A COMPARATIVE STUDY OF ACADEMIC ACHIEVEMENT AND
PARTICIPATION IN A HIGH SCHOOL FRESHMAN ACADEMY

by

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ABSTRACT

The transition to high school can be problematic for many ninth graders. Researchers and administrators have sought ways to improve academic performance and promotion rates while reducing dropout rates. A quantitative causal-comparative (ex post facto) and correlation study using a two-group design compared two freshman classes at separate comprehensive high schools in suburban Georgia. The treatment group, the freshman class implementing the freshman academy model, was compared to the control group, a traditional high school freshman class with no freshman academy. This study provides new research findings on the relationship and possible cause and effect a freshman academy may have on the ninth grade Literature/Composition End of Course Test (EOCT) scores when controlling for the eighth grade Reading Criterion Referenced Competency Test (CRCT) scores and the eighth grade English/Language Arts CRCT scores. Evidence was found to suggest that participation in a freshman academy can improve the probability that a student will be promoted from ninth to tenth grade on-time. No other significant differences were found when looking at the dropout rate, graduation rate, and grade point averages at the end of the ninth grade year. When controlling for eighth grade Reading CRCT and eighth grade English/Language Arts CRCT scores, there was no significant difference in ninth grade Literature/Composition End of Course Test (EOCT) scores between the two groups.

*Keywords:* freshman academy, ninth grade academy, ninth grade transition, ninth grade literature/composition EOCT, high school transition, retention, promotion, dropout rates
Dedication

I would like to dedicate this work and degree to my family who have supported me through the many months and years with long hours of studying and writing. My wife Virginia has been my educational advocate for over eighteen years, and for that I am grateful. My daughters, Amanda, Jessica, Rachel and Rebekah have also been fervent supporters for which I am grateful. I began this journey at Cornell University over twenty years ago where Amanda and Jessica experienced a full-time student father. Now, Rachel and Rebekah (a high school junior and a fifth grader respectively) who have never known their father to not be in school, are finally going to see the culmination of years of effort and sacrifice.

I also want to dedicate this achievement to my mother, Barbara Seng, for her tireless efforts on my behalf, and my father, Charles W. Seng, both of whom always encouraged me and assured me that I could do anything I put my mind to. Though my father is no longer on this earth to share with me in the joy of this accomplishment, I know he is proudly witnessing this triumph. I will be forever grateful for my parents’ example and encouragement to get as much education as possible and follow my dream. Thank you all for loving me, encouraging me, and supporting me throughout this monumental undertaking. The tassel is worth the hassle!
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CHAPTER ONE: INTRODUCTION

The freshman academy model is a specific type of small learning community that has been targeted recently as a way to reduce the number of dropouts and increase academic performance during the transition to high school and the ninth grade. In a number of studies, researchers have investigated the relationship that participation in a freshman academy may have to ninth grade academic achievement by studying factors examined in the present study. Achievement has been measured by grade point averages (GPA) (Hernandez, 2012), rate of promotion to tenth grade (Hale, 2008), dropout rate during the ninth grade year (Bennett, 2012; Brazelton, 2012); graduation rate (Kelley, 2010), and End of Course Test scores in English (Sigler, 2008). Researchers have investigated overall academic performance of students in freshman academies compared to traditional high school settings (Daniel, 2011; Mincey, 2012).

Numerous studies, including, but not limited to Bennett (2012), Brazelton (2012), Jordan (2008), Irvin (2013), and Robinson (2013), evaluated some of the variables examined in this study, but involved non-equivalent participants, or did not account for students’ eighth grade academic achievement using the same measures as the present investigation. The current study replicated previous research, to some extent, by using ninth grade Literature/Composition EOCT scores as a valid and reliable instrument to measure academic achievement at the end of the ninth grade. An additional comparison was made, however, using the eighth grade Reading Criterion Referenced Competency Test (CRCT) score and the eighth grade English/Language Arts CRCT score as covariates to account for possible confounding influences of previous academic achievement.
An extensive search of the UMI dissertation database, the JSTOR database, and the Academic Search Complete database included the topics of “freshman academy”, “ninth grade academy”, “small learning communities”, ninth grade academy EOCT”, “eighth grade Reading CRCT”, “eighth grade English/Language Arts CRCT”, and “freshman academy EOCT”. An exhaustive but unproductive search was conducted to determine if similar studies had been performed using the eighth grade Reading CRCT scores and the eighth grade English/Language Arts CRCT scores as covariates with the ninth grade Literature/Composition EOCT scores. The researcher nonetheless recognizes that there may be studies that have been conducted that were not located.

Following a post-positivist framework and to add value to other similar studies previously conducted, the purpose of this study was to examine the dropout rate, promotion rate, graduation rate, and grade point averages of ninth graders participating in a freshman academy. Using a quantitative, correlation and causal-comparative design, the specific focus of this research was the possible cause and effect relationship a freshman academy may have on ninth grade academic achievement when controlling for ethnicity, eighth grade Reading CRCT scores and eighth grade English/Language Arts CRCT scores. The specific measures of academic achievement were students’ (a) ninth grade dropout status, (b) tenth grade promotion status, (c) graduation status, (d) grade point average, and (e) ninth grade Literature/Composition End of Course Test (EOCT) scores.

