

CORRELATION BETWEEN ACADEMY OF READING AND GEORGIA END OF
COURSE TEST

by

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Liberty University

A Dissertation Proposal Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

Liberty University

January, 2012

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January, 2012

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ABSTRACT

Barry W. Brazelton. CORRELATION BETWEEN ACADEMY OF READING AND GEORGIA END OF COURSE TEST (Under the direction of Rick Bragg, ED. D.,) School of Education, November, 2011.

The purpose of this study was to examine the correlation between students' scores on Academy of READING (AOR) and their performance on the Georgia End of Course Test (GEOCT) for Ninth Grade Literature and Composition. The participants were ninth grade students enrolled in Ninth Grade Literature and Composition during the 2009-2010 school year at a high school in Northeast Georgia. The data was compiled from the students' pretest and posttest scores on AOR and the students' EOCT scores. The researcher compared students' AOR pretest and posttest scores to the students' EOCT scores. In addition, the researcher tested for the AOR pretest and posttest level below which a significantly proportion of students fail the EOCT. A Pearson correlation was used to determine the relationship between the AOR pretest and posttest and the EOCT. The McNemar test was used to assess whether there was a significant difference in the percentages of students passing versus failing the EOCT for the groups above and below a cut point, an AOR score that was determined for the pretest and posttest at which students could be predicted to fail the EOCT. Pearson's r showed a correlation between the pretest and posttest and the EOCT. The McNemar test showed a definite cut point.

Dedication

This dissertation is dedicated to my family. To my wife, Cheryl 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, Becca, Allie, and Cade - Your sacrifices and understanding have been appreciated. I love you three and am very proud of the young ladies and young man each of you have become.

Acknowledgements

First of all, I would like to thank my dissertation committee, Dr. Bragg, Dr. Campbell, and Dr. Schlabra, for helping me throughout this process. I greatly appreciate all of your time and advice.

I would like to thank my wife, Cheryl, for being so wonderful and supportive and for her willingness to take on more of the responsibilities normally shared by me. Her guidance, encouragement, and understanding are appreciated.

I would like to thank the Walton County School System and Dr. George for approving the research, and Mrs. McDevitt for providing the data.

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List of Abbreviations

Adequate Yearly Progress (AYP)

AOR (AOR)

California High School Exit Examination (CAHSE)

Commonwealth Accountability Testing System (CATS)

Computer Assisted Instruction (CAI)

Computer-aided Instruction (CAI)

Computer-managed Instruction (CMI)

Computer-based Training (CBT)

Criterion Reference Competency Test (CRCT)

Elementary and Secondary Education Act (ESEA)

Georgia High School Graduation Test (GHS GT)

General Educational Development (GED)

Internet-based training (IBT)

The No Child Left Behind (NCLB)

CHAPTER ONE: INTRODUCTION.

As graduation rates continue to be an increasingly significant factor in determining Adequate Yearly Progress (AYP), high schools must determine ways to increase the percentage of students who graduate each year. This study addresses one possible way of identifying students who are in peril of failing Ninth Grade Literature and Composition, which, in turn, may cause them to graduate from high school late or drop out of high school. AOR, a computerized assisted instruction program, is used in elementary, middle, and high schools across the country for the purpose of increasing students' reading skills. This study proposes that the AOR pretest can be used in ninth grade to predict students' performance on the GEOCT for Ninth Grade Literature and Composition.

The first chapter of this dissertation discusses the background information, states the problem as it relates to the study, describes the purpose of the study, and addresses the research questions and the null hypotheses. In addition, key terms used in the study are defined as they relate to the study.

Background of the Study

In 1965, the Elementary and Secondary Education Act (ESEA) was established by Lyndon Johnson during his War on Poverty. The act's main goal in the early years was to provide funding to schools populated by children who were living in poverty. In 1994, the ESEA was reauthorized and named *Improving America's Schools Act*. The major

change was to emphasize high expectations for all children (U.S. Department of Education, 1996). Student achievement has been important since the publication of the ESEA of 1994. However, with the implementation of the No Child Left Behind Act (NCLB) in 2001, and an emphasis on the importance of standardized tests to measure student achievement, educators have turned to the use of computerized instruction and other resources to assist in increasing student scores. When President Bush signed the NCLB on January 8, 2002, the reauthorization of the ESEA of 1965, the law included four pillars: “stronger accountability, more local freedom, proven methods, and choices for parents” (U.S. Department of Education, 2001, para. 1). One of the goals of the NCLB was to increase academic achievement by requiring schools to focus on results. NCLB required that all fifty states implement a plan to improve student achievement and demonstrate an increase in student achievement.

According to the U.S. Department of Education (2003), “The No Child Left Behind (NCLB) significantly raises expectations for states, local educational agencies and schools in that all students are expected to meet or exceed state standards in reading and in math within 12 years” (para. 1). The federal government further mandated that each state, as a part of its plan, must develop an assessment to show improvement in student achievement in reading and math by 2005-06. Additionally, NCLB mandated that high school students be tested in science starting in 2007-08. The state assessment instrument would be used to determine whether a state made AYP, which is “one of the cornerstones of the federal No Child Left Behind Act of 2001. AYP is a measure of year-to-year student achievement on statewide assessment” (Georgia Department of

Education, 2009, Para. 1). To meet this standard, states have developed a variety of tests. For example, the state of Georgia has the GHSGT and the Criterion Reference Competency Test (CRCT). California has produced the California High School Exit Examination (CAHSE) and the California Achievement Tests (California Department of Education 2009). In Kentucky, they use the Kentucky's Commonwealth Accountability Testing System (CATS; Kentucky Department of Education, 2009). These standardized tests are only a few examples of the tests that states are utilizing, each of which must be approved by the U.S. Department of Education.

NCLB requires that high schools must use graduation rates as their second indicator in the AYP process. States must report annually their graduation rates for all high school seniors, and they must disaggregate the data by poverty, race, ethnicity, disability, limited English proficiency, gender, and migrant status. Regulations released by the U.S. Department of Education (2008) elaborate on the statute by demanding that the percentage of students graduating must be measured from the beginning of high school and may not include an alternative degree that is not fully aligned with the state's academic standards, such as a special education diploma, certificate of completion, or General Educational Development (GED) diploma. The four year graduation rate as defined by the U. S. Department of Education (2008) is "the number of students who graduate in four years with a regular high school diploma divided by the number of students who entered high school four years earlier (adjusting for transfers in and out, émigrés and deceased students)" (para. 4).

For a high school to increase its graduation rate, the school must intervene early to identify students who are at risk. Balfanz and Legters (2004) reported that a student who does not make progress in the ninth grade is more likely to dropout or graduate late. According to Snipes et al. (2006), “being ‘on track’ at the end of the first year of high school is a stronger predictor of eventual on-time graduation than a student’s entering achievement level (p. 83). Students who drop out or graduate late may cause the school to fail to make AYP.

The research shows that schools can identify potential dropouts by flagging students who score low on achievement tests, students who fall behind academically, students from minority backgrounds, and students with family factors that are known to be detrimental to high school success (Balfanz & Legters 2004; Jerald, 2006; Snipes et al., 2006). Ralph Tyler was one of the first researchers to look at the importance of achievement tests in his 1942 book *Basic Principles of Curriculum and Instruction*. In 1987, he discussed the importance of Edward Thorndike and John Dewey in the development of his own theory on curriculum. His work was widely overlooked until the publishing of the 1998 book *Understanding by Design* by Wiggins and McTighe, who give credit to Tyler for the development of backwards design, where what the student needs to know is decided in the form of assessments before the curriculum is developed. According to Wiggins and McTighe’s theory, at the point of developing the assessment, national, state, and district standards are to be considered, as in the case for the GHSGT. In addition, the Georgia Standards are considered in the updating of AOR.

According to Allensworth & Easton (2005) an achievement test is one way to track a student's chances of graduating in four years. This is important because many of society's ills occur in the form of students dropping out of school. For example, in comparison to their peers, dropouts have higher unemployment, lower income, and are more likely to owe more to society than they contribute. Female dropouts are more likely to give birth at a younger age than peers, and more likely to be single and depend on government assistance. Male dropouts are much more likely to be imprisoned than peers with a high school or college education. (Sum et. al , 2009; Levin, 2009). According to Balfanz & Legters (2004), Georgia has the fifteenth highest number of dropouts produced nationally and is fifth highest nationally in dropout rates. This dropout problem puts a strain on the state's taxpayers and makes the state less competitive for business. In addition, these drop outs tend to earn a lower income over time.

This study provides Georgia schools that use AOR (a Computer Assisted Instruction program [CAI] that is designed to help students from K-adult improve reading) with a tool to identify ninth grade students who might be in danger of failing ninth grade English because of their score on the GEOCT for Ninth Grade Literature and Composition.

Problem Statement

Schools are challenged to meet AYP or risk being placed on the *Needs Improvement* list. High schools must meet two criteria to stay off the Needs Improvement List: a minimum percentage of students must pass the state's high school graduation test and graduate on time. This is especially important to schools that receive

funds under Education for the Disadvantaged—Grants to Local Education Agencies (LEAs) or Improving the Academic Achievement of the Disadvantaged (most often known as Title I). Title I “provides financial assistance to local educational agencies (LEAs) and schools with high numbers or high percentages of children from low-income families to help ensure that all children meet challenging state academic standards” (U. S. Department of Education, 2011, page 1).

Currently these standards are set by NCLB, which requires schools to meet AYP. According to the U.S. Department of Education (2003), a Title I school that fails to make AYP for two consecutive school years will be labeled as a Needs Improvement school and be required to develop a plan which would allow the school to make AYP. At the Needs Improvement level, the school would be required to offer students the option of transferring to another public school in the district.

Additional penalties are placed on the school if it continues to fail to meet AYP. Failure to make a third year adds requiring the school to offer low income students supplement education services. The fourth of failure requires the school to make improvement such as replacing staff or implementing a new curriculum. According to the U.S. Department of Education (2003.), there are also further penalties for schools who do not meet AYP. Those penalties are as follows:

If a school fails to make adequate yearly progress for a fifth year, the school district must initiate plans for *restructuring* the school. This may include reopening the school as a charter school, replacing all or most of the school staff

or turning over school operations either to the state or to a private company with a demonstrated record of effectiveness (p. 1).

Allensworth and Easton (2005) state, “The first year of high school is a critical transition period for students. Those who succeed in their first year are more likely to continue to do well in the following years and eventually graduate” (p. 1). Armed with this knowledge, schools are trying various ways to find students who may be in danger of failing classes, which would keep them from graduating on time. One possible way of preventing students from failing may be to use the AOR AutoTest.

Purpose Statement

The purpose of this study was to determine if a correlation exists between the computer assisted program AOR Autotest scores and the scores students received on the GEOCT for Ninth Grade Literature and Composition. This information would allow schools to take proactive steps in preventing freshmen from failing and dropping out. The researcher attempted to determine what grade level students needed to obtain on the AOR AutoTest in order to have a chance to pass the GEOCT for Ninth Grade Literature and Composition. In addition, the researcher determined the lowest reading level a student could obtain on the AOR pretest and still expect to pass the GEOCT for Ninth Grade Literature and Composition. Having this information will allow the school to administer the AOR AutoTest at the beginning of the semester of their ninth grade English classes, with the intention of providing interventions (such as a resource classes, Saturday school, and after school tutoring) for the students who need them. This research is similar to Dockery’s (2006), which found that students who obtained a Level 4 in

KeyTrain Reading for Information were more likely to pass the English portion of the Georgia High School Gradation Test.

Significance of the Study

In the changing realm of education since the introduction of the NCLB, funding from the federal government to the states has come with conditions. For example, schools are now required to increase academic standards and give students in certain grades tests that are aligned with the standards and measures to determine if schools, districts, and states are reaching those standards (Case 2005). To comply with the mandates of NCLB, the states have made many changes to their assessments and state curricula. States such as Georgia have moved from a curriculum they have used for decades to establishing new curriculum for each grade level to better prepare their students for increasingly difficult assessments. With the inception of new curricula, it is important that schools be able to find a variety of means to keep track of student achievement. Schools are looking for the best ways to find the students who need additional assistance. Once they have identified these students, the schools need proven ways to assist them in increasing their achievement level.

Should this study find that AOR Autotest scores correlate with GEOCT in Ninth Grade Literature and Composition, the AOR Autotest scores could be used to decide which students need additional educational services. This would help schools with access to the AOR program because it would provide them with an additional way of

identifying ninth grade students who are in danger of failing or dropping out of school. The GEOCT in Ninth Grade Literature and Composition accounts for 20% of the students' overall grade at the target school, so it is extremely important that students do well on this test to ensure that they pass their ninth grade English class. According to Balfanz & Legters (2004) "the major reason students repeat the ninth grade and enter the dropout track is that they fail too many ninth grade courses. Ninth grade course failure in turn, is in good part driven by students' lack of intermediate academic skills, weak reading comprehension and fluency abilities" (p. 23).

Research Questions and Hypotheses

- RQ1 What is the strength of correlation between student performance on the Academy of READING pretest and the Georgia End of Course Test for Ninth Grade Literature and Composition?
- RH1 Student performance on the Academy of READING pretest is positively correlated to student performance on the Georgia End of Course Test for Ninth Grade Literature and Composition.
- H₀1 Student performance on the Academy of READING pretest is not positively correlated to student performance on the Georgia End of Course Test for Ninth Grade Literature and Composition.
- RQ2 What is the strength of correlation between student performance on the Academy of READING posttest and the Georgia End of Course Test for Ninth Grade Literature and Composition?

