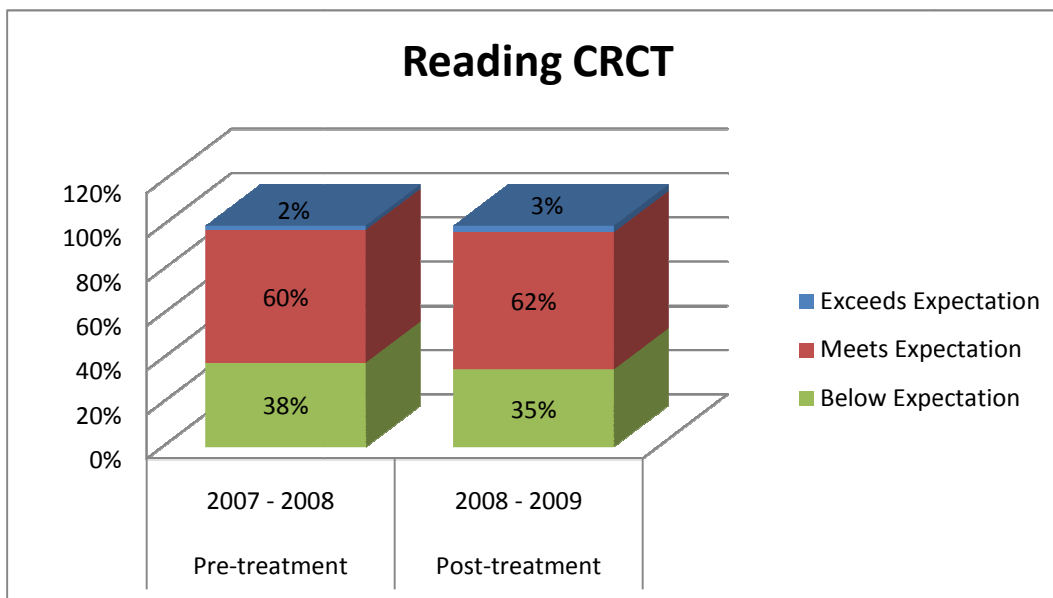
Female Georgia CRCT Math Scores for Pre-treatment and Post-treatment

Figure 4.6

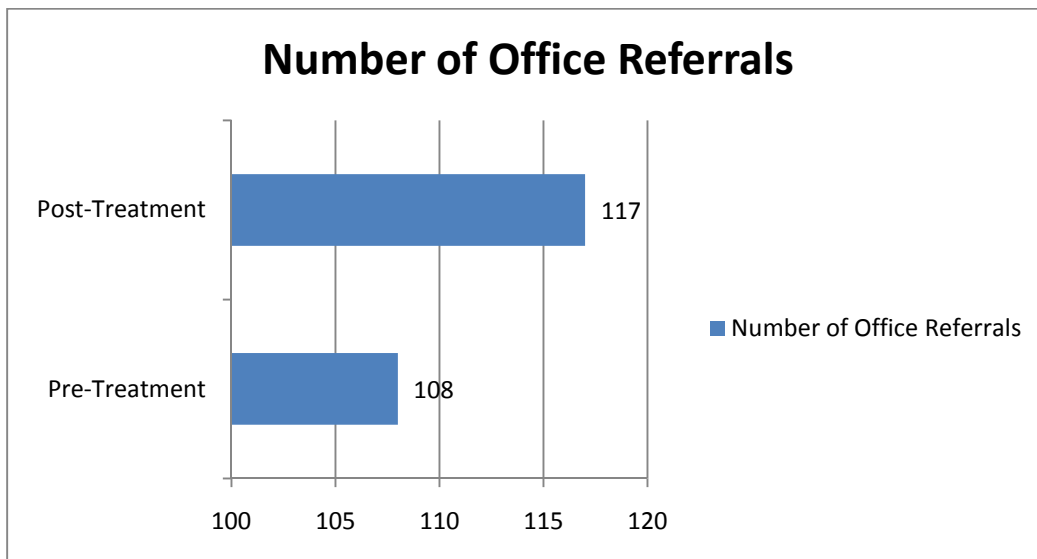
Georgia CRCT Reading Scores for Pre-treatment and Post treatment

For reading, an increase was found, although not very large, before treatment 62% had met or exceeded the reading standard and after treatment 65% achieved proficiency.

These averages were much higher from the beginning and showed a 3% gain after the treatment.

Figure 4.7

Office Referrals for Pre-treatment and Post treatment



When looking at the 58 at-risk students in the area of behavior, a total of 108 office referrals were reported before treatment and 117 after treatment. This is an increase of 9 referrals after treatment. It should be noted that separately, middle school B did have a decrease of 4 referrals, while middle school A had an increase of 13 referrals.