**Background**

The transition from middle school to high school is a persistent problem (Hertzog & Morgan, 1999; Neild, 2009; Weiss & Bearman, 2007). Many students experience
significant social trauma, academic difficulty, and behavior problems with this singular life experience. According to Reents (2002),

Entering ninth grade can be one of the most emotionally difficult, most academically challenging times in children’s lives. Along with the self-esteem issues, developmental changes, and environmental shake-up faced by the young adolescents, school districts risk watching their ninth graders fall through the cracks without proper transitional programs in place (p. 46).

Transition from middle school to high school is an important time in a student’s educational career (Donegan, 2008). Much of the research suggests that the ninth grade year is especially challenging for most students (Dillon, 2008; Chapman, 2010). A number of studies document the importance of the school playing a more active role in helping ninth graders and their families make this most important transition (Armstead, Bessell, Sembianente, & Plaza, 2010; Neild, 2009; Srofe, 2009). According to the National Association of Secondary School Principals (2004), school attendance can increase, with dropout rates and disruptive behavior decreasing, if students are provided with a more personalized learning experience.

High school dropout rates in the United States have been characterized as being at crisis levels (Neild, 2009). According to the Alliance for Excellent Education (2009a), “Dropouts from the class of 2008 will cost Georgia almost $15.5 billion in lost wages over their lifetime” (p. 1). Small learning communities such as freshman academies have shown promise in reducing the dropout rate of high school students (Fischetti & Smith, 2010), which proves economically beneficial to the state over time. Rumberger and Sun (2008) reported that the National Educational Longitudinal Study found that of the
dropouts questioned, 39% said the main reason they dropped out of school was because they were failing and not being promoted. Rumberger and Sun also stated that academic achievement and attendance problems are reflected in low grade point averages, high absence rates, and frequent discipline referrals.

School reform, especially for high schools, has been a major point of discussion over the past 20 years (Weiss, Carolan, & Baker-Smith, 2010). There has been a significant increase in the number of studies and initiatives encouraging the restructuring of America’s secondary schools into smaller units which are more personal and agile. Stiefel, Schwartz, Iatarola, and Chellman (2009) primarily focused on the economic benefit of small high schools, but acknowledged that more individualized attention provides a benefit in small high schools. Rivera-McCutchen (2012) echoed the importance of the personal relationships that lead to increased attendance and graduation rates but cautioned that a lack of high expectations, though found in a caring atmosphere, ultimately leads to future underperformance. Small learning communities (SLC), such as freshman academies, have shown promise in reducing the dropout rate of high school students (Kelly, 2010). This reduction in the number of dropouts will prove economically beneficial to the state of Georgia and the nation over time (Alliance for Excellent Education, 2009a).

On January 8, 2002, President George W. Bush signed Public Law 107-110 which has come to be known as the No Child Left Behind Act of 2001 (NCLB) (No Child Left Behind Act [NCLB], 2001). NCLB was a bipartisan act meant to build on and improve accountability systems in education which were in development prior to the 1994 reauthorization of the Elementary and Secondary Education Act (ESEA). Based on
assessment data from the 2001-2002 academic year, states were required to set goals that would increase student proficiency in reading and math to 100 percent no later than the 2012-2013 academic year (U.S. Department of Education, 2002).

In addition, the law required that all programs implemented by the states and school systems to increase proficiency had to be “of relevant scientifically based research” that would “strengthen the core academic program in the school” (NCLB, 2001, p. 1473).

Because of NCLB, state education leaders and school system administrators began an earnest search for programs that would help students succeed and allow them to meet the Adequate Yearly Progress (AYP) standards set up to ultimately achieve the 100% proficiency by 2013. As a part of NCLB, states would also be accountable for “changes in dropout, grade-retention, and graduation rates for students” (NCLB, 2001, p. 1598). The state of Georgia falls into the category, along with most other states, of needing to significantly improve proficiency in the areas NCLB addressed. In an effort to improve, Georgia education leaders decided to not only include math and reading proficiency in their AYP calculations, but also graduation rates. All of these areas are of great concern to education professionals, citizens, and politicians.

In 2002, the summer after NCLB was signed into law, Georgia had a statewide graduation rate of 63%. In 2011, the first year a new uniform cohort graduation rate calculation went into effect nationwide, Georgia’s rate of high school students who graduated four years after entering the ninth grade reached an all-time high of 67.5% (Georgia Department of Education, 2013). In 2009-2010, however, the latest year for nationwide data from the U.S. Department of Education, only six states were lower than Georgia in the percentage of students graduating in four years after starting high school
(National Center for Education Statistics, 2013). Until 2011, no consistent calculation was being used to determine the dropout rate. Although the state of Georgia analysts calculated the graduation rate in 2006-07 to be 72.3%, their colleagues at the National Center for Education Statistics calculated Georgia’s high school graduation percentage as 64.1% for the same year.

According to the Alliance for Excellent Education (2009a), there were at least three different calculations being used to determine high school graduation rates. In the 2005-06 school year, Georgia reported a 72% graduation rate, while the U.S. Department of Education calculated a 62% graduation rate, and the publication Education Week arrived at a 56% graduation rate from high school for the state of Georgia (Alliance for Excellent Education, 2009a). All of these data boil down to one situation: Georgia has a long way to go to be proficient according to NCLB requirements. No matter which statistic is contemplated, the fact is clear that Georgia must increase its graduation rates.