- RH2 Student performance on the Academy of READING posttest is positively correlated to student performance on the Georgia End of Course Test for Ninth Grade Literature and Composition.
- H₀2 Student performance on the Academy of READING posttest is not positively correlated to student performance on the Georgia End of Course Test for Ninth Grade Literature and Composition.
- RQ3 What is the Academy of READING pretest level below which a significantly greater proportion of students fail the Georgia End of Course Test for Ninth Grade Literature and Composition than pass it?
- RH3 There is an Academy of READING pretest level below which a significantly greater proportion of students fail the Georgia End of Course Test for Ninth Grade Literature and Composition than pass it.
- H₀3 There is not an Academy of READING pretest level below which a significantly greater proportion of students fail the Georgia End of Course Test for Ninth Grade Literature and Composition.
- RQ4 What is the Academy of READING posttest level below which a significantly greater proportion of students fail the Georgia End of Course Test for Ninth Grade Literature and Composition than pass it?
- RH4 There is an Academy of READING posttest level below which a significantly greater proportion of students fail the Georgia End of Course Test for Ninth Grade Literature and Composition than pass it.

H₀₄ There is not an Academy of READING posttest level below which a significantly greater proportion of students fail the Georgia End of Course Test for Ninth Grade Literature and Composition than pass it.

Definition of Key Terms

Academy of READING: AOR is also referred to as AutoSkill Component Reading Subskills Testing and Training Program, is a computer assisted program that improves student reading, including phonemic awareness, reading fluency, vocabulary and comprehension.

Accountability: The state departments' and schools' responsibility for student achievement are said to have accountability.

Adequate Yearly Progress (AYP): AYP is a cornerstone of the NCLB. It is a measure of year-to-year student achievement on statewide assessments.

AutoSkill: This is the company that produces AOR software and name used for the AOR test given to assign students a grade level.

Computer-assisted instruction (CAI): CAI is a narrow term that “most often refers to drill and practice, tutorial, or simulation activities offered either by themselves or as supplements to traditional, teacher directed instruction” (Cotton, 1991, p. 2).

Other terms used in the literature include computer based education (CBE), computer based instruction (CBI), and computer based learning (CBL).

Correlational research: This research that seeks to examine the strength and direction of relationships among two or more variables.

Distance learning: Distance learning is learning where the instructor and the students are in physically separate locations.

Georgia End of Course Test (GEOCT): The (GEOCT) is administered upon completion of Ninth Grade Literature and Composition. Beginning with the 2004-2005 school year, a student's EOCT score is averaged in as 15% of the final Ninth Grade Literature and Composition course grade. This number changed to 20% with the 2011 – 2012 school year. The student must have a final course grade of 70 or above to pass the course and earn credit toward graduation. When the student repeats a course to earn credit for graduation, he/she would participate in the EOCT at the end of the repeated course. EOCT scores are not “banked.” When the student passes the GEOCT in Ninth Grade Literature and Composition, it replaces the GHSGT (Georgia Department of Education, 2010).

Georgia End of Course Test for Ninth Grade Literature and Composition: This test is given to students at the end of the course of their Ninth Grade Literature and Composition class. The test includes multiple choice items where the student has to read a passage followed by a list of four possible answers.

Georgia High School Graduation Test (GHSGT): This test required by the state of Georgia for a student to be able to graduate. The student must pass the test in the areas of writing, English language arts, mathematics, science, and social studies. (Georgia Department of Education, 2008).

Georgia Performance Standards (GPS): These are standards that provide clear expectations for instruction, assessment, and student work.

Georgia Quality Core Curriculum: This is the Georgia curriculum that was put in place in 1986.

KeyTrain: KeyTrain is a computer based skills training resource developed by Thinking Media Inc.

Local Education Agency (LEA): An LEA is a government agency that supervises the instruction or educational services of the community.

Microcomputer: An inexpensive personal computer can be called a microcomputer.

Need of Improvement List: Schools that fail to make AYP for two consecutive years are placed on this list under NCLB guidelines.

Quality Basic Education Act of 1985: This is a Georgia law in enacted by Governor Joe Frank Harris to reform education in Georgia.

Quantitative Research: It aims to classify and count features, and construct statistical models in an attempt to explain what is observed in order to answer predetermined hypotheses or questions.

Reliability: This refers to the probability that a measurement is free from random error and yields consistent results.

Student achievement: This refers to students progressing and mastering skills and standards at and beyond their grade level, as measured by a standardized test.

Validity: Validity is the extent to which a test measures what it claims to measure.

Overview of the Methodology

This study analyzes the data from a small Title 1 school in Northeast Georgia to determine if a relationship existed between ninth grade AOR scores and GEOCT scores for the Ninth Grade Literature and Composition class. The data used in the study is the ninth grade students' AOR scores from the 2009-2010 school year and the students' GEOCT scores for Ninth Grade Literature and Composition from the Fall of 2009 and the Spring of 2010. The ninth grade was chosen because according to Balfanz & Legers (2004) there are 50% fewer student as seniors than there students starting ninth grade.

This dissertation is organization into five chapters. Chapter one includes purpose of the study, significance of the study, the research questions and hypotheses, and definitions. Chapter two will include a review of the literature related to the study. Chapter 3 will provide information on the research questions and hypotheses, research design, selection of participants, instrumentation, data organization, statistical procedures, and data analysis. Chapter 4 will display the results. Chapter 5 will include a discussion of the results, implications, limitations, and recommendations.

Operational Definitions of Variables

AOR pretest scores: These scores come from the beginning of Fall semester 2009 and the beginning of Winter semester 2010.

AOR posttest scores: These scores come from the end of Fall semester 2009 and the end of Winter semester 2010.

GEOCT in Ninth Grade Literature and Composition: These scores come from the December 2009 administration of the test and the May 2010 administration of the test.

Summary

If high schools are going to make AYP, they must use all means available to find students who are in danger of failing or dropping out. At this time, high schools that have AOR do not know if there is a relationship between AOR scores and students' scores on the GEOCT for Ninth Grade Literature and Composition. This research intends to determine if there is a relationship between AOR pretest and posttest scores and GEOCT scores in Ninth Grade Literature and Composition.

CHAPTER TWO: REVIEW OF THE LITERATURE.

The implementation of NCLB has made the graduation rate of individual schools of the utmost importance. If a school does not meet the NCLB graduation rate requirements, then the school is placed on the Needs Improvement list where they must take certain actions required by the federal government. If a school continues to be on the Needs Improvement list for a fourth consecutive year, they are designated as being in Corrective Action and must choose among several remediation strategies outlined in federal law (Illinois State Board of Education , 2009). This review of the literature first discusses the theoretical framework upon which the research is built. Then it examines what the research states about graduation rate, dropout rate, computer assisted instruction, Georgia's changing curriculum, predicting student success, and uses for computer assisted instruction.

Theoretical Framework

There are many theories on learning. The most notable are Behaviorism, Constructivism, Cognitivism, and brain-based learning, which include the works of such researchers as Pavlov, Watson, Skinner, Gestalt, and Piaget (Lefrancois 1982). Most modern educational theories are connected to one of the above. In 1942, Ralph Tyler released the book *Basic Principles of Curriculum and Instruction*, which addressed some basic questions that should be asked when developing curriculum. This book appeared around the same time as the release of Skinner's book *Walton Two* (1948). Some have connected Tyler's theories on curriculum development to Behaviorism (Howard, 2007). Even though Tyler does not see his work as a theory (Tyler 1976), his work has been

addressed in the research as a “product approach,” his belief that curriculum planning should define goals, develop early experience based on the goals, and evaluate outcomes (Howard 2007).

Tyler’s approach to curriculum was popular in the 1950s and 1960s, but other theories became more popular in the 70s (Howard. 2007). In 1976, Tyler wrote an article where he reemphasized his curriculum questions from his 1942 book. Those questions were:

- What should the educational objectives of the curriculum be?
- What learning experiences should be developed to enable students to achieve the objectives?
- How should the learning experiences be organized to increase their cumulative effect?
- How should the effectiveness of the curriculum be evaluated?

In the 1976 article, Tyler also discusses student behavior in terms of how the students relate to the material. He believed that they would only truly learn if they have an interest in the material. Tyler suggests that forcing a student into learning material does not mean the student retains the knowledge.

Six years later, in 1982, Wiggins & McTighe (1998) released their book *Understanding by Design*. In their book, they credit Ralph Tyler’s Curriculum Theory as the premise upon which they based backwards design. Wiggins & McTighe’s backward design process consisted of three stages. In Stage 1 (Identify Desired Results), the standards are reviewed to determine the knowledge that is needed to develop

understanding. In Stage 2 (Determine Acceptable Evidence), it is decided how the students will be assessed to see if they have acquired the desired knowledge. Only in Stage 3 (Plan Learning Experiences and Instruction), does the teacher plan activities that are related to the standards and will keep the student interested and involved.

In Wiggins & McTighe's (1998) backward design model, assessment is an important part of the process. Tests built on the standards are one way of assessing student knowledge. If the student has not met the standard that was tested, then the teacher needs to return to the material and teach it in a different manner.

Graduation Rate

Using various methods of estimating overall national graduate and dropout figures, Bracey (2009) found that approximately one-third of students in the U.S. do not graduate from high school. According to Editorial Projects in Education (EPE; 2007), approximately 1.23 million students fail to graduate from high school in 2007, more than half of whom are from ethnic groups. Outcomes for minority students are significantly worse. Approximately three-fourths of Caucasian students graduate from high school, but only about one-half of African American and Hispanic students graduate. In some cases, there is a gap of as much as 40 or 50 percentage points between the graduation rates of Caucasians and ethnic groups (EPE 2007). Approximately two thousand high schools (approximately 14% of American high schools) produce more than half of the nation's dropouts. In these schools, the number of seniors enrolled is routinely 60% or less than the number of freshmen enrolled four years earlier (Balfanz, 2007). Greene and Winters (2005) reported that in 2002, New Jersey had the highest graduation rate (90%)

and South Carolina had the lowest graduation rate (53%). According to Education Commission of the States (ECS), New Jersey's target graduation rate for 2005-06 was 90% (or improvement from the previous year's graduation rate), and South Carolina's target was 88.3% (or improvement from the previous year's graduation rate). The South Carolina goal appears high when compared to the 2002 graduation rate of 53%, which brings into question the accuracy of the definition used for graduation. Officially reported graduation rates are often misleading. Some states' official graduation rates are improbably high, which can mislead parents and policymakers not to consider necessary reforms (Greene & Winters, 2005). The primary problem with the official high school completion rate is that it relies on unreliable data or data that is calculated in different ways. Swanson (2004) found that when graduation rates were calculated using the graduation formulas from four different states, there were differences of as much as 14%. According to the rate calculation used by Greene and Winters (2005), Wisconsin had the highest (91%) and Alabama had the lowest (62%) graduation rates for Caucasian students, and Rhode Island had the highest (70%) and New York the lowest (42%) graduation rates for African American students. Additionally, New York also had the lowest graduation rate (36%) for Hispanic students among the states with the necessary information, while Louisiana had the highest (73%) graduation rate for Hispanics. According to United States Government Accountability Office, some of the factors affecting the accuracy of graduation rates were student mobility and the verifiability of student data.

Data inaccuracies can substantially raise or lower a school's graduation rate. Due to these inaccuracies, the United States Department of Education issued a statement in October of 2008 that called for the establishment of a uniform and accurate definition of graduation rate. They called this rate "the four-year adjusted cohort graduation rate" (The United States Department of Education, 2008, p. 1). They also called for a timeline to implement the new definition. Even though this would provide a standard, Hauser & Koenig (2010) suggested that to get the most accurate data, states and districts would need to adopt procedures that ensured the accuracy of their data and that students were tracked over their school careers.

Research shows that some of the reasons that students drop out include difficult transitions to high school, deficient basic skills, and lack of engagement, all of which serve as prominent barriers to graduation (Alliance for Excellent Education, 2009). Future dropouts can often be identified as early as the middle grades because they have already begun to engage in behaviors that strongly correlate to dropping out, such as missing school or failing classes (Jerald, 2006). Academic success in ninth grade course work is highly predictive of eventual graduation: it is even more telling than demographic characteristics or prior academic achievement (Allenworth & Easton, 2007). The inevitable results of these students' failure are grave. High school dropouts "are 15 percent less likely to be employed and earn almost 30 percent less than their diploma- or GED-holding peers. Additionally, they are more likely to rely on public assistance and to end up in prison" (The Education Trust, 2003, p. 2). Despite the critical importance of students graduating from high school for the U.S. economy, for civic life, and for

ensuring equal opportunity, the quality of the data that tell us how many youths are graduating or dropping out is alarmingly poor. Until recently, few states have systematically collected and reported high school completion data and graduation rates. Green and Winters (2005) stated, “At both the national and state levels, officially reported high school graduation rates are routinely inflated “(p. 2). Furthermore, “The graduation and dropout rates that most states have been accustomed to reporting were often grossly inaccurate and therefore misleading” (Orfield, Losen, Wald, & Swanson, 2004, p. 7). For example, Chapman, Laird, and KewalRamani (2010) graduation rate formula, used by many states, relies on underestimated dropout figures because they do not look at the cohort rate, and thus overestimate graduation rates significantly.

Dropout data are exceptionally difficult to track accurately because they rely on local school officials and outdated data collection systems to track the whereabouts of individual students who have left a given school for any of a number of reasons (Swanson, 2004). In many schools, a missing student is presumed to be either in another school or to have graduated; in some cases, missing students are dropped from the records as if they had never existed. Some states do not require schools or school districts to request transcripts for transferring students, so transfers may or may not be documented, making it all too easy for officials to code students whose status is actually unknown as transfers.