Summary

Once all of the data had been collected, the students' CRCT test scores and office referrals were analyzed. A two-tailed paired t-test was used to test whether there was a significant difference between pre-treatment and post treatment math scores, reading scores, number of office referrals and gender. Additionally, this study examined the correlation between attendance rates and achievement test scores and office referrals.

The math scores did show a significant difference, while reading and number of office referrals did not. The math scores showed a 12% gain, and reading scores increased 3% after treatment. The number of office referrals increased by nine after treatment.

The Criterion-Referenced Competency Test scores were then broken down by gender and it was found that the females' scores significantly increased in math, but the mean score still did not achieve proficiency. While the males' scores in math did not significantly increase, the mean score did achieve proficiency after treatment. Reading scores and the number of office referrals were not considered to be statistically significant.

When addressing attendance, it was thought that increased attendance in afterschool programs would increase test scores and decrease office referrals. Attendance was somewhat positively correlated ($r = .01$) with the difference in reading test scores pre and post treatment. This was not enough to reject the null hypothesis, but there was a tendency in that direction. Further calculations indicated that attendance rates were not significantly correlated with math test scores or behavior referrals.

These findings are again beneficial to school officials and administrators as afterschool programs are implemented. Chapter 5 will include a summary of this study and a more detailed discussion of the results with some recommendations related to this topic of study.

CHAPTER FIVE: SUMMARY AND DISCUSSION

This last chapter covers a review of the study. Additionally, it includes a summary of the results, related research and a discussion of the findings, the limitations as well as some recommendations for further study.

Overview

Afterschool programs for middle school students can provide adolescents with a safe environment and offer extra enrichment activities that promote academic and social development (Durlak et al., 2007). The No Child Left Behind legislation mandate holds schools accountable for making sure all students meet the required standards, so providing more learning opportunities is very important. Funding for these extra programs can be very expensive. Two middle schools in a rural county in Georgia who were awarded a 21st Century Grant totaling 1.5 million dollars for three consecutive years, 2008-2011, were studied during their first year of receiving the grant. This Grant is supported by the United States Department of Education and assists school districts in funding afterschool programs. This grant targeted several areas: completion of homework, language arts, math and improving behavior. This afterschool program began in October of 2008. The program was held from 3:20 p.m. to 6:00 p.m. at each school. During that time, the afterschool program was scheduled to provide time for snack/social development for approximately 25 minutes, homework time for 30 minutes, reading skill enrichment along with math skill enrichment for 30 minutes each and youth development and enrichment activities for 30 minutes. These afterschool tutoring and enrichment

classes were staffed by certified teachers with additional assistance provided by paraprofessionals and volunteers.

Purpose

Standardized testing is a main focus for academic accountability in the state of Georgia. There are many benefits discussed in chapter two of this study from attending an afterschool program. The purpose of this study is to examine the effect an afterschool program had on at-risk middle school students' standardized test scores and students' behavior. Additionally, the researcher wanted to know if attendance rates to an afterschool program were correlated to an increase in standardized test scores and a decrease in the number office referrals.

Participants

A letter was sent out to an estimated 125 students that were identified as at-risk at the beginning of the 2008-2009 school year. The sample for this study consisted of 58 at-risk students chosen from 217 at-risk students who were enrolled in an afterschool program from two rural middle schools in the same county in northwest Georgia. This was the first year of a three year 21st Century Community Learning Center grant awarded to this Georgia County. The 58 students participating in the study were in the sixth, seventh or eighth grade and had an average attendance of 30% or more in the afterschool program. The participants were predominately white and considered economically disadvantaged due to the percentage of free and reduced lunches. Middle School A had approximately 750 students enrolled, 90% white, 4% black, 2% Asian, 2% Hispanic and 2% multiracial. Middle School B had approximately 770 students enrolled, 90% white, 4% black, 2% Hispanic, 2% Asian and 2% multiracial. Middle School A had 62% of the population

qualify for free or reduced lunches, while Middle School B had 51% of the population qualify.

Methodology Reviewed

This quantitative study was designed to evaluate the effectiveness of two middle school afterschool programs as measured by state standardized testing and the number of office referrals. More specifically this researcher wanted to know what effect on math achievement, reading achievement and number of office referrals would participation at an afterschool program would have on at-risk, sixth, seventh and eighth grade students in a rural county in Georgia. In addition, the researcher wanted to know whether attendance rate at the afterschool program was a factor.