Many studies (Adcock, 2009; Hale, 2008; O'Neill, 2013) have shown that one way to improve graduation rates, and thereby reduce dropout rates, is to improve the transition from eighth grade to ninth grade, middle school to high school. The beginning of high school is a critical time for students. Reents (2002) specifically pointed to the emotional difficulty transitioning students face when changes in their physical development, self-esteem, and environment all take place at relatively the same time in their lives. The ninth grade year, when many students are 14 to 15 years old, is a time when the physical body is going through the maturation process and experiencing many physical changes which can affect a student’s emotions and self-esteem. Self-esteem issues can also stem from the change in moving from being the most senior students to
the most junior in the school. This change in the academic environment, encountered when moving to a larger school with different academic requirements, adds to the transition difficulty. As many students move to the ninth grade, they make a conscious decision about whether or not they will stay in school throughout their high school years (Hertzog & Morgan, 1999). With a more supportive environment, such as that provided in an SLC like a freshman academy and explained in the stage-environment fit theory (Eccles, 2004), this transition morass may be mitigated.

**Problem Statement**

Weiss, Carolan, and Baker-Smith (2010) stated, “Despite the widespread adoption of size reduction reforms, relatively little is known about the relationship between size, engagement and outcomes in high school” (p. 163). This research focused on the transition from middle school to high school and the problem of ninth grade failure or retention and dropout rates. Specifically, the study focus was the relationship and possible cause and effect of a freshman academy on the ninth grade Literature/Composition End of Course Test scores when controlling for the eighth grade Reading Criterion Referenced Competency Test (CRCT) scores and the eighth grade English/Language Arts CRCT scores. The state of Georgia requires ninth grade students to earn a minimum of five earned credits (of six possible) and to pass a full year of ninth grade mathematics and Literature/Composition to be promoted to the tenth grade (Course Selection Guide, 2008). Students who fail high stakes tests in the eighth grade, like the CRCT, are more likely to fail high stakes tests in high school, which has been shown to increase the likelihood of becoming a future high school dropout (Pharris-Ciurej, Hirschman, & Willhoft, 2012). Knowing if the freshman academy model can improve
the promotion rate by reducing the incidence of ninth grade Literature/Composition failure is an important component to understanding the value of the freshman academy model.

Black (2004) stated, “High schools that include grades 9-12 present the greatest problems for young adolescents” (p. 42). Retention and dropout rates are substantial in the state of Georgia because they are counted as part of, and significantly affect, Adequate Yearly Progress (AYP) calculations for No Child Left Behind data. Gaining a better understanding of the possible effects of participation in a small learning community (SLC) like a freshman academy adds significant data to the limited body of research in the field.

**Purpose Statement**

This study was quantitative in nature. The purpose of this causal comparative (ex-post facto) correlation study was to test the stage-environment fit theory (Eccles, 2004) that compares academic outcomes of ninth grade high school students between two groups, those who attended a freshman academy and those who did not attend a freshman academy, when controlling for ethnicity, eighth grade Reading CRCT scores, and English/Language Arts CRCT scores among ninth grade students at two comprehensive high schools in suburban Atlanta, Georgia. The independent variable was freshman academy (FA) participation status in the freshman academy (attended versus did not attend). Dependent variables (academic outcomes) were students’ dropout status, promotion status, GPA, and ninth grade Literature/Composition End of Course Test score. Control variables were ethnicity, the eighth grade Reading CRCT score and the eighth grade English/Language Arts CRCT score.
Participants in the study included first time ninth grade students considered at-risk for dropping out of high school. Pharris-Ciurej et al. (2012) pointed out that achievement loss in middle school often leads to dropping out of high school. The “at-risk” determination was made based on the failure or near failure (passing score within fifteen points of failure) of one or more Criterion Referenced Competency Test subject areas. Subject areas included reading, English/Language Arts, math, science, and social studies.

**Significance of the Study**

Review of the literature demonstrated that there are previous studies in which researchers examined the influence that participation in a freshman academy has on ninth grade Literature/Composition EOCT scores. However, no studies were encountered that specifically examined the influence of participation in a freshman academy on ninth grade Literature/Composition EOCT scores while controlling for the eighth grade Reading CRCT scores and eighth grade English/Language Arts CRCT scores. The current study included a population of ninth grade students who have not been previously studied. Additionally, a lack of consensus exists as to whether the freshman academy model improves student outcomes over other school models such as the large high school model. In that light, this study was an attempt to add relevance and validity to the limited body of current research in determining the benefit, or lack thereof, of the freshman academy model. Results of this research add significant and reproducible data to the body of research conducted to date concerning freshman academy models with respect to improving student academic performance and promotion rates while simultaneously reducing freshman class dropout rates.
Research Questions and Hypotheses

Based on the significance of the study and similar studies of the efficacy of freshman academies, seven research questions and seven hypotheses guided this quantitative study. The first four research questions concerned student achievement measured by four variables respectively: dropping out of ninth grade, promotion to tenth grade, graduating in four years, and students’ grade point average. Research questions 5, 6, and 7 reflected comparison of the ninth grade Literature/Composition EOCT in the FA participation groups (control and treatment) when controlling for (a) ethnicity, (b) ethnicity and eighth grade reading CRCT scores, and (c) ethnicity and eighth grade English/Language Arts CRCT scores.