In some states, these records are still kept on paper. However, even in states that have fully computerized data systems, but lack a statewide student identifier, it is still nearly impossible to track students across grade levels within a school, let alone between

different schools or districts. As a result, most states are not able to identify the outcomes for individual students (Swanson, 2004). Some methods of calculating dropouts provide terribly misleading assessments. For example, many dropout counts are limited to enrolled twelfth grader students, and do not include students who drop out before reaching twelfth grade, which may in fact be the majority of dropouts (Orfield, et al., 2004). The graduation rate should not be calculated as a function of the dropout rate, as in the formula in which the dropout rate equals one minus the graduation rate (U.S. Department of Education). The two rates are not necessarily the inverse of one another.

According to Allensworth and Eaton (2007), “What is often lost in discussions about dropping out is the one factor that is most directly related to graduation—students’ performance in their courses” (p. 1). They found in their research that students who do not earn enough credits their freshman year are more likely not to graduate four years later; therefore, it is important to focus attention on freshmen if progress is going to be made in improving the graduation rate.

Georgia’s Changing Curriculum

Since the implementation of NCLB, the state of Georgia has changed its curriculum to the Georgia Performance Standards (GPS). This occurred because, “As required by the Quality Basic Education Act of 1985, Georgia must maintain a curriculum that specifies what students are expected to know in each subject and grade” (Georgia Standard, 2005, p.1). The curriculum that was in place before the Georgia Performance Standards is known as the Georgia Quality Core Curriculum (QCC). When the QCC was reviewed by Phi Delta Kappa, a professional education association, they

were found to lack depth, could not be covered in a reasonable amount of time, and did not meet national standards (Georgia Performance Standards, n.d.). With the lack of a clear standard, it was difficult for school systems to make proper curriculum choices. This lack of a proper curriculum caused test scores to suffer. These suffering tests scores resulted in some schools not making AYP status.

With the implementation of NCLB and the knowledge of how general the QCC were, the State of Georgia began working on a performance standards curriculum that would better suit the goals and objectives of NCLB. The resulting Georgia Standards (2005) state, “The revised and strengthened curriculum will drive both instruction and assessment in Georgia’s schools, providing guidelines for teachers, students, and test makers” (p. 1). By 2008, the statewide assessments had been aligned with the new Georgia Performance Standards (GPS). The new standards took the “guesswork out of teaching and providing guidelines for our schools, students, and test makers -- and those standards will be based on best practices that have proven to be effective in high performing states and nations” (Georgia Standards, p.1). It is hoped that with new standards, student success will improve and schools will be more successful in accomplishing the goals of NCLB.

In addition to developing new Georgia Performance Standards (GPS) the state developed EOCTs for the areas of language arts and science, which began during the 2005-2006 school year. The Georgia State Board of Education was required by Georgia law to adopt EOCTs. These tests were to be designed to measure student achievement in language arts and science in grades nine through twelve. The purpose of the EOCTs is

“to help make instruction more effective and to ensure that all Georgia students have access to a rigorous curriculum that meets high academic standards,” (Georgia Department of Education, 2005, p. 1,). The state intends to use the data for diagnostic and remedial use, for student accountability, and for gauging the quality of education in the state. The EOCT is intended to be used as the final exam in the course and is scored as 15% of the final grade. Students must have a final grade of 70 or above to pass the course and to earn credit toward graduation.

Predicting Student Success

One way for a school to increase their graduation rate and student performance on graduation tests would be for the school to be able to predict which students would have trouble on these tests. Once the students have been targeted, they could be provided with the resources that would increase their chances of passing the tests.

Predicting student success has been on the top of the agenda since the implementation of the NCLB. Schools have searched for ways to find the students who are most unlikely to achieve the scores needed to graduate from high school. Roblyer and Davis (2008) found that

studies have hypothesized and identified a variety of student and environmental characteristics that contribute to success but no one set of characteristics has emerged as dominant and none of the studies that offered a model has offered an efficient way to apply its findings in practice (p. 1).

Even though a single best way of predicting student success has not been found, schools and states keep trying. One of the ways states have recently attempted to predict student

success is by developing a standards based curriculum. According to Uyeno et al. (2006), the Hawaii Department of Education decided to implement a standard-guided assessment system after the Improving America's Schools Act was passed in 1994. Other states have followed this lead. The standards have been developed to focus on what really should be learned with the hope that proven approaches to learning will be used, which will help students to succeed. Even though the GPS have been in effect now for several years, schools continue failing to make AYP because of low test scores in English language arts and math and because of the low graduation rate. In addition, a study by Zau & Betts (2008) focused on predicting success on the California High School Exit Exam (CAHSEE), which was developed to increase standards and accountability. They found demographic factors and socioeconomic factors to be statistically insignificant in terms of predicting student success or failure.

Additional research has focused on factors that might influence student performance. Uyeno et al. (2006) researched what impact poverty, ethnicity, and gender had on the success of student scores on the Hawaii State Assessment (HAS). In general, they found that there was a higher failure rate among boys than girls. When comparing the overall failure rate, those students classified as being in poverty (receiving free or reduced lunch) had a higher failure rate than the boys in the general category. In addition, they found that Caucasians and East Asians outperformed Filipinos and Hawaiians by such a large margin that they determined that ethnicity had the greatest impact on failure among the three predictors. Other means of predicting student success have been used. For example a study by Kashdan and Yuen (2007) found that students

who were curious performed better on national tests than peers who tended to be not as curious. Students can be successful, but it is up to the school system to find the best way to seek the potentially unsuccessful students and implement a program that is best for them.

Computerized Assisted Instruction

Because of the increased importance of test outcomes and the addition of graduation rates to the AYP formula, schools are looking at various ways to improve student performance. Schools must find ways to increase student test scores, to assist students in passing courses, and to assist them in making up courses that would enable them to graduate within the time period required by NCLB. One possible way of doing this is by the using computer assisted instruction (CAI), also found in the literature as computer-aided instruction (CAI), computer-managed instruction (CMI), computer-based training (CBT), and Internet-based training (IBT). These types of instruction may include software loaded onto the computer hard drive, played off from a CD-ROM, or found on a variety of websites. It is important that students have access to computers in order for CAI to work. Computers were not available to the general public until the early 1980s, with the introduction of the microcomputer. By 2006 “an estimated 60% of U. S. households own a personal computer” (Morley & Parker 2006, p. 5), and “approximately 65% of U. S. children live in a home with a computer, and about 90% use a computer at school” (Morley & Parker, 2006, p. 6). With the greater accessibility of computers, students have better understanding of how computers work and what they are able to accomplish with them. This increase in accessibility has made it possible for schools to

put a greater emphasize on students using computers to enhance learning. Students are even using computers for distance learning (Morley & Parker, 2006). CAI is an option for students in Georgia because, according to Becker (2008), teachers and students in Georgia report a daily use of computers higher than all but two other states. This access to computers should allow students to participate in more computer-supported studying (Becker (2008). According to Anderson-Inman et. al (1999), computer-supported studying is an approach to learning that provides students with the technology tools they need, and gives teachers strategies for helping students succeed in school. Computer-supported studying must have some accountability system if it is to lead to improved performance and meaningful learning (Anderson-Inman & Tenny, 1989).

Lowe (2001), in a review of the findings of five meta-analyses, found that effect size varied based on instructors, and that in one effect CBE had a negative effect. In addition Lowe (2001) found that the more studies that were used in the meta-analyses, the lower the effects size. Dalton and Hannafin (1988), in assessing instructional methods that have an effect on student performance, found that "while both traditional and computer-based delivery systems have valuable roles in supporting instruction, they are of greatest value when complementing one another" (p. 32). Cotton (1991) found that the most substantiated conclusion in the literature reviewed was that the use of CAI in combination with conventional, teacher-directed instruction produces achievement results significantly higher than the achievement level reached via conventional instruction alone. Even though conventional instruction and CAI in combination increase achievement results, motivation is essential to learning. Duttweiler (as cited in Chang,

2005) examined research on motivation, finding it to be “the factor that arouses, directs, and sustains increased performance” (p 218). When learners have high levels of “motivation, self-confidence, a good self-image, and a low level of anxiety,” they have a greater chance of being successful (Krashen, as cited in Chang, 2005).

Research is mixed on whether CAI is one way to increase motivation in students. In a study to determine if CAI in combination with problem solving skills had an effect on improved attitudes toward science, as well as increased achievement in science, Chun-yen Chang (2002) stated that “despite constant support for implementing CAI in the secondary school,” (p. 143) the research is conflicting. Some studies report that students’ outcomes favor CAI over lecture or discussion strategies (Chang & Levine, as cited in Chang, 2002). Other studies show that CAI has no significant effects on cognitive achievement (Morrell & Wainwright, as cited in Chang, 2002). More recently, Chang (2002) suggested that a trend toward a CAI approach produces positive outcomes, with the students’ ability to acquire knowledge being enhanced, and their attitude toward the subject matter becoming more positive. Clarfield and Stoner (2005) further found that students with ADHD using CAI increased their level of oral reading fluency and decreased off-task behavior, becoming more motivated by the use of CAI.

Some research has found that “learners’ motivations have been improved in a constructivist learning environment using technology” (Chang, 2005, p. 218). In this type of learning environment, learners construct their own meaning. In a similar earlier study, Chang (2005) “examined the effect of relevance on learners’ motivation in a multimedia-based language learning program” (p. 219).

Types of Computer Assisted Instruction

There are many CAI programs for school systems from which to choose. Some of the ones currently being used in schools include KeyTrain, A+ny/Where Learning System (A+LS), Waterford Early Reading Level One, I Can Learn, PLATO, and Pace Learning Systems. These CAI programs are marketed as a way to increase student achievement. According to the A+LS software website, the software is presented with a consistent methodology, which is a computer-delivered lesson based on the principles of mastery learning. It has the ability to assess students against specific standards and prescribe individual lesson plans for students based on their specific needs. Thompson & McDonald (2007) found that by using A+LS assessments, educators were able to identify students who were poor performers. Trautman and Klemp (2004) found that the schools that used the software more often had modest gains on the Iowa Tests of Basic Skills than those that used it less often. Trautman and Klemp stated, “it is important to note that there is evidence that when the data derived from an A+LS assessment is used to prescribe a specific set of lessons, students learn more than the students whose lesson plan was generated based on the teachers own judgment” (p. 19).

Another CAI program is the Waterford Early Reading Level One literacy curriculum. Fischel et al. (2007) analyzed the differences between the Waterford Early Reading Level One and teacher-directed and found no significant differences. The I Can Learn Pre-Algebra and Algebra are designed to cover mathematics and problem-solving skills for ethnically diverse, inner-city students in grades 6-12. Kirby (2004) reported

that the I Can Learn group outperformed the comparison group on the General Mathematics exam from the California Standards Test. Additionally, Kirby reported that I Can Learn groups outperformed the comparison group on the Georgia Criterion-Referenced Competency Test and on the Algebra 1 EOCT.

KeyTrain is a program that was developed to work with ACT WorkKeys, but has also marketed itself as a program that can be used to improve student achievement on state standardized tests. For example, according to Clarke County Schools in Georgia, KeyTrain has been successful as a motivational tool for students in their after school programs and summer programs by increasing listening skills. In addition, Chicago Public Schools improved student readiness skills and provided remediation for students using KeyTrain. Dockery (2006) found that students who received CAI with KeyTrain outperformed their peers who received only traditional instruction. His research focused on the math and English/language arts sections of the GHSGT. He found that KeyTrain students in the African American subgroup, the at-risk economically disadvantaged subgroup, and students with disabilities subgroup all outperform their peers who did not receive such instruction. According to his findings, the students that were the most at-risk for failing the GHSGT were the students who gained the most benefit from the CAI. Dockery (2006) stated, “Both the GHSGT and KeyTrain tests are composed of multiple-choice questions. This allows students to practice content specific test items in a format similar to what is on the GHSGT” (p. 98). KeyTrain provides data on how the various KeyTrain areas align with English Language Arts and math GPS.

Pace Learning System uses computer software (PaceWare) to create an individualized learning environment with an instructor to manage the software and act as mentor. PaceWare is set up to deliver instruction in small steps that are interactive with immediate feedback. The software is self-paced and data is generated by students taking tests (2006). Lull (2000) found that students who were in a class where Pace Learning System was used had a greater pass rate than students who did not take the class. Lull (2008) states, "Pace Learning Systems was instrumental in overcoming the biasing effects of gender, race, and socioeconomic status that are associated with standardized testing." Additionally, students in the Pace classes had a lower dropout rate than those in regular classes.

PLATO is an online learning software program that is designed to appeal to different learners. Curriculum is available for elementary through postsecondary. The program is designed so that the instructor can manage how the student will use the software (2008). Quinn, D. & Quinn, N. (2002) researched PLATO's use in a school of about 1,100 mostly Caucasian students with a dropout rate of 25%. The school used PLATO for students who failed a subtest of the state exam (reading classes, language classes, or geometry classes) to earn credit and for credit completion. These are consistent with what the PLATO company suggests are appropriate uses of PLATO. The researchers found that there was not a relationship between the number of units completed and the passing rate on the Alabama High School Graduation Exam (AHSGE). It was their opinion that this might have been due to the lack of a requirement to pass the mastery test. Some other issues that occurred using this system were the time

required to enter information and the potential underestimation of student abilities. The language arts/remedial reading teachers said that PLATO test items are not like those on the AHSGE, and they felt it would be more beneficial to use a program that was using the same format as the AHSGE test format. Additionally, there was a feeling that the program needed greater depth in instruction and testing.