Data were collected for two years, 2007-2008 Criterion- Referenced Competency Test (CRCT) scale scores in reading and mathematics along with the number of office referrals for that school year, and 2008-2009 Criterion- Referenced Competency Test (CRCT) scale scores in reading and mathematics along with number of office referrals and program attendance for that school year. The Georgia Criterion-Referenced Competency Test was used to measure student achievement for the 2007-2008 and 2008-2009 school years. These tests were given in the spring of each year to assess students in grades one through eight in language arts, reading, mathematics, science and social studies. As discussed in chapter 3, these scale scores from the CRCT were used in determining performance levels. These performance level reports were used to demonstrate Adequate Yearly Progress (AYP) as required by the No Child Left Behind Act. Adequate Yearly Progress (AYP) is decided by the percentage of students in a school that meet or exceed the standard on the state assessments each year.

A causal comparative design was used to determine if there was a significant difference among the variables. Was there a difference after treatment? Did the afterschool program have an effect on the sample of 58 students? A two-tailed paired t-test was conducted to determine if a statistical significance existed between the pre-treatment and post treatment achievement scores and behavior. The study compared the CRCT (pre-treatment) scale scores for 2007-2008 in reading and math to the CRCT scale scores for 2008-2009 (post treatment) in reading and math. The number of office referrals before and after treatment were also compared. In addition, a correlational design was used to see if a significant relationship existed between pre-treatment and post-treatment reading and math Criterion-Referenced Competency Test scores and attendance rates. A correlational design was also used to see if a significant relationship existed between pre-treatment and post-treatment number of office referrals and attendance rates.

The literature suggested that there was a relationship between the attendance rate at an afterschool program and achievement scores along with behavior referrals. It was thought that an increase in attendance at the afterschool program would increase achievement test scores and decrease office referrals. Correlations were calculated to see if attendance rates were significantly correlated with test scores and behavior.

Summary of the Results

Research question one asked what effect on math achievement would participation at an afterschool program have on at-risk sixth, seventh, and eighth grade students in a rural county in Georgia, as measured by the Georgia Criterion-Referenced Competency Test (CRCT). A comparison was made of 2007-2008 CRCT math scale scores (pre-treatment) and 2008-2009 CRCT math scale scores (post-treatment) for each of the three grades, six,

seven and eight. A two-tailed paired t-test at the $\alpha = 0.05$ level showed that the math scores were significantly different. Research question two addressed gender and math CRCT scores of sixth, seventh and eighth grade at-risk students who participated at an afterschool program. The results showed a significant difference between pre-treatment and post-treatment scores on the math portion of the Georgia CRCT for females and no significant difference for the males' scores.

Research question three asked what effect on reading achievement would participation at an afterschool program have on at-risk sixth, seventh and eighth grade students in a rural county in Georgia, as measured by the Georgia Criterion-Referenced Competency Test (CRCT). A comparison was made of CRCT 2007-2008 reading scale scores (pre-treatment) and CRCT 2008-2009 reading scale scores (post treatment) for each of the three grades, six, seven and eighth. A two-tailed, paired t-test at the $\alpha = 0.05$ level showed that the reading scores were not significantly different. It can be determined from this information that the afterschool program did not have a significant effect on reading CRCT scores. Research question four addressed gender and reading CRCT scores of sixth, seventh and eighth grade at-risk students who participated at an afterschool program. The results showed no significant difference between pre-treatment and post-treatment scores on the reading portion of the Georgia CRCT for males or females.

Next, research question five asked what effect on office referrals would participation at an afterschool program demonstrate on at-risk sixth, seventh and eighth grade students in a rural county in Georgia. The number of office referrals for each of the 58 students in the study was obtained from student records for the 2007-2008 school year (pre-

treatment) and compared to the number of office referrals for the 2008-2009 school year (post-treatment). A two-tailed, paired t-test at the $\alpha = 0.05$ level showed the number of office referral were not significantly different. The number of referrals actually increased after the afterschool program participation. Research question six addressed gender and the number of office referrals of sixth, seventh and eighth grade at-risk students who participated at an afterschool program. The results showed no significant difference between pre-treatment and post-treatment number of office referrals for males or females.

Research question seven asked if a significant relationship existed between math Criterion-Referenced Competency Test scores and attendance rates. The sample of 58 sixth, seventh and eighth at-risk students in the study attended an afterschool program at least 30% or more the program was offered. When correlations were calculated it was found that attendance rates were not significantly correlated with achievement scores in math.

Next, research question eight asked if a significant relationship existed between reading Criterion-Referenced Competency Test scores and attendance rates. When correlations were calculated it was found that attendance rates were not significantly correlated with achievement scores in reading.

Lastly, research question nine asked if a significant relationship existed between the number of office referrals and attendance rates. When correlations were calculated it was found that attendance rates were not significantly correlated with the number of office referrals.