Research question 1. When controlling for ethnicity, what, if any difference is there in the odds of dropping out of ninth grade between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

Research question 2. When controlling for ethnicity, what, if any difference is there in the odds of being promoted to the tenth grade between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

Research question 3: When controlling for ethnicity, what, if any difference is there in the odds of graduating in four years between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?
Research question 4: When controlling for ethnicity, what, if any difference is there in the average grade point average between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

Research question 5: When controlling for ethnicity, what, if any difference is there in the average ninth grade Literature/Composition End of Course Test (EOCT) score between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

Research question 6: When controlling for ethnicity and eighth grade Reading CRCT scores, what, if any difference is there in the average ninth grade Literature/Composition End of Course Test (EOCT) score between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

Research question 7: When controlling for ethnicity and eighth grade English/Language Arts CRCT scores, what, if any difference is there in the average ninth grade Literature/Composition End of Course Test (EOCT) score between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

Research Hypotheses

\( H_{1a} \): When controlling for ethnicity, there is a significant difference in the odds of dropping out of ninth grade between students that attended the freshman academy and students that did not attend the freshman academy.
$H2_a$: When controlling for ethnicity, there is a significant difference in the odds of being promoted to tenth grade between students that attended the freshman academy and students that did not attend the freshman academy.

$H3_a$: When controlling for ethnicity, there is a significant difference in the odds of graduating in four years between students that attended the freshman academy and students that did not attend the freshman academy.

$H4_a$: When controlling for ethnicity, there is a significant difference in the average GPA between students that attended the freshman academy and students that did not attend the freshman academy.

$H5_a$: When controlling for ethnicity, there is a significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.

$H6_a$: When controlling for ethnicity and eighth grade Reading CRCT scores, there is a significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.

$H7_a$: When controlling for ethnicity and eighth grade English/Language Arts CRCT scores, there is a significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.
Null Hypotheses

\(H1_0\): When controlling for ethnicity, there is no significant difference in the odds of dropping out of ninth grade between students that attended the freshman academy and students that did not attend the freshman academy.

\(H2_0\): When controlling for ethnicity, there is no significant difference in the odds of being promoted to tenth grade between students that attended the freshman academy and students that did not attend the freshman academy.

\(H3_0\): When controlling for ethnicity, there is no significant difference in the odds of graduating in four years between students that attended the freshman academy and students that did not attend the freshman academy.

\(H4_0\): When controlling for ethnicity, there is no significant difference in the average GPA between students that attended the freshman academy and students that did not attend the freshman academy.

\(H5_0\): When controlling for ethnicity, there is no significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.

\(H6_0\): When controlling for ethnicity and eighth grade Reading CRCT scores, there is no significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.

\(H7_0\): When controlling for ethnicity and eighth grade English/Language Arts CRCT scores, there is no significant difference in the average ninth grade
Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.

**Identification of Variables**

The independent variable of this study, freshman academy participation status, comprised a control group and treatment group. The control group consisted of students that did not attend the freshman academy and the treatment group consisted of students that participated in the freshman academy. The FA participation variable was measured by the participation status in a freshman academy for first-time ninth graders. First-time ninth graders were defined as students who are attending ninth grade for the first time and not repeating the grade. Ethnicity and Criterion Referenced Competency Test (CRCT) scores for Reading and English/Language Arts were additional independent variables used as covariates to control for possible differences between students in the control and treatment groups. Bruton (2011) found eighth grade CRCT scores in both reading and English/Language Arts closely correlated with ninth grade EOCT scores in ninth grade Literature/Composition. All data collected for this study were post-assessment data that had been archived by the school district.

Five dependent variables were as follows:

**Dropout status: the student’s ninth grade dropout status.** A student was considered a dropout if: a) the student missed school for ten or more consecutive days of unexcused absences during the school year; b) left school and did not transfer to another school; or c) after completing the first year in high school did not re-enroll within the first thirty days of the next school year.
Promotion status: the student’s tenth grade promotion status. To be promoted, the student must have earned at least five of six possible credits including one full credit in both math and ninth grade Literature/Composition (Course Selection Guide, 2008) by the end of their first attempt at ninth grade.

Graduation status: the student’s graduation status. To graduate from high school the student must complete all state-required graduation requirements within the four years of high school. Students were counted as on-time graduates if they completed requirements either to graduate in May, at the end of the school year, or at the conclusion of summer school in June of their fourth year in high school.

Grade point average (GPA). The student’s ninth grade GPA was calculated as the student’s grade point average at the end of the ninth grade school year. GPA was the end-of-year unweighted average of all final grades received at the end of the ninth grade year. Both academic and elective grades were used to calculate the GPA.

Ninth grade Literature/Composition End of Course Test (EOCT) score. The student’s score for the ninth grade Literature/Composition End of Course Test as determined by the state. The subject-level EOCTs are standardized tests used by the State of Georgia that have been shown to be valid and reliable (Georgia EOCT, 2013b). The End of Course Test is a mandated standardized test that must be taken by all high school students in Georgia at the conclusion of eight pre-selected courses, two in each core subject area. Test results are provided to the students in both scaled score and converted score form. Scaled scores range from <400, which do not meet performance standards, to 450 or higher, which exceed the performance standards. Scaled scores from 400-449 are considered as meeting the performance standard. In the ninth grade
Literature/Composition EOCT, scaled scores are then converted by the state to a numerical percentage: Scaled scores from 200-399 are converted to grades from 0-69; Scaled scores from 400-449 are converted to grades from 70-89; and scaled scores from 450-600 are converted to grades from 90-100 (GADOE, 2012). The final converted EOCT score for each student counts as 15% of the final grade in the class. Converted scores were used in the current study in conformance with the Georgia Department of Education (2012) guideline, “The grade conversion scale is helpful because it can be more readily incorporated into course grades than can scale scores” (p. 16) and the conversion scores are the scores recorded by the school district in the database.