AOR is a program that is being used in many schools across the country. According to the AOR website, the software has been proven to help at-risk students achieve academic gains in reading. AOR claims that its “pedagogical model incorporates task-analysis to break skills down into simpler components, automaticity to build fluency, and positive feedback and motivational elements to boost confidence and self-esteem” (Author, date, page number). The program measures processing speed, accuracy, and pace. The procedure used in the system is tutorial-practice-train, with additional practice if necessary. When the students begin with the program, the software provides them with a placement test that feeds the program with information that identifies the level at which they should start. Then the students are provided with age-appropriate content at their level. They start with easier content, and as they pass a level their success is acknowledged. The software management system provides a variety of reports that may be accessed by the administrator of the program.

Fiedorowicz (1987) found that using AOR improved component reading skills and reading word recognition. Fiedorowicz and Trites (1987) did additional research and found that AOR not only improved reading word recognition, but also phonetic knowledge, paragraph reading fluency, and comprehension. According to Education

Commission of States (1999), Fiedorowicz and Trites did a follow-up study in 1990 to check the progress of the students they had worked with one year earlier. In the follow-up study, the researcher found that the students who received the AutoSkill Component Reading Subskills Testing and Training Program had maintained their gains, and those that did not receive the training continued to show a lower level of skills. After reviewing AOR studies from 13 states, 31 schools, and 1,226 students, Loh (2005) found that the students who took the pretests and posttests had an average gain of 1.6 levels. Of the 1,226 students, 76% were in the ninth grade. Schacter (2001) researched over 26 reading programs, one of which was AOR, and found the best studies to be that of Fiedorowicz and Trites (1987). Schacter (2001) stated that all of the other studies are “so flawed the results cannot be reliably interpreted” (p. 32). In addition, he stated that, “recent data on effectiveness is needed as the program, no doubt, has progressed in the last 12 years” (Schacter, 2001, p. 34).

No prior research studies were found comparing student performance on the Georgia EOCT for Ninth Grade Literature and Composition to the AOR AutoTest. However, Karrh (2009), in a comparable study, used the norm-referenced Stanford Achievement Test Reading portion and Math portion to predict performance on Grade 7 Texas Assessment of Knowledge and Skills Reading and math test (p. 4).

Uses for Computer Assisted Instruction

States are using CAI to help schools identify (in advance of their state-mandated assessments) students who are poor performers, with enough time to direct limited resources toward helping those students (Thompson & McDonald, 2007). Thompson and

McDonald (2007) said, “This ability to predict a large percentage of students’ performance on standardized assessment enables educators to efficiently allocate scarce resources, such as available tutors, additional time with computer-assisted learning, peer-to-peer interactions, or other educational interventions” (p. 9).

Another form of CAI is the Computerized Adaptive Testing (CAT). According to Olson (2005), CAT is an additional way to accurately gather information about student achievement by measuring proficiency and growth in specific subjects by custom adjusting the difficulty of questions as students take the test and by changing the assessment to reflect that students’ performance and capabilities. In CAT, if a student answers a question correctly, the subsequent question increases in difficulty; if the student answers the question incorrectly, the next item decreases in difficulty. Olson (2005) stated, “Computerized adaptive testing enhances student engagement by alleviating the boredom that high achievers experience when tests are too easy, as well as the frustration that low achieving students feel when tests are too difficult” (p. 38). Additionally, CAT provides a growth measure of individual achievement and also shows where each student ranks relative to others and relative to a state’s proficiency standard.

This researcher will study the ability of AOR to be a predictor for assessing a student’s chance of passing the Georgia EOCT test in Ninth Grade Literature and Composition as well as their dropout potential. It is imperative that educators know if students who received low scores on the AOR are more likely to fail their Ninth Grade Literature and Composition EOCT than students with high scores on the AOR. There is no doubt that NCLB dictates that students meet or exceed the standards on state tests, and

that measure must be taken to ensure that this occurs. While there are many strategies designed to improve student achievement, using CAI programs encourages student motivation and active participation in their own learning process. In addition, most CAI programs are set up as tests that are composed of multiple-choice questions. This allows students to practice content specific test items in a format similar to what they will find on most states' standardized tests. The CAI programs target skill development in many areas, including those that are frequently assessed on state standardized tests. Helping students improve basic skills and overcome obstacles to future success are just a few reasons why these programs should be explored.

Summary

The research shows that the United States has a dropout rate of over 30% among high school students, and Georgia has the thirteenth highest number of dropouts among the individual states. To encourage schools to increase the graduation rate, the U. S. Department of Education included graduation rate as a requirement for making AYP for high schools. However, for schools to achieve the graduation rate goal, school administrators must first ensure that students have the ability and resources to get past the ninth grade. This research intends to seek a relationship between the scores that students receive on the AOR AutoTest and the scores they receive on the Georgia EOCT for Ninth Grade Literature and Composition. The discovery of this relationship will provide schools with an additional means of identifying students who may be at risk of failing and putting a school's AYP status at risk.

CHAPTER THREE: METHODOLOGY

This quantitative study was designed to evaluate the use of a computer assisted program, AOR AutoSkills, as a tool for schools to use in predicting students' chances of passing the Georgia EOCT for Ninth Grade Literature and Composition. The research shows that students who fail a course or courses, and thus fall behind as freshmen, have a greater chance of dropping out or not graduating from high school on time. Preventing students from dropping out benefits the students and assists the school in increasing their graduation rate and their chance to comply with AYP requirements.

AOR was used to evaluate students' reading levels at the beginning of the first semester of their Ninth Grade Literature and Composition class and again at the end of the last semester of that class. The AOR pretest scores were compared to the students' scores on the Georgia EOCT for Ninth Grade Literature and Composition in order to identify the level below which a significantly greater proportion of students are failing the Georgia EOCT for Ninth Grade Literature and Composition. In addition, the students' posttest scores on the AOR were compared to the students' scores on the Georgia EOCT for Ninth Grade Literature and Composition to determine again whether there was a level below which a significantly greater proportion of students are failing the Georgia EOCT for Ninth Grade Literature and Composition. These finding could be used to address early interventions for future students who have low pretest scores on the AOR test.

The following research questions, hypotheses, and null hypotheses were developed to answer the questions regarding the relationship between AOR and the Georgia EOCT for Ninth Grade Literature and Composition:

- RQ1 What is the strength of correlation between student performance on the Academy of READING pretest and the Georgia End of Course Test for Ninth Grade Literature and Composition?
- RH1 Student performance on the Academy of READING pretest is positively correlated to student performance on the Georgia End of Course Test for Ninth Grade Literature and Composition.
- H₀1 Student performance on the Academy of READING pretest is not positively correlated to student performance on the Georgia End of Course Test for Ninth Grade Literature and Composition.
- RQ2 What is the strength of correlation between student performance on the Academy of READING posttest and the Georgia End of Course Test for Ninth Grade Literature and Composition?
- RH2 Student performance on the Academy of READING posttest is positively correlated to student performance on the Georgia End of Course Test for Ninth Grade Literature and Composition.
- H₀2 Student performance on the Academy of READING posttest is not positively correlated to student performance on the Georgia End of Course Test for Ninth Grade Literature and Composition.

- RQ3 What is the Academy of READING pretest level below which a significantly greater proportion of students fail the Georgia End of Course Test for Ninth Grade Literature and Composition than pass it?
- RH3 There is an Academy of READING pretest level below which a significantly greater proportion of students fail the Georgia End of Course Test for Ninth Grade Literature and Composition than pass it.
- H₀3 There is not an Academy of READING pretest level below which a significantly greater proportion of students fail the Georgia End of Course Test for Ninth Grade Literature and Composition.
- RQ4 What is the Academy of READING posttest level below which a significantly greater proportion of students fail the Georgia End of Course Test for Ninth Grade Literature and Composition than pass it?
- RH4 There is an Academy of READING posttest level below which a significantly greater proportion of students fail the Georgia End of Course Test for Ninth Grade Literature and Composition than pass it.
- H₀4 There is not an Academy of READING posttest level below which a significantly greater proportion of students fail the Georgia End of Course Test for Ninth Grade Literature and Composition than pass it.

Chapter 3 includes a description of the research design, the research participants, the setting, and the instrumentation. Following these descriptions, the chapter concludes with a description of research procedures, which includes data gathering, data analysis, and data organization.

Research Design

A correlational research design was used to examine any potential correlational relationships between students' scores on the Georgia EOCT for Ninth Grade Literature and Composition and their scores on the AOR pretest and posttest. Pearson's r is used to compute a numeric linear relation between two continuously measured variables (Pagano, 2004). Pearson's r is used with a correlational design, which is chosen when a researcher wishes to examine and describe associations between two variables (Gravetter & Forzano, 2009). McNemar's test is a nonparametric method used to assess the contingency between two nominal variables for matched subjects (Fleiss, 1981). McNemar's test was thus appropriate to examine repeated testings (matched subjects) when the test variables are divided into a dichotomous pass/fail type variable (i.e., nominal variable) such as in this study.

The study took place at a Title I high school located in the Northeastern Georgia. A correlational research design was used to test the first two null hypotheses. The study analyzed the relationship between students' pretest and posttest scores on the AOR and the students' Georgia EOCT scores in Ninth Grade Literature and Composition. A McNemar test was used to test the third and fourth null hypotheses.

Participants

The participants were both male and female high school students in ninth grade, ranging in age from 14 through 16, these ninth grade students were targeted because they had the greatest influence on the school's ability to make AYP in the future. Ninth grade students have a high rate of failing classes, and dropping out. The participants were

selected because they were ninth grade students at the target school during the 2009-2010 school year who took Ninth Grade Literature and Composition in either the Fall semester of 2009, the Spring semester of 2010, or as a year-long class. In addition, they had been tested on the AOR AutoTest during the same school year. Thirteen classes were used in the study: six of the classes were first semester classes being taught by two teachers, each teaching three classes; four classes were second semester classes being taught by two teachers, each teaching two classes; three classes were year-long classes being taught by one teacher.

There was a possibility of 303 students taking the AOR AutoTest. Of the possible 303 students that were eligible to take the AOR pretest, 280 took the test and 13 students did not take the pretest, five from first semester and eight from second semester. Due to time constraints, the posttest was administered only at the conclusion of the first semester. Of 303 eligible to take the AOR posttest after the first semester, 52 did not take the first semester posttest due to several reasons including moved, were absent or refused.

There were 303 students eligible to take the Georgia EOCT for Ninth Grade Literature and Composition; 105 took it at the end of the fall semester and 143 took it at the end of the spring semester. This leaves 62 students that either did not take the EOCT for Ninth Grade Literature and Composition, or for some reason their scores were not available. So, 248 students took the EOCT for Ninth Grade Literature and Composition for the 2009-2010 school year.

Setting

The school is a medium-sized high school in Northeast Georgia. The school is comprised of approximately 1,100 students, with around 400 of those being ninth graders. The school population is made up of 44% African American, 53% Caucasian, and 3% other. Thirty-seven percent of the students at this school are classified as living in poverty, 43% are economically disadvantaged, and 12% of the school population are students with disabilities. The school is on a 4x4 block schedule, so the end of the semester is also the end of the course.

The school did not make AYP in the 2007-2008, 2008-2009, or 2009-2010 school years due to low scores in English one year and math two years and not meeting the minimum graduation rate. Because they did not meet AYP requirements, the school is examining ways to identify students who may be in jeopardy of failing English/language arts classes or not graduating on time.

Instrumentation

To obtain a baseline for the students' English/language arts skills, a computer-assisted program (CAP) was used. The CAP being used was a program called AOR, which has most often been used in the elementary and middle schools, but was available to the target high school in this study. According to the AutoSkill website, the AOR software was developed in 1990. It was based on the research of Dr. Ronald Trites and Christina Fiedorowicz (AutoSkill, 2009) and tests a student's reading fluency, vocabulary, and comprehension. According to the AutoSkill website, the software is used in over

4,000 schools across the country. The data in the AOR program is generated as grade levels.

In addition to the AOR data, Georgia EOCT data was used. The purpose of the Georgia EOCT in Ninth Grade Literature and Composition is to measure each student's skills and knowledge of topics outlined in the GPS, which included questions from four domains. The domains are Reading and Literature, Reading Across the Curriculum/Listening, Speaking and Viewing, and Writing and Conventions. A student's scale scores can range between 200 and 750 on GPS-based tests. The cut score for a student meeting the EOCT standard is 400, and a score of 450 or above is exceeding the standard. The Georgia State Board of Education approves the procedure used to determine the cut scores for meeting and exceeding standards.

Procedures

The students involved in the study were enrolled in Ninth Grade Literature and Composition during the 2009-2010 school year. Before the students were able to take the AOR pretest, each student had to be entered into the AOR database where they were assigned a username and password. Once the students were in the database, the teachers of the classes were set up in the AOR data base. Once the teacher was set up in the data base, students were assigned to the teacher's classes based on the period that the students were taking the class. As new students entered the class, they were added to the database as well. Once the students were entered into the teacher's classes, the teacher of Ninth Grade Literature and Composition took his or her students to a computer lab where the students logged on to the computer and then logged on to the AOR program, at which

time they took the pretest. Once the students finished the pretest, the AOR program assigned them a grade level. This information was stored in the AOR database for teachers to review as appropriate. During the last weeks of the semester, the students returned to the computer lab, logged on to AOR, and took the posttest. When the students completed the posttest, the grade level was saved to the database for future teacher use.