Discussion of the Results

The data definitely indicates a need for such a study. The Criterion-Reference Competency test (CRCT) in math and reading was used to measure the effect an afterschool program had on sixth seventh and eighth grade at-risk students. Before the treatment in math, in 2007-2008, only 33% of the 58 students had achieved proficiency. This meant that 39 of the 58 students did not meet the math standard. After treatment, in 2008-2009, there was a 12% increase for a total of 45% achieving proficiency. In reading, before treatment, in 2007-2008, 62% of the 58 students had achieved proficiency. In 2008-2009, after treatment, there was 3% increase for a total of 65% achieving proficiency. The scale score of 800 or above was the indicator of achieving proficiency on the Georgia CRCT. Many at-risk students were not passing these standardized tests. In this particular study for the 2007-2008 school year, before treatment 67% in math and 38% in reading did not meet proficiency. The following year after the treatment, 55% in math and 38% in reading did not meet proficiency. Over half of the students in this study were not meeting the standards in math. The following figure 5.1 gives the mean and standard deviation of the pre-treatment and post treatment test scores in math and reading and of behavior, n = 58.

Figure 5.1

Pre-treatment and Post Treatment Scores Math, Reading, and Behavior

	Pre-treatment Mean \pm SD	Post Treatment Mean \pm SD
Math	792.66 \pm 25.97	799.84 \pm 21.03
Reading	806.84 \pm 19.37	809.19 \pm 17.44

Behavior	1.86 ± 3.35	1.98 ± 3.24

Although the mean of the test scores did increase after treatment, only math showed a significant difference in mean scores ($p < .016$). It should be noted that the average math scores before and after treatment were still below 800 and did not meet proficiency. Figure 5.1 also showed an increase of office referrals from pre-treatment 2007-2008 to post treatment 2008-2009. The behavior scores did not show a significant difference ($p < .737$).

In figure 5.2 the scores are broken down by gender. The males' after treatment score is the only score meeting proficiency, although the females' scores were significantly different ($p < .046$) and the males' scores were not significantly different ($p < .130$).

Figure 5.2

Pre-treatment and Post Treatment of Math Scores by Gender

	Pre-treatment Mean ± SD	Post Treatment Mean ± SD
Females, n = 28	787.11 ± 19.96	794.11 ± 20.61
Males, n = 30	797.83 ± 29.96	805.20 ± 20.32

When correlations were calculated, it was found that attendance rates were somewhat positively correlated, to the difference in reading test scores, but not enough to reject the null hypothesis. Math test scores and number of office referrals were also not found to

have a significant difference. Out of 217 students who attended the afterschool program at both schools, only 58 had an attendance percentage of 30% or more. This was a low number compared to the school's population and the number of at-risk students; only 27% attended regularly as defined by this study. Chapter two of this study discussed problems with middle schools' students attending afterschool regularly but notes when they do, improvements in academics and behavior are shown. The Afterschool Alliance (2008) reported on several afterschool programs showing an increase in achievement related to regular attendance in an afterschool program. Vandell (1999) also reported that academically at-risk students, who attended afterschool programs more often, as compared with students who attended less often showed an improvement in their behavior.

Related Research

The No Child Left Behind Act of 2001 has caused a definite focus on afterschool programs. Students who do not reach proficiency in math and reading, as in this study are eligible to receive supplemental help. Evidence needs to show these funds are being spent appropriately. Schools are being held accountable for the funds they receive. It is important to have the positive data that demonstrate the effectiveness of afterschool programs. More rigorous research designs are needed to provide the data needed to show academic gains are being made and are being made consistently (Scott-Little, Hamann, & Jurs, 2002).

The Children and Youth Funding Report (2010) acknowledged that many afterschool advocates are not happy with President Obama's FY 2010 budget. The President promised to double the funding for the 21st Century Community Learning Centers in his

campaign, which is the same grant this study reviewed. Current funding for the 21st CCLC is \$1.3 billion, less than the \$2.5 billion authorized by the No Child Left Behind Act (Children & Youth Funding Report, 2010). The main coordinator of the afterschool programs spoke about the various restrictions placed on the funds for the program and the documentation procedures.

The data must be evident for the policy makers to support these afterschool programs. One report of 35 studies found that the test scores of low-income, at-risk students improved significantly in both math and reading when they attended after school programs (Lauer et al., 2006). This study like many other studies, however have revealed mixed academic outcomes (Kane, 2004; Scott-Little, Hamann & Jurs, 2002; Vandell et al., 2004).

In regards to behavior, other research has shown participation in afterschool programs has reduced problem behaviors, such as the use of drugs and alcohol, and criminal activity as well increased positive behaviors, such as forming better relationships with adults and those in the peer group (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 1998; Miller, 1995). The numbers in this study did not support these findings. Office referrals were used to measure this category. The results may have been different if another form of measurement had been used to see if behavior improved for those attending afterschool.