Definitions

The following terms were identified for purposes of this study:

*Academic Achievement*: Academic achievement in Georgia public schools is defined as students’ mastery of the state mandated curriculum (Georgia Department of Education, 2010) and is measured using final grade point averages in the core academic classes of mathematics, English (ninth grade Literature/Composition), science, and social studies.

*Adequate Yearly Progress (AYP)*: AYP is measurement of a school or school system’s improvement based on meeting state and federal benchmarks enumerated in the No Child Left Behind Act of 2001 as determined by the state and federal governments (Georgia Department of Education, 2010).

*Criterion-Referenced Competency Tests (CRCT)*: The Georgia Department of Education (2013a) stated that a criterion-referenced test is “designed to measure student acquisition and understanding of the knowledge, concepts, and skills set forth in the
Common Core Georgia Performance Standards (CCGPS) for reading, English/Language Arts, mathematics, and the Georgia Performance Standards (GPS) for science and social studies” (p. 1).

**Dropout:** A dropout is a student who enters high school as a ninth grader but leaves school before graduating with a high school diploma within four years as described by the *No Child Left Behind Act of 2001* (NCLB, 2001). In this study a dropout was defined as a student who leaves high school before the end of the ninth grade or who completes the ninth grade but does not register for the second year of high school within the first 30 days of the next school year.

**End of Course Test (EOCT):** The EOCT is a state-designed test given to Georgia high school students to measure academic achievement in the subject area. Georgia requires that EOCTs be given for each core subject area in the following courses:
- English/Language Arts–ninth grade Literature/Composition and American Literature/Composition; Science–Biology and Physical Science; Social Studies–United States History and Economics/Business/Free Enterprise (GADOE, 2012).

**Freshman academy:** The freshman academy model is a small learning community (SLC) strategy designed to help at-risk students in their transition from middle school to high school (Hernandez, 2012).

**Grade Point Average (GPA):** Student performance in grades nine through twelve is evaluated and reported utilizing numerical grades for normal progress reporting. The GPA is a summary of each student’s academic performance in high school. Evaluators
use the GPA in determining eligibility for numerous awards, activities and college applications. Should letter grades be needed to calculate certain GPAs, the equivalent numerical grades in the school district studied are as follows: A = 90-100; B = 80-89; C = 71-79; D = 70; F = Below 70 (Academic Achievement Manual, 2013).

_High School Transition:_ High school transition is the period between leaving eighth grade at the middle school and becoming acclimated to ninth grade at the high school (Morgan & Hertzog, 2001).

_No Child Left Behind Act (NCLB):_ Enacted in 2001, the NCLB bill was signed into law on January 8, 2002, by President George W. Bush. The law enlists some major changes in the educational process and contains four basic education reform principles: stronger accountability, increased flexibility and local control, increased educational options for parents, and a greater emphasis on successful teaching methods (NCLB, 2001).

_Promotion:_ Promotion occurs when students receive enough academic core credits to move to the next higher grade level (GADOE, 2009).

_School-Within-A-School:_ A school within a school is a separate body, in this study a freshman academy, which is part of a larger school and under jurisdiction of the larger school’s principal, but staff develop their own programs and operate autonomously in regards to planning, discipline, and grade-level activities (Royer, 2007).

_Small Learning Community:_ A small learning community is a group of students, a few hundred or less, in which the focus is on the learner and learning. It is usually staffed by a team of teachers that assumes responsibility for students’ educational progress (Oxley, 2008).
CHAPTER TWO: REVIEW OF THE LITERATURE

The transition from middle school to high school is problematic for many students (Ratliff, 2009; Rumberger & Sun, 2008). Many students experience significant social trauma, academic difficulty, and behavior issues with this single life experience (Donegan, 2008; Hertzog & Morgan, 1999). The review of literature showed that the transition from middle grades, typically considered sixth grade through eighth grade, to high school is a critical period in a student’s K-12 education (Ganeson & Ehrich, 2009). The National Association of Secondary School Principals (2004) found that “personalized learning initiatives can increase attendance, decrease dropout rates, and decrease disruptive behavior” (p. 69).

Much of the research suggests that the ninth grade year is especially challenging for most students. During the ninth grade many students begin experiencing a reduced sense of belonging (Gutman & Eccles, 2007), a loss of achievement (Pharris-Ciurej et al., 2012), a lower grade point average, poor attendance (Cohen & Smerdon, 2009), and school disengagement (Fischetti & Smith, 2010); all at a critical time in students’ education. When considering all four years of high school, students in the freshman year have the highest rates of retention; class failures; dropping out; absenteeism; and discipline referrals, and the lowest grade point averages (Kelley, 2010).

One result of all these problems occurring at the beginning of a student’s high school career is that more students have been found to repeat the ninth grade than any other grade (Williams & Richman, 2007). This phenomenon creates a crisis that has been labeled by researchers as a “bottleneck” (Wheelock & Miao, 2005) or “bulge” (Williams & Richman, 2007). According to Haney et al. (2004), the bulge of ninth grade students
more than tripled from 1970-2000. In those thirty years the bulge increased from approximately 4% to 13%. To illustrate the bulge in ninth grade, the National Center for Educational Statistics (NCES) provides the following data: Total ninth grade enrollment for the school year 2003-2004 was 4.19 million while the tenth-grade enrollment for the following school year, 2004-2005, was only 3.75 million students. These data show a reduction of nearly 10.5% in the tenth-grade enrollment (NCES, 2005). This drop is attributable to both ninth grade retention and students dropping out before the start of the tenth-grade year. A number of studies document the importance of the school playing a more active role in helping ninth graders and their families make this most important transition (Dillon, 2008; Morgan & Hertzog, 2001).