At the end of the semester-long course, the students were required to take the Georgia EOCT in Ninth Grade Literature and Composition. The testing date was assigned by the state and the school. When the students completed the Georgia EOCT in Ninth Grade Literature and Composition, the tests were sent to the state to be scored. After the tests were scored, the scores were sent to the school to use as 15% of the students' overall grades. In addition, the scores were saved in the students' files for future reference.

Once the research was approved by the research committee, permission was requested from the school and school system to use the AOR data from the 2009-2010 year and the Georgia EOCT for Ninth Grade Literature and Composition test scores for the same year. Once approval from the school and school board was received and the research proposal was approved by the dissertation committee, IRB approval was applied for and approved with modifications. After completing IRB approval, the researcher requested that the school administration provide the AOR data and Georgia EOCT for Ninth Grade Literature and Composition test scores for the 2009-2010 school year to the researcher in scrubbed data form.

Data gathering.

The researcher received three sets of test scores: two sets from the AOR, which included the pretest and posttest results, and one set from the results of the Ninth Grade Literature and Composition Georgia EOCT. This data was received from the school's data clerk.

Data analysis

Once the data had been received from the school, the researcher began the analysis. In order to test the research hypotheses, the following data analysis procedures were followed: Descriptive statistics consisting of the mean, standard deviation, range, skewness, and kurtosis were computed with SPSS version 18.0 for each set of test scores. Skewness and kurtosis were used to assess whether each variable was sufficiently normally distributed that parametric statistics (i.e., Pearson correlations) were used to analyze the relationships between variables. Skewness and kurtosis values of zero are indicative of a normal distribution, and values between -2 and +2 signify no problematic deviations from normality (Balanda & MacGillivray, 1988; De Carlo, 1997; Groeneveld & Meeden, 1984; Hopkins & Weeks, 1990; Kendall, Stuart, Ord, & Arnold, 1999). Scatterplot and univariate tests were used to ensure the homogeneity of regression slopes finding no obvious curvilinear patterns and no major heteroscedasticity in the data. Thus, assessing a linear relationship was justifiable.

Research Hypothesis One. Student performance on the AOR pretest is positively related to student performance on the Georgia EOCT for Ninth Grade Literature and Composition. Research Hypothesis 1 was addressed by computing a

Pearson correlation between the AOR pretest scores and the Georgia EOCT for Ninth Grade Literature and Composition. A significant positive correlation would allow rejection of Null Hypothesis 1. A p -value less than .05 would indicate a significant correlation.

Research Hypothesis Two. Student performance on the AOR posttest is positively related to student performance on the Georgia EOCT for Ninth Grade Literature and Composition. Hypothesis 2 was addressed by computing a Pearson correlation between the AOR posttest scores and the Georgia EOCT for Ninth Grade Literature and Composition. A significant positive correlation would allow rejection of Null Hypothesis 2. A p -value less than .05 would indicate a significant correlation.

Research Hypothesis Three. There is an AOR pretest level below which a significantly greater proportion of students fail the Georgia EOCT for Ninth Grade Literature and Composition. To address Hypothesis 3, an independent t test was computed with SPSS to determine whether there was a significant difference between the mean pretest scores for students who passed the EOCT (i.e., scored 400 or greater) versus students who failed the EOCT (i.e., scored below 400). Regardless of the significance of the t test, it would provide an idea of how well the two groups performed on the AOR pretest. The mean AOR pretest score for the group who failed the EOCT would then be used as a guide to determine a point at which the AOR pretest scores could be divided into a low and high group. The mean was chosen as the cut point because it is a measure of central tendency and is the balancing point of the data. For example, if the mean AOR pretest score for the group who failed the EOCT is 5.4, then a score of five

could be chosen as the cut point. The pretest scores would then be divided into two groups—those scoring below five and those scoring five or higher. The low and high pretest scores would then be cross-tabulated with the students who passed and failed the EOCT, creating a 2 x 2 contingency table. The table would show the percentages of students who (a) scored below the cut point on the AOR pretest and failed the EOCT, (b) scored below the cut point on the AOR pretest and passed the EOCT, (c) scored above the cut point on the AOR pretest and failed the EOCT, (d) scored above the cut point on the AOR pretest and passed the EOCT. The McNemar test was computed to assess whether there was a significant difference in the percentages of students passing versus failing the EOCT for the groups above and below the cut point on the AOR pretest. A significant McNemar test would allow for rejection of Null Hypothesis 3.

Research Hypothesis Four. There is an AOR posttest level below which a significantly greater proportion of students fail the Georgia EOCT for Ninth Grade Literature and Composition. The same procedure outlined for Hypothesis 3 was followed for Hypothesis 4. except that the AOR posttest scores were used instead of the AOR pretest scores.

Data organization. The students' AOR pretest and posttest results were recorded in an Excel spreadsheet. The students' Georgia EOCT for Ninth Grade Literature and Composition were also added to the spreadsheet.

CHAPTER FOUR: RESULTS

The graduation rate continues to be a significant factor in determining AYP; therefore, high schools must determine ways to increase the number of students who graduate each year. This chapter presents the results of the research hypotheses testing and is organized as follows: sample characteristics, descriptive statistics and normality, and tests of hypotheses.

Sample Characteristics

Table 1 presents frequencies and percentages for the demographic variables of gender, sex, race, and students passing and failing the EOCT for all students from the total sample. The majority of the students were male (53.6%), Caucasian (56.2%), and passed the EOCT (70.4%). The least represented groups were the multiracial (1.1%) and Hispanic (2.6%) groups. The students involved in this research all attended a public high school in Georgia that includes grades 9-12. Grade 9 students who took both the AOR and the Georgia EOCT for Ninth Grade Literature and Composition were enrolled in a ninth grade English/language arts class either first or second semester or in the year-long class. There were 303 ninth graders involved in the study, which included first time takers of ninth grade English/language arts, and also students who were repeating the course.

Table 1

Frequencies and Percentages for Categorical Variables

	Frequency	Percent
Sex (<i>N</i> = 267)		
Female	124	46.4
Male	143	53.6
Race (<i>N</i> = 267)		
Asian	8	3.0
Black	99	37.1
Hispanic	7	2.6
Mixed	3	1.1
White	150	56.2
EOCT (<i>N</i> = 247)		
Fail	73	29.6
Pass	174	70.4

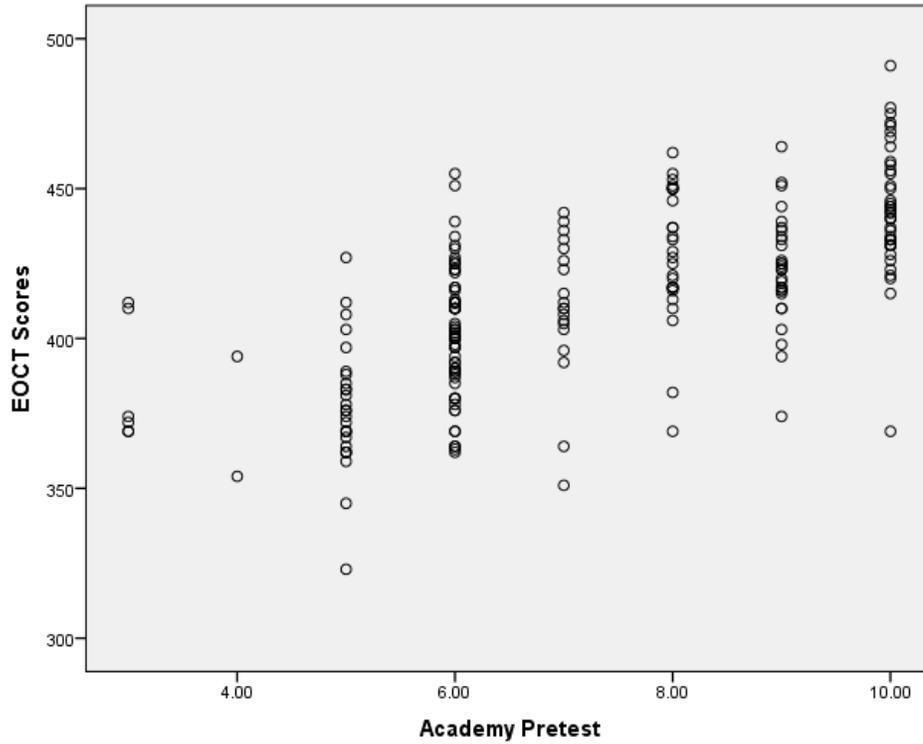
Descriptive Statistics and Assessment of Normality

AOR computerized assisted instruction program data was used in this study. The data in the AOR program is generated as grade level scores and tests a student's reading fluency, vocabulary, and comprehension. The study used the scores from the administration of the AOR pretests given within the first weeks of the new semester to obtain the students' grade level scores. The students later took the posttest for AOR during the last weeks of that same semester. In addition, the students took the Georgia EOCT for Ninth Grade Literature and Composition, which included questions from four domains: Reading and Literature, Reading Across the Curriculum, Listening, Speaking, and Viewing, and Writing and Conventions.

Figures 1 presents curvilinear patterns and heteroscedasticity. As represented by the table there were no obvious curvilinear patterns and no major heteroscedasticity in the data. Thus, assessing a linear relationship was justifiable.

Figures 1

Scatterplot curvilinear patterns and heteroscedasticity



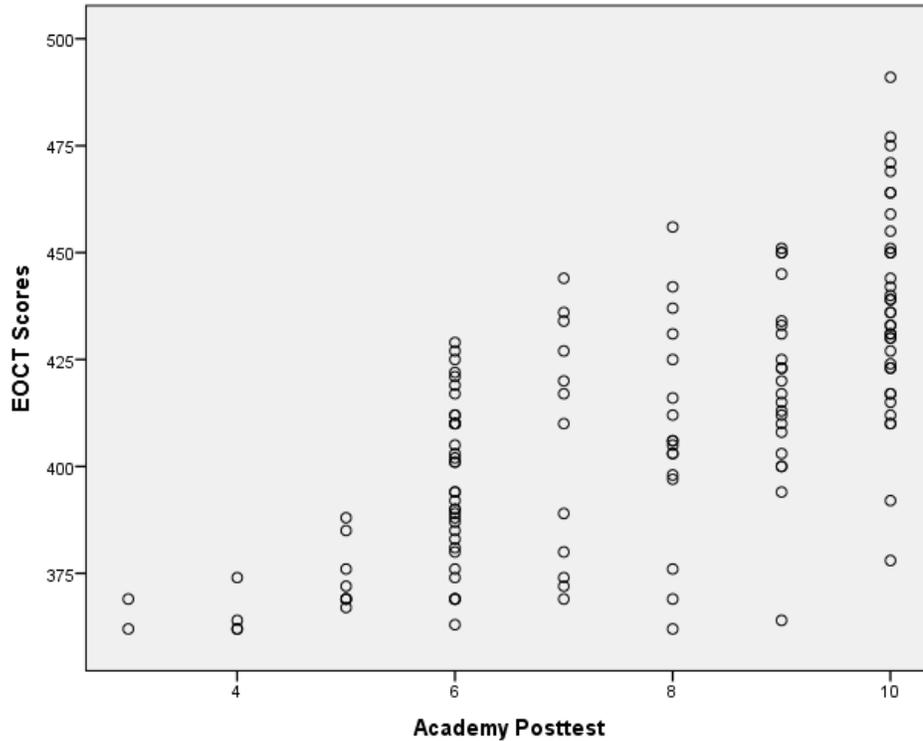


Table 2 presents descriptive statistics for the AOR pretest and posttest scores and EOCT scores. The largest available sample size was used to compute each descriptive and inferential statistic; thus, sample sizes vary across statistical tests. Measures of skewness and kurtosis were computed to assess the measures for normality. Skewness and kurtosis values of zero are indicative of a normal distribution, and values between -2 and +2 signify no problematic deviations from normality (Balanda & MacGillivray, 1988; De Carlo, 1997; Groeneveld & Meeden, 1984; Hopkins & Weeks, 1990; Kendall, Stuart, Ord, & Arnold, 1999). All measures of skewness and kurtosis were within the acceptable range; hence, each distribution of test scores was acceptably normally distributed. Histograms of each test are presented in Figures 1 – 3.

Table 2

Descriptive Statistics for AOR Pretest and Posttest Scores

	<i>N</i>	<i>M</i>	<i>SD</i>	Range	Skewness	Kurtosis
Academy pretest	262	7.15	2.20	0-10	-0.61	0.49
Academy posttest	159	7.72	1.94	3-10	-0.27	-1.12
EOCT score	247	415.02	31.19	323-491	-0.07	-0.34

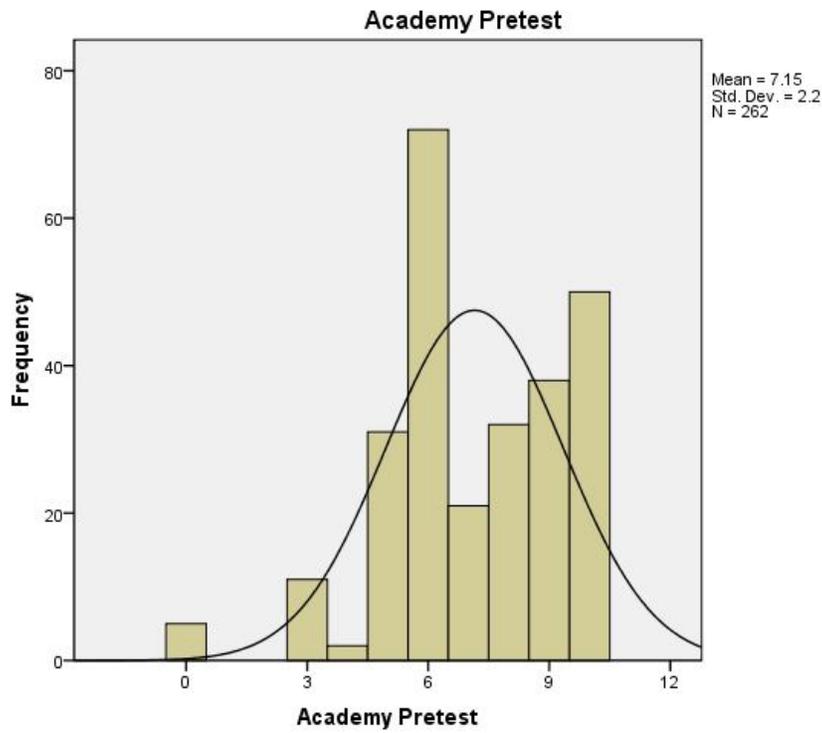


Figure 2. Histogram of Academy pretest scores.