McComb and Scott-Little (2003) reviewed 27 studies and he and the other researchers found the reason data in most cases did not show the positive effects of afterschool programs on academics was due to the differences in afterschool program design, goals, the size of the program and often times the designs of the research. This would support

some of the research found in the review of literature for this study. Afterschool programs vary in philosophy, goals and programming and are evaluated in many different ways (Lee, 2001).

In regards to gender, a significant difference was found related to the females' math CRCT test scores who attended the afterschool program. The researcher found that the females' scores were significantly different ($p < 0.046$) after the post-treatment. An important note, the females did not reach proficiency before or after treatment while the males had reached proficiency before and after treatment. Even so, the females' scores were significantly different and the males were not in math. Understanding the different learning styles of males and females can help teachers in afterschool programs better understand how males and females work and learn in the afterschool environment.

The Girls Scout of America (2008) and the Motorola Foundation identified three key elements needed so females might be more involved in science, technology, engineering and math (STEM) education programs. The first was to make it real. Females learn by doing and hands on activities help them see how these things are used in their lives. The second is to make it relevant. The Motorola Foundation (2008) explained project-based activities that females can relate to are needed. The third is to make it possible. Mentors and role models help females see themselves as doing well and being successful so they can reach their full potential (Girl Scout of America, 2008). These key elements were discussed in the review of literature as to what makes any afterschool program successful. It was the females in this study that indicated a significant difference in math, but still not making proficiency in the state of Georgia.

Finally, in regards to other related research, James Connell's (1999) theory of change would have predicted the outcome of this study. As the theory suggests, an increase in school activities after hours could turn into actual changes in student performance and behavior over time. Over time is the key in this situation. A longitudinal study might have shown a significant difference in CRCT reading scores and a decrease in behavior reports. Over time more students may have reached proficiency in both reading and math. The program did not actually operate an entire school year of 180 days its first year. Connell (1999) believes increased school engagement causes increased motivation, higher attendance rates, higher test scores and grades, lower retention and higher rates of graduation. Again, these characteristics are sometimes hard to measure in an afterschool program.

Implications

The results of this study will benefit those coordinators and administrators who have the task of developing afterschool programs. There are strong research reviews that show a positive impact on adolescents that attend afterschool programs. These programs need to be intentional as to what they want to accomplish, while setting goals and procedures needed to accomplish those goals.

The staff and administration play a key role in the success of afterschool programs. Appropriate training for those leading the program is very important. Consideration should be given to gender, race, socioeconomic level and various other differences. Data from the study indicated that females' test scores did have a significant difference after treatment. Gender sensitive activities could be added in the curriculum for afterschool programs more often.

If the goals in afterschool are to move students to proficiency in math and reading, then what activities could accomplish this using research based information? Many of these at-risk students are not meeting proficiency. Programs are not being held accountable for the funds they receive. The literature review suggested that good quality afterschool programs are showing gains. Data from this study would indicate some changes need to be made.

Limitations

There are many factors that can influence a study on middle school students who attend afterschool programs. It is sometimes difficult to conclude what may have caused this difference or what relationships might exist when comparing achievement scores and number of office referrals.

To begin with, the participants from this study were from two middle school afterschool programs in the southeastern part of the United States; this would not be a very representative sample. The sample was relatively small from each of the middle schools and attendance was low. This again, would be difficult to make general conclusions regarding afterschool programs' effect on standardized test scores and behavior.

There are so many factors, as mentioned in this study that can influence students during a school year that it is hard to find the ones that provide the largest effect on academics and behavior using statistics, some factors are just difficult to measure. To begin with, classroom teachers have a great impact on what students learn or accomplish each year. In regards to testing each year, the teacher starts day one focusing on the standards that must be taught and the test taking skills needed to show mastery. Time is

set aside each day for “practice” on taking the CRCT. Teachers collaborated at both schools and attended math professional learning classes weekly. The focus for both schools was the improvement of math scores for the 2008-2009 school year.

Students who did not pass the CRCT the year before or had a low score were given an Extra Learning Time (ELT) math class each morning until the week of testing in April. Teachers would work with about 10 to 15 students each week on the areas in which they needed help. Some of the students were given extra help in reading also, but both schools focused on the math more than the reading.

Another factor that should be considered is the implementation of the graduation coach in each of the schools for the 2007-2008 school year. The governor of Georgia, Sony Perdue, developed a program to have full time graduation coaches in all high schools and middle schools throughout the state of Georgia. The main task of these graduation coaches was to identify and offer intervention strategies to students who were at-risk of dropping out of school. The graduation coaches in this county worked with several of the students in this study each week.