**Theoretical Framework**

A theoretical framework points to a set of variables and the relationships between them to explain a specific group of phenomena (Ostrom, 1999). These variables are a broad framework of intellectual thought and assumptions used to examine a specific area of scientific inquiry (Carpiano & Daley, 2006). From the broad stroke of a theoretical framework, a researcher moves toward a theory. The theory is more specific in the explanation of a logical description of the phenomena and articulates the relationships of the variables. The chosen theory determines the direction of the research and assists with the development of hypotheses related to the variables. The theory should allow a researcher to make definitive assumptions to assist in diagnosing a phenomenon, explaining the theory’s processes, and predicting outcomes (Ostrom, 1999). Once the theory has been determined, a model brings the research into complete focus. Models are designed and utilized “to make specific assumptions about a limited set of parameters and
variables” (Carpiano & Daley, 2006, p. 565). Thus, the theoretical framework, theory, and model are essentially a systematic approach to narrowing the focus and specificity of research to achieve a meaningful outcome with the results (See Figure 1).

Figure 1. The continuum of interaction between framework, theories, and model. Adapted from “A guide and glossary on post-positivist theory building for population health,” by R. M. Carpiano and D. M. Daley, 2006, *Journal of Epidemiology Community Health, 60*, p. 566. Reprinted with permission.

Littlejohn (2007) stated, “It is critical for the inquirer to state his or her paradigm(s) when undertaking – and later publishing and sharing – the research findings, for paradigms inform how the inquirer approaches and frames the research question and proceeds in answering it” (p. 3). Carpiano & Daley (2006) added, “Theory is the cornerstone of scientific endeavors. It is the lens through which we conceptualize a research question, propose hypotheses, design a study to test them, discuss the findings, and propose next steps for empirical inquiry” (p. 564). The theoretical framework of the current study was post-positivism integrated with the stage-environment fit theory (Eccles & Midgley, 1989) to investigate the effectiveness of the freshman academy model relative to high school transition.
**Post-positivism.** Positivism has been described by Carpiano & Daley (2006) as “a theory building approach that assumes the existence of a ‘real,’ apprehendable reality driven by immutable natural laws and mechanisms and that researchers are capable of studying objects without influencing them or being influenced by them” (p. 568). As philosophies and ideas evolved over time, positivist thinking gave way to post-positivist ideas. According to Smith (1983) and Phillips & Burbules (2000), the tradition of post-positivism grew out of the positivist writings and thoughts of 19th-century philosophers like Auguste Comte and David Émile Durkheim who were following the work of empiricists Isaac Newton, John Locke, and others.

Post-positivism completely rejects positivism and holds that individuals cannot see the world as it truly is. Post-positivists believe that everyone is biased by worldview and cultural background and therefore all observations are affected by that bias, which Trochim (2006) called “theory laden.” Post-positivists also believe that theory is revisable. Post-positivism, as described by Carpiano & Daley (2006), is a theory building approach where “reality is assumed to exist, but . . . it is only imperfectly and probabilistically apprehendable” (p. 568). Trochim explained:

Because all measurement is fallible, the post-positivist emphasizes the importance of multiple measures and observations, each of which may possess different types of error, and the need to use *triangulation* across these multiple errorful sources to try to get a better bead on what’s happening in reality (para. 6).

Where positivism attempts to verify hypotheses by establishing a fact or a law, post-positivists view hypotheses as not provable, but as probable facts or laws that are “non-
falsified” (Guba & Lincoln, 1994). Approaching this research from a post-positivistic viewpoint fit the causal-comparative (ex-post facto) correlation methodology.

**Stage-Environment Fit Theory.** Carpiano & Daley (2006) stated that “a theory may be defined as logically related propositions that aim to explain and predict a fairly general set of phenomena” (p. 565). Eccles and her colleagues have done just that in their attempt to move motivational theory from the business world to education with the stage-environment fit theory (Eccles & Midgley, 1989; Eccles et al., 1993; Gutman & Eccles, 2007).

Stage-environment fit theory was influenced by many psychological and organizational behavior theories. Lewin (1938), often referred to as the father of social psychology, developed a framework for studying causes that influence a given situation called force field analysis. In his framework the causes, or factors, are studied to determine whether the factor helps in the realization of a goal or hinders in its realization. While considering Lewin’s ideas, Vygotsky began the discussion on the effects of the environment on individuals when he gave a lecture entitled, “The problem of the environment” (as cited in Wong, 2001). Calling on a personal experience from his years growing up with an alcoholic mother, Vygotsky realized that while his brothers grew up in the same dysfunctional setting he had, each one responded differently to the experience. This experience was a significant reason Vygotsky focused much of his research on developmental psychology regarding children and the influence of the social environment (Wong, 2001).

In the early 1970s Hunt used Lewin’s behavior formula, \( B = f(P,E) \), to help develop his person-environment fit theory. In referencing a previous paper Hunt wrote
with his colleague Sullivan (1974), Hunt (1975) posited, “I propose the familiar Lewinian formula \( B = f(P,E) \), or behavior is a function of the person and the environment, as a paradigm, or coordinating system, for the study and application of interactions” (p. 217). Following in a true post-positivist ideology where all theory is revisable (Trochim, 2006), Eccles & Midgely (1989) believed that Hunt’s person-environment fit theory would more accurately describe transition in adolescence by accounting for the timeframe of the life cycle within the environment. Thus was born the stage-environment fit theory.