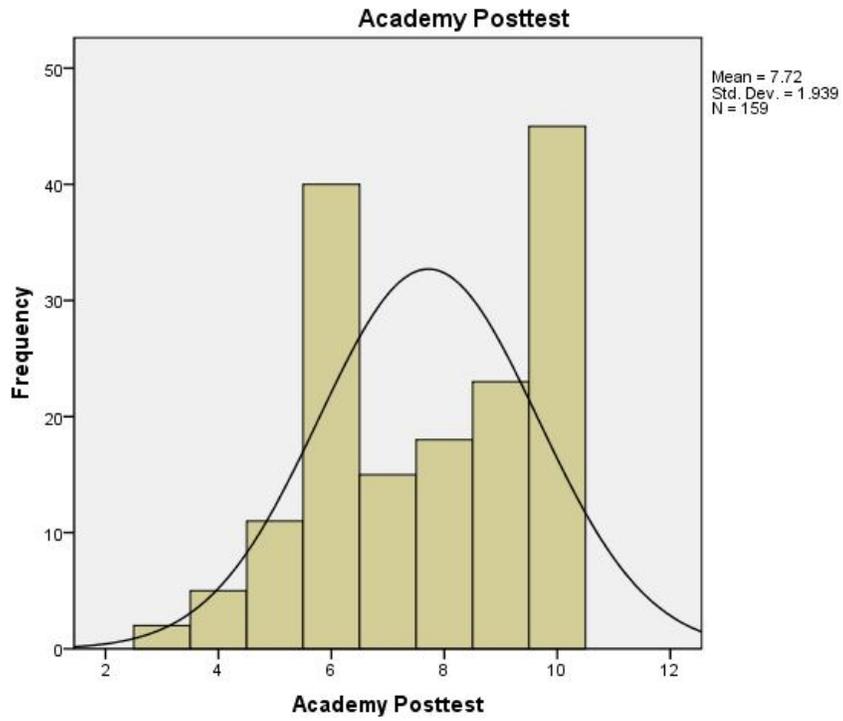


Figure 3. Histogram of Academy posttest scores.

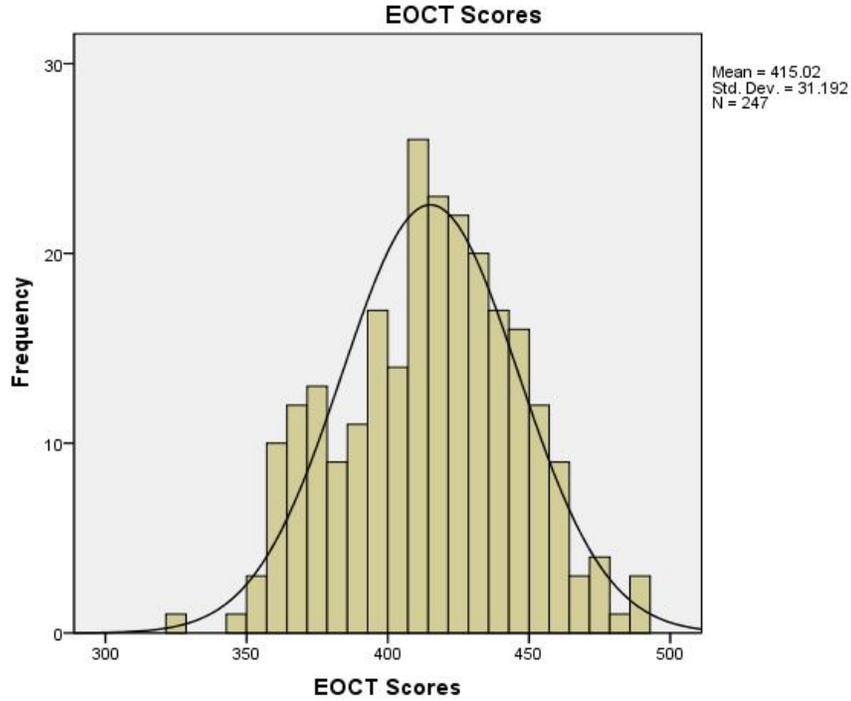


Figure 4. Histogram of EOCT scores.

Tests of Hypotheses

Research Hypothesis 1. Student performance on the AOR pretest is positively related to student performance on the Georgia EOCT for Ninth Grade Literature and Composition. Hypothesis 1 was addressed by computing a Pearson correlation between the AOR pretest scores and the Georgia EOCT for Ninth Grade Literature and Composition. The correlation is presented in Table 3. The correlation was statistically significant and positive ($r = .66, p < .001$), thus allowing rejection of Null Hypothesis 1. Therefore, one can conclude that AOR pretest scores are positively related to students' performance on the EOCT.

Table 3

Correlations Between Academy of READING Tests and EOCT Score

	Academy pretest	Academy posttest	EOCT
Academy pretest	--		
Academy posttest	.65*** ($N = 159$)	--	
EOCT score	.66*** ($N = 218$)	.68*** ($N = 138$)	--

*** $p < .001$.

Research Hypothesis 2. Student performance on the AOR posttest is positively related to student performance on the Georgia EOCT for Ninth Grade Literature and Composition. Hypothesis 2 was addressed by computing a Pearson correlation between the AOR posttest scores and the Georgia EOCT for Ninth Grade Literature and

Composition. The correlation is presented in Table 3. The correlation was significant and positive ($r = .68, p < .001$), thus allowing rejection of Null Hypothesis 2. Therefore, one can conclude that AOR posttest scores are positively related to students' performance on the EOCT.

Research Hypothesis 3. There is an AOR pretest level below which a significantly greater proportion of students fail the Georgia EOCT for Ninth Grade Literature and Composition. To address Hypothesis 3, an independent t test was first computed to determine whether there was a significant difference between the mean pretest scores for students who passed the EOCT (i.e., scored 400 or greater) versus students who failed the EOCT (i.e., scored below 400). The t test result is presented in Table 3. The mean on the Academy of READING pretest for students who failed the EOCT was 5.55 ($SD = 1.67$), whereas the mean on the Academy of READING pretest for students who passed the EOCT was 7.90 ($SD = 1.82$), which was significantly greater, $t(134.48) = -9.32, p < .001$. The mean AOR pretest score for the group who failed the EOCT was then used as guide to determine a point at which the AOR pretest scores can be divided into a low and high group. To further inform this exploration, the number and percentage of students at each score of the AOR pretest are given in Table 4.

Table 4

Academy Pretest Scores Cross-Tabulated by EOCT Fail/Pass

	Failed EOCT	Passed EOCT	Total
Academy pretest = 0	2 (66.7%)	1 (33.3%)	3
Academy pretest = 3	4 (66.7%)	2 (33.3%)	6
Academy pretest = 4	2 (100%)	0 (0%)	2
Academy pretest = 5	23 (85.2%)	4 (14.8%)	27
Academy pretest = 6	25 (39.7%)	38 (60.3%)	63
Academy pretest = 7	4 (21.1%)	15 (78.9%)	19
Academy pretest = 8	2 (7.1%)	26 (92.9%)	28
Academy pretest = 9	3 (10.3%)	26 (89.7%)	29
Academy pretest = 10	1 (2.4%)	40 (97.6%)	41
Total	66 (30.3%)	152 (69.7%)	218

As can be seen in Table 4, the majority of the students with scores below six on the AOR pretest failed the EOCT. Specifically, 66.7% of the students who scored zero on the AOR pretest later failed the EOCT, 66.7% of the students who scored three on the AOR pretest later failed the EOCT, 100% of the students who scored four on the AOR pretest later failed the EOCT, and 85.2% of the students who scored five on the AOR pretest later failed the EOCT. The majority of the students who scored six or above passed the EOCT.

Thus, the pretest scores were then divided into two groups—those scoring below six and those scoring six or higher. The low and high pretest scores were then cross-

tabulated with the students who passed and failed the EOCT, creating a 2 x 2 contingency table. The contingencies are shown in Table 5.

Table 5

Academy Pretest Scores Divided at a Score of 6 Cross-Tabulated by EOCT Fail/Pass

	Failed EOCT	Passed EOCT	Total
Academy pretest < 6	31 (81.6%)	7 (18.4%)	38
Academy pretest ≥ 6	35 (19.4%)	145 (80.6%)	180
Total	66 (30.3%)	152 (69.7%)	218

As can be seen in Table 5, 81.6% of the students who scored below six on the AOR pretest failed the EOCT, whereas only 19.4% of the students who scored six or higher failed the EOCT. The McNemar test was used to assess whether there was a significant difference in the percentages of students passing versus failing the EOCT for the groups above and below the cut point on the Academy pretest. The McNemar test was significant ($p < .001$), allowing for rejection of Null Hypothesis 3. Thus, one can conclude that students who scored below six on the AOR pretest were significantly proportionately more likely to fail the EOCT than they were to pass.

Research Hypothesis 4. There is an AOR posttest level below which a significantly greater proportion of students fail the Georgia EOCT for Ninth Grade Literature and Composition. To address Hypothesis 4, an independent t test was first computed to determine whether there was a significant difference between the mean posttest scores for students who passed the EOCT (i.e., scored 400 or greater) versus students who failed the EOCT (i.e., scored below 400). The t test result is presented in

The mean on the AOR posttest for students who failed the EOCT was 6.15 ($SD = 1.60$), whereas the mean on the AOR posttest for students who passed the EOCT was 8.51 ($SD = 1.54$), which was significantly greater, $t(136) = -8.37, p < .001$. The mean AOR posttest score for the group who failed the EOCT was then used as a guide to determine a point at which the AOR posttest scores could be divided into a low group and a high group. To further inform this exploration, the number and percentage of students at each score of the AOR posttest are given in Table 6.

Table 6

Academy Posttest Scores Cross-Tabulated by EOCT Fail/Pass

	Failed EOCT	Passed EOCT	Total
Academy posttest = 3	2 (100%)	0 (0%)	2
Academy posttest = 4	4 (100%)	0 (0%)	4
Academy posttest = 5	8 (100%)	0 (0%)	8
Academy posttest = 6	18 (50.0%)	18 (50.0%)	36
Academy posttest = 7	5 (41.7%)	7 (58.3%)	12
Academy posttest = 8	5 (29.4%)	12 (70.6%)	17
Academy posttest = 9	2 (9.1%)	20 (90.9%)	22
Academy posttest = 10	2 (5.4%)	35 (94.6%)	37
Total	46 (33.3%)	92 (66.7%)	138

As can be seen in Table 6, all of the students with scores below six on the AOR posttest failed the EOCT. For a score of six, half failed and half passed. For scores higher than six, the 66.7% of the students with those scores passed the EOCT.

Thus, the posttest scores were then divided into two groups—those scoring below six and those scoring six or higher. The low and high posttest scores were then cross-tabulated with the students who passed and failed the EOCT, creating a 2 x 2 contingency table. The contingencies are shown in Table 7.

Table 7

Academy of READING Posttest Scores Divided at a Score of Six Cross-Tabulated by EOCT Fail/Pass

	Failed EOCT	Passed EOCT	Total
Academy posttest < 6	14 (100%)	0 (0%)	14
Academy posttest ≥ 6	32 (25.8%)	92 (74.2%)	124
Total	46 (33.3%)	92 (66.7%)	138

As can be seen in Table 7, 100% of the students who scored below six on the AOR posttest failed the EOCT, whereas only 25.8% of the students who scored six or higher ended up failing the EOCT. The McNemar test was used to assess whether there was a significant difference in the percentages of students passing versus failing the EOCT for the groups above and below the cut point on the AOR posttest. The McNemar test was significant ($p < .001$), allowing for rejection of Null Hypothesis 4. Thus, one can conclude that students who scored below six on the AOR posttest were significantly proportionately more likely to fail the EOCT than they were to pass.

Chapter Summary

This chapter presented the result of the data analysis of the AOR and the EOCT sample characteristics, descriptive statistics and normality, and tests of hypotheses. The data analysis found that all measures of skewness and kurtosis were within the acceptable range. When examining at the students' pretest on AOR, level six was the mode on the pretest and the mean was 7.15. On the posttest, the mode was 10 and the mean 7.72. The mean on the EOCT was 415, with 400 being the passing score. The study addressed four research questions. Research Question 1 addressed correlation between pretest scores

and the EOCT, and Research Question 2 addressed correlation between posttest scores and the EOCT. Both were found to be statistically significant and positive. Research Question 3 found 87% of the students that scored lower than six on the AOR pretest failed the EOCT, and Research Question 4 found that 100% of those who scored lower than a six on the AOR posttest failed the EOCT. The significance of these results will be discussed in the following chapter.