Each school had an academic coach who worked closely with the teachers and students. This person’s job was to look at the student data and find research based strategies for the teachers to use in their classrooms so the students might learn the standard being taught. Both schools had qualified academic coaches and were respected by the faculty and students. Many of the students work one on one with the academic coaches in preparation for the CRCT. This could have accounted for a difference in CRCT test scores for the 2008-2009 school year.

There were some other factors that should be noted related to the study not showing a significant difference in scores and a decrease in behavior referrals. First, this was the first year of a three year grant. The afterschool programs did not get organized and full implemented until the end of October and still many of programs within the afterschool program did not begin until after the holidays. There were delays on some of the curriculum being delivered along with staff issues. The main academic tutorial and academic enrichment component of the afterschool program (Voyager) was not implemented until January of 2009.

Secondly, both schools had just hired new administrators for the new school year. Teachers and students needed to adapt to the new administration during the time of the study so therefore the number of office referrals for students may not be a good measure because of the new procedures in the building.

Thirdly, and related to the new administration, collaboration is a very important part of an afterschool program (Kanter et al. 2000). Communication with the principals and teachers in the regular school program regarding goals and progress of the students is imperative for the afterschool program to be a success. Each middle school lacked this collaboration possibly due to new administration and or attitudes associated with afterschool programs that had not been successful.

Lastly, each of the two middle schools had a high percentage of students who qualified for free or reduced lunch. Lower achievement and behavior issues are often times associated with high poverty schools (Christle, et al., 2007).

Recommendations for Future Research

The results of this study have generated several suggestions for future studies. First, attendance for middle school students at an afterschool program can be sporadic. In the review of literature, several of the programs reported low attendance as a problem. Students need to be present in order to experience the full program each day. So what makes middle school students want to attend an afterschool? There are many activities afterschool programs can provide that can enrich and challenge students, but which activities are considered motivating and engaging? Once students begin coming, what can make them want to stay?

Secondly, what type of afterschool model can be provided that might appeal to youth based on gender, ethnicity, behavior problems, socioeconomic status and age? Significant differences were found in this study related to gender. Every school system is different and each has specific needs that must be addressed. A research study including each of these characteristics would be beneficial when choosing a model for a school district. Teacher training is also strongly recommended. Many educators know their subject area well, but tend to be weak in areas of gender, race or other areas of concern.

Thirdly, this study was conducted during the first year of a three year afterschool grant. What are the long term benefits of attending an afterschool middle school program? It would be interesting to do a longitudinal study at the end of the three years to see if the data would show a significant increase in math and reading CRCT scores and/ or a decrease in behavior office referrals. It was reported by the coordinator, year two has increased in attendance and the Voyager academic program was used from the

beginning of the school year until CRCT testing. These were two areas of concern mentioned earlier in the study.

Fourthly, what is the best way to assess the following key components of any afterschool model: staff, participation, quality of a program, implementation and goals? Each of these components is important to creating an effective program and a good research study could address each of these areas and provide the educator with useful information.

Fifth, at-risk students seem to gain the most from an afterschool programs. These students come from low income families and often a history of poor academic achievement. More studies about strategies that work to promote improved behavior and academic success of at-risk students are needed.

Lastly, what are the distinguishing characteristics associated with better results? A meta-analysis of afterschool programs in the south addressing this question could again provide much needed information when designing an afterschool model.

To answer many of these questions it would appear that a qualitative study or a combination of qualitative /quantative study would be more beneficial. Afterschool is an important part of the educational process for students and more research is needed so good quality afterschool programs producing good results can exist. Less funding is being set aside for such programs, so educators need to know how to best use the funds they are provide with each year.

Conclusions

There are many arguments in favor of providing an afterschool program for adolescents. Gayl (2004) reported that the afterschool hours are the best time for

teenagers to experiment with drugs, alcohol and many other dangerous activities. Attendance in an afterschool program can cut these risks down. This could be reason enough to provide an afterschool program for adolescent. Policy makers want data to show that the funding is making a difference and helping students meet high standards set forth by each state, but the data is mixed as to how effective afterschool programs are at increasing achievement scores. Even so, many students need the extra help each year. The goal in most afterschool programs is to help move students not meeting the standards, to proficiency in the four major academic areas; math, reading, language arts, science and social studies, with the emphasis on math and reading. Programs that are well-structured can help meet the need for supplemental math and reading which in turn will meet the goals of the No Child Left Behind (Gayl, 2004). It is important to use research in assessing the quality of afterschool programs so improvements can be made and goals can be met.

The researcher in this study did find some significant differences in math CRCT scores and math CRCT scores related to gender. Although the afterschool program in this study did not show significant differences in overall reading scores on the CRCT or a decrease in behavior office referrals, some students did show slight improvements on test scores and in their academic classes. Students in the study reported doing better in their classes and enjoying going to the afterschool program for help and “hanging out with friends”. Teachers also reported a change in some students’ attitudes and work habits as a result of attending afterschool.