Eccles & Midgley (1989) determined that as children develop and mature, their educational needs change. Without the appropriately supportive educational environment, student transition and learning could be negatively affected. Most students in the educational system of the United States move from a nurturing elementary school experience to a more segmented middle school environment. Eccles and Midgely’s research most notably focused on the transition to junior high school and suggested that the change in the nature of the educational environment could possibly help explain the decline in school performance. They suggested that the school environment must fit the stage of development in the student (Gutman & Eccles, 2007). Concerning the freshman academy, in this quantitative causal-comparative (ex post facto) correlation study the stage-environment fit theory was used and revised slightly, following the post-positivist framework, to examine high school freshmen’s transition to high school.

**Additional Relevant Theories.** Many other prominent theories support the concept of a freshman academy. Students who are identified to be at-risk seem to have an especially difficult time adjusting to the changes high school brings (Dillon, 2008). The emotional, academic, and social needs of these students need to be addressed. Many
interventions have been suggested that focus on the transition to high school. One of these interventions is the freshman academy. The social cognitive theory (Bandura, 1989; Malone, 2002); social control theory (Hirschi, 1969); which later became known as social bonding theory (Chapman & Sawyer, 2001); ecological systems theory (Bronfenbrenner, 1979, 1994); and Glasser’s control theory, which later became known as choice theory (Glasser, 1999; Malone, 2002), all provide theoretical support for this reform model.

Most prominent among appropriate theories that relate to the freshman academy model, however, is the stage environment fit theory (Eccles & Midgley, 1989) and the expectancy-value theory of achievement motivation (Wigfield & Eccles, 2000). The literature showed that high schools which have implemented a freshman academy that has been based on these theories have shown improvement in freshman attendance and academic achievement (Brown, 2010; Srofe, 2009).

In social cognitive theory, Bandura (1989) contended that there is reciprocity between personal factors, cognition, behavior, and environmental influences. Each of these determinants influences and affects each other but not necessarily at the same time or at equal strengths. According to Bandura, a causal factor can increase its affect over time. Extrinsic effects, such as a semi-controlled learning environment like a freshman academy, can help to influence and determine thought patterns and emotional reactions thereby improving deviant behaviors such as poor attendance and academic inactivity.

In social bonding theory, Hirschi (1969) posited that an increase in conventional activities will leave very little time for delinquent and illegal behavior. One of the goals of the freshman academy is to get all students involved in some sort of club or
extracurricular activity. By developing friendships and relationships with peers and teachers, students who might have leaned toward a deviant behavior find little time to act on the impulses. Hirschi’s research also suggested that students who maintain weak and distant relationships with other people tend toward delinquency. To counter this phenomenon, the freshman academy attempts to provide an “esprit de corps” among the students so that they develop strong bonds that will help them avoid deviant and delinquent behaviors throughout their time in high school and beyond.

In his control theory, Glasser (1999) stated that an individual’s behavior is determined by what the individual wants most at any given time and not by any outside stimulus. The theory focuses on the individual’s personal choice, responsibility, and transformation. To this end, in the freshman academy model, educators spend a great deal of time encouraging students to make appropriate personal choices and take responsibility for their own actions. Personal responsibility is encouraged through progressive discipline, a method of providing a minimal consequence for a first offense tied with a discussion about personal responsibility in the hope that the student will not repeat the deviant behavior. This step-by-step program attempts to help the student internalize a behavior transformation and develop a desire to make appropriate choices.

Berliner (1993) discussed the Timing and Discontinuity theory in Adolescence, School Transitions, and Prevention: A Research-Based Primer. The theory suggests two hypotheses with regards to juveniles coping with transition. The first hypothesis suggests that juveniles have trouble coping with change. When any life event happens simultaneously with a change in school, the juvenile has difficulty in adjusting and behavioral problems typically arise. Berliner hypothesized that because students move
from a child-focused environment to an environment where academic performance is emphasized, stress factors increase.

**Practical Foundation**

Beginning ninth grade can be very difficult emotionally due to developmental changes and self-esteem issues experienced by young adolescents. Without appropriate transitional programs in place, ninth graders can easily fall through the cracks without being noticed (Reents, 2002). According to Research for Action (2010), this transition time is when many students make the crucial decision whether to dropout or stay in school. Ganeson and Ehrich (2009) discussed that the transition from elementary to secondary school is in essence moving from the known to the unknown. This change represents a stressful move for many students from the protection of a familiar environment into a more impersonal and at times, intimidating environment. This stress comes from the various social changes and challenges, both perceived and real, that frighten transitioning students.

According to Dillon (2008), students transitioning into high school are both excited and worried about the transition. Dillon (2008) discussed various stressful situations involved in the transition to high school. The stress can come from rumor among peers concerning what to expect in high school. Middle school teachers can add to the students’ stress by painting an exaggerated, unrealistic picture of high school. Another stress comes from parents and older siblings who continue the rumors about rules and expectations in high school, unintentionally building up anxiety.

Failing a class might cause ninth graders to begin to question whether they have the ability to pass other classes and graduate. This may cause students to lose interest in
school and may eventually lead to them dropping out (Rumberger & Sun, 2008). Most ninth graders move from a small school where they are looked up to, to a larger school where they are expected to adapt to the new environment. This new environment is not only larger but consists of different instructional practices, school policies, and grading policies that students are unaccustomed to (Chmelynski, 2004).