CHAPTER FIVE: SUMMARY AND DISCUSSION

Introduction

In 2001, the U.S. Congress passed the No Child Left Behind Act (NCLB). This act emphasized the importance of standardized testing to measure student achievement. In addition, NCLB requires that high schools must use graduation rates as their second indicator of adequate academic performance. With graduation rates a major focus of AYP for high schools, they have been searching for ways to identify students who may be at risk of failing and dropping out of school. Balfanz (2008) suggests that if schools could develop indicators that would target at-risk students who are unlikely to graduate, then the schools may have a chance of raising their graduation rate. The use of CAI to assist in increasing student scores is one way that educators have attempted to determine those at-risk students.

One computer program that has been used in schools to help increase student achievement is AOR. AOR is a program that is used in elementary, middle, and high schools across the county. This research uses the AOR program to test ninth grade English students' reading levels to determine how their reading level scores compare to students' scores on the Georgia EOCT for Ninth Grade Literature and Composition.

This chapter includes (a) a summary of the findings, (b) a discussion of the findings and the implications in light of the relevant literature, (c) an outline of the study limitations and recommendations for future research, and (d) a conclusion that summarizes the primary findings.

Summary of the Research Results

Before addressing the research questions, measures of skewness and kurtosis were computed to assess the data for normality. These measures were within the acceptable range; hence, each distribution of test scores was acceptably normally distributed.

Research Question 1 asked if student performance on the AOR pretest is positively related to student performance on the EOCT for Ninth Grade Literature and Composition. Once a Pearson product moment correlations coefficient was calculated, AOR pretest scores were found to be positively related to students' performance on the EOCT. Research Question 2 asked if student performance on the AOR posttest is positively related to students' performance on the Georgia EOCT for Ninth Grade Literature and Composition. Once a Pearson product moment correlations coefficient was calculated, AOR posttest scores were found to be positively related to students' performance on the EOCT.

Once Research Question 1 and Research Question 2 were answered, the researcher was able to test Research Hypothesis 3, which stated that there is an AOR pretest level below which a significantly greater proportion of students fail the Georgia EOCT for Ninth Grade Literature and Composition. The data showed that students who scored below a level six on the pretest had an 81.6% likelihood of failing the EOCT.

Research Hypothesis 4 stated that there is an AOR posttest level below which a significantly greater proportion of students failed the Georgia EOCT for Ninth Grade

Literature and Composition. The data showed that students who scored below a level six on the pretest had a 100% likelihood of failing the EOCT.

Discussion of the Results

Since Georgia's requirement for high school graduation changed from having to pass the Georgia Graduation Test to having to pass the Georgia EOCTs, it became more important than ever to know a student's ability level in the various subject areas (GHGT, 2010). With the EOCT accounting for 20% of the student's final grade, it is imperative to have an idea how students will perform. In Wiggins & McTighe's (1998) backward design model, assessment is an important part of the process. Using AOR to assess students on the standards provides schools with another way of assessing student knowledge. If the student has not met the standard, then the teacher knows that she should return to the material and teach it in a different manner. Providing students with CAI provides an alternate way for the students to learn the material. CAI is not only a method for increasing student achievement, but also model that may increase their interest and assist in retaining knowledge.

The statistical results of Research Hypothesis 1 testing and Research Hypothesis 2 testing shows that there is a positive correlation between how students perform on AOR and how they perform on the EOCT. Ary's et. al. (2006) definite a positive correlation, "as one variable increases, the other also increases (p. 377). As students scores increased on AOR their scores increased on Georgia EOCT in Ninth Grade Literature and Composition. According to the United States Department of Education, "A State's definition of AYP is based on expectations for growth in student achievement that is

continuous and substantial, such that all students are proficient in reading and math no later than 2013-2014” (Key Policy Letters, 2002). In addition, “A State’s definition of AYP includes graduation rates for high schools” (Key Policy Letters, 2002). Students who successfully complete ninth grade English and the Georgia EOCT for Ninth Grade Literature and Composition will assist the school in making AYP for growth in student achievement, and it will increase the school’s graduation rate, which is of utmost importance for schools to reach AYP. The graduation rate was made a part of AYP for high schools because it is reported in the research that approximately 1.23 million students failed to graduate from high school in 2007 (Editorial Projects in Education; EPE, 2007). Bracey’s (2009) research estimated overall national graduate and dropout figures, reporting that about one-third of U. S students are not graduating from high school.

The statistical results of Research Hypothesis 3 testing show there is a definite cutoff for students who would pass or fail the EOCT based on the students' score on the AOR pretest. Among the students who scored below six on the AOR pretest, 81.6% ended up failing the EOCT, whereas only 19.4% of the students who scored six or higher ended up failing the EOCT. The statistical results of Research Hypothesis 4 testing shows that there is a definite cutoff for students who would pass or fail the EOCT based on the students' score on the AOR posttest. Among the students who scored below six on the AOR posttest, 100% ended up failing the EOCT, whereas only 25.8% of the students who scored six or higher ended up failing the EOCT. Cut scores were used because it allowed determining if the test score could be used to select students (Zieky & Perie,

2006). Zieky and Perie (2006), describe cut scores as selected points on the score scale of a test. Schools that have access to AOR could have ninth graders who are in English classes take the pretest at the beginning of the semester, and if they score below a level five, the school could provide interventions to those students to assist them in improving their reading, comprehension, and fluency skills. This might be accomplished by using researched-proven programs such as Pace Learning System. Researcher Lull, (2000) found that students who were in a class where this system was used had a greater pass rate on the Alabama High School Exit Exam than students who were not enrolled in the class. Researcher Fiedorowicz (1987) found that using AOR improved component reading skills. Dockery (2006) found that students who used KeyTrain improved their scores on the Georgia High School Graduation Test. These are just a few of the CAI programs that have been used to improve student achievement.

The United States' dropout rate has been reported to be over 30%. Research shows that some of the reasons students drop out include difficult transitions to high school, deficient basic skills, and lack of engagement, all of which serve as prominent barriers to graduation (Alliance for Excellent Education, 2007). Allenworth and Easton (2007) reported that academic success in ninth grade course work is highly predictive of eventual graduation; it is even more effective than demographic characteristics or prior academic achievement. They found in their research that students who do not earn enough credits during their freshman year are more likely not to graduate four years later; therefore, it is important to focus attention on freshmen if progress is going to be made in improving the graduation rate.

Georgia is trying to increase student achievement by moving away from Georgia QCC and focusing on GPS. In September 2011, Georgia announced that it was joining with 48 others states to implement Common Core Standards, which are aligned with the English Language Arts and Mathematics GPS that Georgia already uses (Common Core, 2011). With the development of GPS, the State of Georgia also developed EOCTs. In the fall of 2010, the State of Georgia Department of Education announced that EOCTs would be used to determine AYP starting with the class of 2013, but could also be used to replace the GHSGT English Language Arts for some students in the 2011-2012 school year.

Implications

This research provides another method of predicting how a student will perform on the EOCT. Then schools could develop some additional intervention for those who receive an AOR reading level below a six. The research showed a clear difference between those students who scored between a 0 – 5 and those who received six or above on the AOR. Among the students who scored below a six on the pretest, 81% failed the EOCT; among those who scored below a six on the posttest, a 100% failed the EOCT. It is important that schools are able to teach students in a way that helps them achieve a six or above on the AOR so they have a legitimate opportunity to pass the EOCT.

Predicting student success has increased in importance since the implementation of NCLB, but no one method of prediction has emerged. Some of the characteristics that have shown up in studies about predicting student success include targeting boys, targeting students classified as being in poverty and /or receiving free or reduced lunch,

targeting students who failed math or English, and targeting students who had either poor attendance or poor behavior (Balfanz, 2008; Kashdan & Yuen, 2007; Uyeno et al., 2006). Other studies have found that racial/ethnic composition and the percentage of students eligible for free lunch were not statistically significant as predictive indicators (Zau & Betts, 2008). Even though there is conflicting research about the subject of predicting student success, a school must continue to make an effort to identify students who are likely to fail.

Heppen and Therriault (2008) point to several factors that can be addressed at the state and local level to track and prevent dropouts, which include creating state and local data systems, supporting student tracking throughout the state, using resources in the most effective manner, and supporting dropout prevention strategies. This could be done by states using CAI to assist in targeting students and then using these CAI as a support to students' classroom instruction. Fouts (2000), reports that the use of technology combined with teacher training and lower student numbers can have a positive impact on student achievement.

Limitations

The participants from this study were from one high school in the southeastern part of the United States; this is not a sample that is representative of all high schools in all parts of the United States. The sample involved 75% of the ninth graders in the target school, which was an adequate number to draw some specific conclusions, but it would be difficult to make general conclusions that would apply to all ninth graders. Not all students took the pretest and posttest. If all the ninth graders could have taken the

pretests and posttests, it would have provided a larger sample. Not only did some students not take the test at all, but some classes did not take the posttest, so it reduced the sample size of the posttest results. Because of the size of the ninth grade class and the amount of computers in the school, as well as the influence of timing, two months of the class passed before all students had taken the pretest. It would have been better if the pretest would have been given within the first three weeks of the semester in order to give the school more opportunity to work with those students who did not exceed the cut score. Some of the student scores could have been deflated due to students' poor attitudes when taking the pretest or posttest, but this did not seem to affect the overall results since none of the students who scored below a six on the posttest passed the EOCT.

The study did not individually examine the subgroups of each demographic. Subgroups in this study included special education students, students classified as living in poverty, student who received free or reduced lunch, students who were English language learners, and students of varying ethnicity. All students were only evaluated on how they performed on the pretest and posttest, and no other factors were taken into account. This was due to the fact that when they take the EOCT, no accommodations are made for the different groups except for students with IEPs or IAPs. The Accommodations Manual (2008) states, “In Georgia, three groups of students are eligible for accommodations – students with an Individualized Education Program (IEP), students with an Individual Accommodation Plan(IAP), also known as a Section 504 plan, and English Language Learners with a Test Participation Plan (ELL/TPC)” (p. 7). Students with IEPs are allowed certain

accommodations on the English portion of the Georgia EOCT if those accommodations are part of the students' IEP or IAP. The possible accommodations include oral reading of test questions, oral reading of reading passages, repetition of directions, use of directions that have been marked by teacher, marking answers in test booklet, extended time, and small group administration. Students with IEPs and IAPs did not receive any accommodations on the AOR pretest or the posttest but may have received accommodations on the EOCT. This did not seem to be a factor in the research results since all students who received below a level six on the posttest also failed the EOCT.

This was a comparison of AOR with only two administrations of the EOCT. If the EOCT test questions were changed, it could have had an effect on what level of reading scores were required to pass the EOCT. Not only do changes in the test have an effect on the research, but so does the political agenda at the time. It has been 10 years since the implementation of NCLB, and many states currently are asking for waivers, or are not being required to meet all of the standards set by AYP. The U. S. Department of Education issued the follow changes to NCLB:

The U.S. Department of Education is inviting each State Educational Agency (SEA) to request flexibility on behalf of itself, its local educational agencies, and schools, in order to better focus on improving student learning and increasing the quality of instruction. This voluntary opportunity will provide educators and State and local leaders with flexibility regarding specific requirements of the No Child Left Behind Act of 2001 (NCLB) in exchange for rigorous and comprehensive State-developed plans designed to improve educational outcomes

for all students, close achievement gaps, increase equity, and improve the quality of instruction. (ESEA Flexibility, 2011, p. 1)

It is unknown at this time if this will affect how Georgia counts the EOCT toward a school's AYP statistics.

Recommendations for Future Research

Since this research only took place at one school in Georgia, it would be advantageous for additional testing to take place at a variety of Georgia schools to see if the results are the same. In addition, anytime that the EOCT goes through a major change, additional research would need to take place to see if the pass-fail cutoff point remains the same. Since the results cannot be transferred to other states' EOCT, each state would need to do its own research to see how the results of the AOR compare to that state's EOCT scores. Other researchers may want to look at each subgroup to see how they performed in comparison to the cut-off score. They would need to focus on students who received accommodations to determine if those accommodations had an effect on the cut-off score.

Conclusion

With AYP weighing so heavily on many high schools, it is important that they find ways to improve academically. High schools must not only see that a certain percentage of students are proficient on various EOCTs as required by the state and NCLB, but with each passing year, the number of proficient students must increase. In addition, high schools must “meet a graduation rate goal . . . demonstrate continuous and substantial improvement from the prior year toward meeting or exceeding that goal as

defined by the State and approved by the Secretary” (Title I—Improving, 2008, p. 5).

With these requirements placed on high schools, they must do whatever possible to target students who are in danger of failing courses and are likely to drop out. By doing so, they increase their chances of making AYP and not being placed on the Needs Improvement List. Using AOR as a predictor of failure on the Ninth Grade Literature and Composition EOCT is just one way that a school can look for these important students.