The 21st Century Community Learning Center Grant will continue for the next two school years for both schools. The coordinator reported attendance had already grown

for the 2009-2010 school year. The researcher has passed along several studies dealing with afterschool programs to the program coordinators during the period of this study. The program coordinators have dealt with some of the same problems and issues discussed in recent studies of afterschool programs. The coordinators found the studies useful when implementing year two of the afterschool programs. The researcher will share the results of this study with these coordinators and administrators of the middle schools in hopes of improving their afterschool program.

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Appendix A

Demographics and Math Scores of Middle School A

Middle School A							
	Gender	Race	Grade	Attendance	CRCT Math Score		Difference
					2007-2008	2008-2009	
1	male	white	8	85%	800	805	5
2	male	white	8	35%	781	784	3
3	male	white	7	44%	786	819	33
4	male	white	7	56%	786	781	-5
5	female	white	7	30%	818	797	-21
6	female	white	6	53%	808	807	-1
7	female	white	6	52%	797	813	16
8	female	Hawaiian	6	36%	763	779	16
9	male	white	6	37%	826	800	-26
10	female	white	6	53%	781	783	2
11	male	white	7	40%	788	819	31
12	female	black	8	56%	775	784	9
13	female	white	6	74%	783	788	5
14	female	white	6	75%	803	779	-24
15	male	white	7	64%	797	826	29
16	female	white	7	37%	841	857	16
17	male	white	8	37%	792	809	17
18	male	black	6	56%	763	788	25
19	female	white	6	52%	775	763	-12
20	male	white	7	60%	777	806	29
21	female	white	8	33%	770	780	10
22	male	white	8	33%	798	798	0
23	male	white	8	70%	718	802	84
24	female	white	6	59%	775	786	11
25	female	white	7	30%	784	801	17

Appendix B

Demographic and Math Scores of Middle School B

Middle School B							
	Gender	Race	Grade	Attendance	CRCT Math Score		Difference
					2007-2008	2008-2009	
1	female	white	7	39%	764	801	37
2	female	white	6	51%	781	786	5
3	female	white	6	38%	763	769	6
4	male	white	7	48%	786	815	29
5	male	white	6	69%	832	822	-10
6	female	white	6	33%	786	788	2
7	male	white	6	75%	895	832	-63
8	male	white	7	33%	775	793	18
9	female	white	7	54%	803	834	31
10	female	Hispanic	6	38%	811	792	-19
11	male	white	7	35%	791	797	6
12	male	white	8	41%	840	844	4
13	female	Hispanic	6	62%	800	790	-10
14	male	white	7	87%	818	784	-34
15	female	white	6	87%	749	779	30
16	male	white	6	53%	829	854	25
17	male	white	7	38%	810	788	-22
18	male	white	8	67%	806	810	4
19	female	white	7	62%	777	763	-14
20	female	white	8	44%	787	790	3
21	male	white	7	71%	777	786	9
22	male	white	8	97%	796	800	4
23	male	white	6	48%	786	766	-20
24	female	white	7	54%	775	795	20
25	female	white	6	53%	811	788	-23
26	male	white	8	74%	806	816	10
27	female	Asian	6	68%	792	820	28
28	male	white	8	67%	782	787	5
29	female	white	7	48%	795	817	22
30	male	white	7	47%	784	797	13
31	male	black	8	39%	787	790	3
32	female	white	7	77%	772	806	34
33	male	black	6	47%	823	838	15

Appendix C

Demographics and Reading Scores of Middle School A

Middle School A							
	Gender	Race	Grade	Attendance	CRCT Reading Score		Difference
					2007-2008	2008-2009	
1	male	white	8	85%	835	842	7
2	male	white	8	35%	825	809	-16
3	male	white	7	44%	801	821	20
4	male	white	7	56%	796	790	-6
5	female	white	7	30%	796	790	-6
6	female	white	6	53%	804	819	15
7	female	white	6	52%	812	813	1
8	female	Hawaiian	6	36%	831	850	19
9	male	white	6	37%	800	816	16
10	female	white	6	53%	785	793	8
11	male	white	7	40%	822	806	-16
12	female	black	8	56%	819	795	-24
13	female	white	6	74%	775	793	18
14	female	white	6	75%	785	787	2
15	male	white	7	64%	800	816	16
16	female	white	7	37%	850	850	0
17	male	white	8	37%	831	816	-15
18	male	black	6	56%	807	841	34
19	female	white	6	52%	779	790	11
20	male	white	7	60%	800	824	24
21	female	white	8	33%	785	795	10
22	male	white	8	33%	790	818	28
23	male	white	8	70%	831	813	-18
24	female	white	6	59%	782	811	29
25	female	white	7	30%	816	792	-24

Appendix D

Demographic and Reading Scores of Middle School B

Middle School B							
	Gender	Race	Grade	Attendance	CRCT Reading Score		Difference
					2007-2008	2008-2009	
1	female	white	7	39%	796	785	-11
2	female	white	6	51%	831	790	-41
3	female	white	6	38%	793	813	20
4	male	white	7	48%	825	800	-25
5	male	white	6	69%	793	827	34
6	female	white	6	33%	788	808	20
7	male	white	6	75%	828	841	13
8	male	white	7	33%	822	827	5
9	female	white	7	54%	825	816	-9
10	female	Hispanic	6	38%	788	798	10
11	male	white	7	35%	786	804	18
12	male	white	8	41%	809	825	16
13	female	Hispanic	6	62%	782	808	26
14	male	white	7	87%	816	792	-24
15	female	white	6	87%	791	800	9
16	male	white	6	53%	800	819	19
17	male	white	7	38%	809	790	-19
18	male	white	8	67%	792	809	17
19	female	white	7	62%	811	797	-14
20	female	white	8	44%	826	798	-28
21	male	white	7	71%	780	785	5
22	male	white	8	97%	826	825	-1
23	male	white	6	48%	801	775	-26
24	female	white	7	54%	774	797	23
25	female	white	6	53%	828	816	-12
26	male	white	8	74%	811	822	11
27	female	Asian	6	68%	782	800	18
28	male	white	8	67%	806	812	6
29	female	white	7	48%	825	804	-21
30	male	white	7	47%	825	813	-12
31	male	black	8	39%	845	825	-20
32	female	white	7	77%	791	785	-6
33	male	black	6	47%	835	837	2

Appendix E

Demographics and Number of Office Referrals for Middle School A

Middle School A							
	Gender	Race	Grade	Attendance	CRCT Behavior Score		Difference
					2007-2008	2008-2009	
1	male	white	8	85%	0	0	0
2	male	white	8	35%	0	0	0
3	male	white	7	44%	4	12	8
4	male	white	7	56%	2	6	4
5	female	white	7	30%	0	5	5
6	female	white	6	53%	0	0	0
7	female	white	6	52%	1	7	6
8	female	hawaiian	6	36%	0	0	0
9	male	white	6	37%	1	7	6
10	female	white	6	53%	0	0	0
11	male	white	7	40%	11	2	-9
12	female	black	8	56%	0	2	2
13	female	white	6	74%	0	0	0
14	female	white	6	75%	0	0	0
15	male	white	7	64%	2	0	-2
16	female	white	7	37%	18	14	-4
17	male	white	8	37%	2	1	-1
18	male	black	6	56%	0	0	0
19	female	white	6	52%	0	0	0
20	male	white	7	60%	8	9	1
21	female	white	8	33%	2	3	1
22	male	white	8	33%	5	1	-4
23	male	white	8	70%	11	8	-3
24	female	white	6	59%	0	1	1
25	female	white	7	30%	1	1	0

Appendix F

Demographics and Number of Office Referrals for Middle School B

Middle School B							
	Gender	Race	Grade	Attendance	CRCT Behavior Score		Difference
					2007-2008	2008-2009	
1	female	white	7	39%	0	0	0
2	female	white	6	51%	0	1	1
3	female	white	6	38%	0	0	0
4	male	white	7	48%	0	1	1
5	male	white	6	69%	2	0	-2
6	female	white	6	33%	1	0	-1
7	male	white	6	75%	2	0	-2
8	male	white	7	33%	0	0	0
9	female	white	7	54%	1	2	1
10	female	Hispanic	6	38%	0	1	1
11	male	white	7	35%	3	0	-3
12	male	white	8	41%	2	0	-2
13	female	Hispanic	6	62%	0	0	0
14	male	white	7	87%	0	1	1
15	female	white	6	87%	1	4	3
16	male	white	6	53%	0	1	1
17	male	white	7	38%	0	2	2
18	male	white	8	67%	0	0	0
19	female	white	7	62%	1	4	3
20	female	white	8	44%	7	3	-4
21	male	white	7	71%	4	2	-2
22	male	white	8	97%	4	0	-4
23	male	white	6	48%	0	1	1
24	female	white	7	54%	0	0	0
25	female	white	6	53%	2	0	-2
26	male	white	8	74%	1	0	-1
27	female	Asian	6	68%	0	1	1
28	male	white	8	67%	0	0	0
29	female	white	7	48%	2	1	-1
30	male	white	7	47%	0	1	1
31	male	black	8	39%	1	0	-1
32	female	white	7	77%	0	0	0
33	male	black	6	47%	6	10	4