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Appendix A

IRB Approval

11/06
Ref. # _____

APPLICATION TO USE HUMAN RESEARCH SUBJECTS

Liberty University

Committee On The Use of Human Research Subjects

1. Project Title: THE CORRELATION BETWEEN ACADEMY OF READING
AUTOTEST AND STUDENT PERFORMANCE ON THE GEORGIA END OF
COURSE TEST (EOCT) FOR NINTH GRADE LITERATURE AND COMPOSITION

2. Full Review Expedited Review

3. Funding Source (State N/A if not applicable): NA

4. Principal Investigator:
Barry Brazelton Student 770-378-9543, bwbrazelton@liberty.edu
564 Lindsey Way, Social Circle, GA 30025

Name and Title _____
correspondence address Phone, E-mail, _____

5. Faculty Sponsor (if student is PI), also list co-investigators below Faculty Sponsor, and key personnel:

Dr. Rick Bragg Chair Education, rbragg2@liberty.com
Name and Title

Dept, Phone, E-mail address _____

6. Non-key personnel:
NA

Name and Title

Dept, Phone, E-mail address _____

7. Consultants:
NA

Name and Title

Dept., Phone, E-mail address

8. The principal investigator agrees to carry out the proposed project as stated in the application and to promptly report to the Human Subjects Committee any proposed changes and/or unanticipated problems involving risks to subjects or others participating in approved project in accordance with the Liberty Way and the Confidentiality Statement. The principal investigator has access to copies of 45 CFR 46 and the Belmont Report. The principal investigator agrees to inform the Human Subjects Committee and complete all necessary reports should the principal investigator terminate University association. Additionally s/he agrees to maintain records and keep informed consent documents for three years after completion of the project even if the principal investigator terminates association with the University.

 Principal Investigator Signature Date

 Faculty Sponsor (If applicable) Date

Submit the original request to: Liberty University Institutional Review Board, CN Suite 1582, 1971 University Blvd., Lynchburg, VA 24502. Submit also via email to irb@liberty.edu

APPLICATION TO USE HUMAN RESEARCH SUBJECTS

10. This project will be conducted at the following location(s): (please indicate city & state)
 Liberty University Campus
 Other (Specify): Monroe Area High School, Monroe, GA 30656
11. This project will involve the following subject types: (check-mark types to be studied)
 Normal Volunteers (Age 18-65) Subjects Incapable Of Giving Consent

<input type="checkbox"/>	In Patients	<input type="checkbox"/>	Prisoners Or Institutionalized
Individuals		<input checked="" type="checkbox"/>	Minors (Under Age 18)
<input type="checkbox"/>	Out Patients	<input type="checkbox"/>	Over Age 65
<input type="checkbox"/>	Patient Controls	<input type="checkbox"/>	University Students (PSYC)
<input type="checkbox"/>	Fetuses	<input type="checkbox"/>	Other Potentially Elevated
Dept. subject pool ____)			
<input type="checkbox"/>	Cognitively Disabled		
Risk Populations_____			
<input type="checkbox"/>	Physically Disabled		
<hr/>			
<input type="checkbox"/>	Pregnant Women		

12. Do you intend to use LU students, staff or faculty as participants in your study? If you do not intend to use LU participants in your study, please check "no" and proceed directly to item 13.

YES NO

If so, please list the department and/classes you hope to enlist and the number of participants you would like to enroll.

In order to process your request to use LU subjects, we must ensure that you have contacted the appropriate department and gained permission to collect data from them.

Signature of Department Chair:

Department Chair Signature(s)

Date

13. Estimated number of subjects to be enrolled in this protocol: 420

14. Does this project call for: (check-mark all that apply to this study)

Use of Voice, Video, Digital, or Image Recordings?

Subject Compensation? Patients \$_____ Volunteers \$_____

Participant Payment Disclosure Form

Advertising For Subjects? More

Than Minimal Risk?

More Than Minimal Psychological Stress? Alcohol

Consumption?

- Confidential Material (questionnaires, photos, etc.)? Waiver of Informed Consent?
- Extra Costs To The Subjects (tests, hospitalization, etc.)? VO2 Max Exercise?
- The Exclusion of Pregnant Women?
- The Use of Blood? Total Amount of Blood _____
Over Time Period (days) _____
- The Use of rDNA or Biohazardous materials?
- The Use of Human Tissue or Cell Lines?
- The Use of Other Fluids that Could Mask the Presence of Blood (Including Urine and Feces)?
- The Use of Protected Health Information (Obtained from Healthcare Practitioners or Institutions)?

15. This project involves the use of an **Investigational New Drug (IND)** or an **Approved Drug For An Unapproved Use**.

YES NO

Drug name, IND number and company: _____

16. This project involves the use of an **Investigational Medical Device** or an **Approved Medical Device For An Unapproved Use**.

YES NO

Device name, IDE number and company: _____

17. The project involves the use of **Radiation or Radioisotopes**:

YES NO

18. Does investigator or key personnel have a potential conflict of interest in this study?

YES NO

EXPEDITED/FULL REVIEW APPLICATION NARRATIVE

A. PROPOSED RESEARCH RATIONALE (Why are you doing this study? [Excluding degree requirement])

The purpose of this research is to determine if a correlation exists between the computer assisted program Academy of READING Autotest scores and the scores students receive on the Georgia End of Course Test for Ninth Grade Literature and Composition. This information would allow schools to take proactive steps in preventing freshmen from failing this English course and, thereby, decreasing their risk of dropping out.

B. SPECIFIC PROCEDURES TO BE FOLLOWED

- In a step-by-step manner, using simple, nonscientific language, provide a description of the procedures of the study and data collection process. Also, describe what your subjects will be required to do. (Note: Sections C and D deal with type of subjects and their recruitment. That information does not need to be included here.)

Student test scores from Academy of READING and Georgia End of Course Test for Ninth Grade Literature and Composition will be obtained from the school along with student gender and race. Once the data has been received, it will be combined by the researcher. Once the researcher has combined the data, the researcher will change all student names to numbers. The data will be analyzed and the results will be placed in chapter 4. There is no requirement of the subjects. Just previous school data will be used.

C. SUBJECTS

Who do you want to include in your study? Please describe in nonscientific language:

- The inclusion criteria for the subject populations including gender, age ranges, ethnic background, health status and any other applicable information. Provide a rationale for targeting those populations.
- The exclusion criteria for subjects.
- Explain the rationale for the involvement of any special populations (Examples: children, specific focus on ethnic populations, mentally retarded, lower socio-economic status, prisoners)
- Provide the maximum number of subjects you seek approval to enroll from all of the subject populations you intend to use and justify the sample size. You will not be approved to enroll a number greater than this. If at a later time it becomes apparent you need to increase your sample size, you will need to submit a Revision Request.
- **For NIH, federal, or state funded protocols only:** If you do not include women, minorities and children in your subject pool, you must include a justification for their exclusion. The justification must meet the exclusionary criteria established by the NIH.

The participants were selected because they were ninth grade students in the 2009-2010 school year who took Ninth Grade Literature and Composition in either the Fall semester of 2009 or Spring semester of 2010 or a year-long class. Thirteen classes were used in the study: six of the classes were first semester consisting of two teachers with each teaching three classes, four classes were second semester with each teacher

teaching two classes, and three classes were year-long with one teacher teaching all three year-long classes. There was a possibility of 304 students taking the Academy of READING AutoTest. Of the possible 304 students that were eligible to take the Academy of READING pretest, only 13 students did not take the pretest, five from first semester and eight from second semester. Due to time constraints, the posttest was administered only in first semester. Of those eligible to take to posttest first semester, 52 did not take the first semester posttest. Of the 304 students eligible to take the Georgia End of Course Test for Ninth Grade Literature and Composition, 105 took it at the end of the fall semester and 143 took it at the end of the spring semester. This leaves 62 students that either did not take the test or for some reason their scores were not available.

The participants were both male and female high school students in ninth grade ranging in age from 14 to 16, who were in a medium-sized high school in northeast Georgia. The school is made up of approximately 1200 students with around 500 being ninth graders. The school population is made up of 44% black, 53% white, and 3% other. The school has a 37% poverty rate, 43% are economically disadvantaged, and 12% of the school population is students with disabilities.

Approval is for 400 students.

D. RECRUITMENT OF SUBJECTS AND OBTAINING INFORMED CONSENT

- Describe your recruitment process in a straightforward, step-by-step manner. The IRB needs to know all the steps you will take to recruit subjects in order to ensure subjects are properly informed and are participating in a voluntary manner. An incomplete description will cause a delay in the approval of your protocol application.

The participants were selected because they were ninth grade students at Monroe Area High School in the 2009-2010 school year who took Ninth Grade Literature and Composition in either the Fall semester of 2009 or Spring semester of 2010 or a year-long class.

E. PROCEDURES FOR PAYMENT OF SUBJECTS

- Describe any compensation that subjects will receive. Please note that Liberty University Business Office policies might affect how you can compensate subjects. Please contact your department's business office to ensure your compensation procedures are allowable by these policies.

No compensation is involved.

F. CONFIDENTIALITY

- Describe what steps you will take to maintain the confidentiality of subjects.

Before anyone other than the researcher and those approved by the school system see the data, all students' names will be changed to numbers. The researcher will be the only person with access to the combined student data with names.

- Describe how research records, data, specimens, etc. will be stored and for how long.

The research data will be stored on the researcher's home computer until the study is completed.

- Describe if the research records, data, specimens, etc. will be destroyed at a certain time. Additionally, address if they may be used for future research purposes.

Once the project is complete, the files with the combined data will be deleted.

G. POTENTIAL RISKS TO SUBJECTS

- There are always risks associated with research. If the research is minimal risk, which is no greater than every day activities, then please describe this fact.

Overall, there is minimal risk to the student participants. Perhaps the only concern is that the students' confidential test scores, race, and gender could be exposed to unauthorized personnel; however, this would be true whether this research were being done or not.

- Describe the risks to participants and steps that will be taken to minimize those risks. Risks can be physical, psychological, economic, social, legal, etc.

The school takes measures to protect student data, such as having this information available to authorized teachers, counselors, and administrators, all of whom must use user names and passwords to access the data. The researcher is authorized to view all test scores as well as other information pertinent to the research.

- Where appropriate, describe alternative procedures or treatments that might be advantageous to the participants.

NA

- Describe provisions for ensuring necessary medical or professional intervention in the event of adverse effects to participants or additional resources for participants.

NA

H. BENEFITS TO BE GAINED BY THE INDIVIDUAL AND/OR SOCIETY

- Describe the possible direct benefits to the subjects. If there are no direct benefits, please state this fact.

Since the subjects have already taken the End of Course Test for 9th Grade Literature and Composition, they would not receive any benefits.

- Describe the possible benefits to society. In other words, how will doing this project be a positive contribution and for whom?

Should there be a relationship between the two test future ninth graders maybe able to get addition assistance in the area of English to increase their changes of passing the end of course test.

I. INVESTIGATOR'S EVALUATION OF THE RISK-BENEFIT RATIO

Here you explain why you believe the study is still worth doing even with any identified risks.

This study profiles minimal risk since only preexisting data is being used.

J. WRITTEN INFORMED CONSENT FORM *(Please attach to the Application Narrative. See Informed Consent IRB materials for assistance in developing an appropriate form. See K below if considering waiving signed consent or informed consent)*

NA

K. WAIVER OF INFORMED CONSENT OR SIGNED CONSENT

Waiver of consent is sometimes used in research involving a deception element. Waiver of signed consent is sometimes used in anonymous surveys or research involving secondary data. See Waiver of Informed Consent information on the IRB website. If requesting either a waiver of consent or a waiver of signed consent, please address the following:

1. For a Waiver of Signed Consent, address the following:
 - a. Does the research pose greater than minimal risk to subjects (greater than everyday activities)?

No, this is educational data that is already within the school system.

b. Does a breach of confidentiality constitute the principal risk to subjects?

No

c. Would the signed consent form be the only record linking the subject and the research?

No, the original test scores are linked to the subjects.

d. Does the research include any activities that would require signed consent in a non-research context?

No

e. Will you provide the subjects with a written statement about the research (an information sheet that contains all the elements of the consent form but without the signature lines)?

No

2. For a Waiver of Consent Request, address the following:

a. Does the research pose greater than minimal risk to subjects (greater than everyday activities)?

b. Will the waiver adversely affect subjects' rights and welfare? Please justify?

c. Why would the research be impracticable without the waiver?

d. How will subject debriefing occur (i.e., how will pertinent information about the real purposes of the study be reported to subjects, if appropriate, at a later date?)

L. SUPPORTING DOCUMENTS *(to be attached to the Application Narrative)*

M. COPIES:

For investigators requesting **Expedited Review** or **Full Review**, email the application along with all supporting materials to the IRB (irb@liberty.edu). Submit one hard copy with all supporting documents as well to the Liberty University Institutional Review Board, Campus North Suite 1582, 1971 University Blvd., Lynchburg, VA 24502.

Appendix B
Approval Letters

WALTON COUNTY BOARD OF EDUCATION

200 Double Springs Church Road, Monroe, Georgia 30656, Telephone 770-266-4520, Fax 770-266-4415
www.walton.k12.ga.us

Gary Hobbs
Superintendent

Dr. Robert Daria
Assistant Superintendent

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Teresa Nay



Equal Opportunity Employer

January 4, 2011

Barry Brazelton
Career Technical Department
Monroe Area High School
300 Double Springs Church Rd
Monroe, GA 30656

Dear Mr. Brazelton:

Your request to approve your study titled "The Correlation Between Academy of Reading Autotest and Students Performance on the Georgia End of Course Test for Ninth Grade Literature and Composition" was received and. I am pleased to notify you that your request is approved.

If you publish and/or present the findings of this study, you must include the following statement:

The Walton County Public Schools approved the conduct of this study. However, this approval is not an endorsement of the design of the research or the methodology used. Nor does the Walton County Public Schools endorse the findings of this study.

I am sure that you will work closely with Dr. George to ensure that the research activities are not intrusive to the instructional program at Monroe Area High School, and you will maintain the confidentiality of the information you receive.

I would appreciate receiving a copy of your findings and recommendations.

Please let me know if I can be of assistance.

Sincerely,

A handwritten signature in cursive script.

Louise Hutchens
Coordinator of Testing and Research

cc Dr. Bill George
Dr. Robert Daria