Bushaw (2007) reported that researchers in three eminently respected organizations, Phi Delta Kappa (PDK) International, the National Association of Secondary School Principals (NASSP), and the Lumina Foundation for Education, wanted to find out how well middle-school students felt they had been prepared for high school. The three organizations used a poll created by Harris Interactive and polled 1,814 middle school students. The sample consisted of seventh and eighth graders who were surveyed between February and March of 2007. A copy of the poll was sent via U.S. Postal Service to every high school and middle school principal in the United States. Results of the survey indicated that 3% of students did not feel at all prepared for high school; 12% of the students expressed not being very prepared; and 60% of the students felt they were only somewhat prepared for high school. Only 24% of the middle school students felt that they were very prepared for high school (Bushaw, 2007).

According to Weiss and Bearman (2007), scheduling practices, academic standards, and different teaching styles can precipitate poor academic performance. Mizelle (2005) found that many recently transitioned students recognized the need to manage time resources better and improve their study habits but struggled to do so. In the late 1990s and early 2000s, the importance of transition gained increased attention because of Hertzog and Morgan’s (1999) report about their 1996 survey to address the
need for more data concerning the transition from the middle grades to high school. The data were collected from fifty-six high schools and ninety-seven middle schools in Georgia and Florida. Herzog and Morgan, leaders in transition studies, reported that schools with fewer transition practices had a significantly higher dropout rate when compared to schools who had utilized three or more transition practices. They also found that many of the schools that had developed transition programs did so with little or no input from the students who were transitioning and meant to benefit from the services (Morgan & Hertzog, 2001).

To help ease the transition, studies have indicated that students need help from teachers and administrators who are well-trained and caring. According to Donegan (2008), teachers who lack experience in classroom management and effective teaching strategies should not be placed with transitioning students who, by their nature, have the greatest needs. The comfort provided by elementary school and middle school no longer exists for many high school students. As a result, newly transitioned ninth graders need school-wide, research-based intervention programs along with teachers who care about them (Neild, 2009).

Choices made during this critical time in students’ lives can affect them for years to come (Rumberger & Sun, 2008). One reform model that is demonstrating success in assisting these students through the quagmire of the freshmen year is the freshman academy. With the support mechanisms of emotional and academic assistance, freshman academies are making a difference (Oxley et al., 2006). Freshman academies make an immediate difference in the lives of freshmen, and also help freshmen make choices, such
as staying in school until graduation day, which ultimately benefit them for years to come.

**High School Size**

High school size has been a topic of discussion for more than a century without resolution. Ready, Lee, and Welner (2004) stated, “Although the ideal high school size has been debated for over a century, the issue is currently the subject of intense discussion within a broader educational reform agenda” (p. 1). Ready et al. (2004) discussed two distinct strands or directions taken by researchers: the sociological aspects of school size, and the economics of school size. Researchers from each of these camps, sociological and economic, arrived at very different conclusions. Sociological research suggests that small schools ought to have some significant advantages over large schools, namely more personal relationships between students and faculty and fewer curriculum choices. On the other hand, studies conducted by economists tend to focus on improved efficiencies expected at larger schools along with a more varied curriculum and a greater number of choices (Devlin, 2011). The chronology of high school size over the past century has moved from small to large in apparent deference to the economic point of view.

The average American student at the turn of the 20th century was more likely to attend a small one-room school than a large comprehensive high school (Hylden, 2005). It would have been very unlikely for the average student to even attend high school, as most students of that day only attended school through the eighth grade (Hylden, 2005). Toch (2003) explained that only about 10% of students in the American school system at the turn of the century attended high school. By the year 1910, that figure had only
increased to 35% (Conant, 1959). According to Conant, high school was usually a means to prepare for college, and only about 4% of students at the turn of the century would ever end up attending college. Within a few years, however, progressive-era reforms had completely changed the American educational system. With the advent of child labor reforms, it became more difficult for adolescents to find adequate employment, and therefore the high school population began to increase. Many reformers like Ellwood Cubberley (1909) and John Dewey (1938) preached the importance of education for all individuals whether they were planning to attend college or enter the workforce. With this push toward “education for all,” the idea of a comprehensive high school was born.

Between 1940 and 1990, there was a 70% increase in the population of the United States. During this same time there was a decrease in the number of elementary and secondary schools from approximately 200,000 to 62,037 (Cotton, 1999). According to McComb (2000), one of the first individuals to openly support and encourage the trend toward large and more comprehensive high schools was James Bryant Conant, a former president of Harvard University. Conant (1959) discussed the benefits of larger schools by citing a number of studies supported by the Carnegie Foundation. He suggested that a larger high school could more economically offer a greater selection of courses at a higher level of quality than smaller high schools with less than 750 students (as cited in McComb, 2000) and suggested that the complete eradication of small high schools should be a “top priority” (as cited in Hylden, 2005). Today, nearly 60% of all American high school students attend a high school with an enrollment of more than 1,000 students (Toch, 2003).
According to Hylden (2005), “While the construction of large, comprehensive high schools continues largely unabated, the justification for doing so has essentially disappeared” (p. 2). Much of the current literature demonstrates that smaller schools are outperforming larger schools in most of the significant measurements studied (Royer, 2007). In smaller schools students perform better academically, graduate at a higher rate, are more likely to go on to college, and therefore will typically earn higher salaries throughout their lives (Hylden, 2005). Students in smaller schools have a lower dropout rate and have a higher rate of participation in extracurricular activities (Fraker, 2006). Out of this research, the concept of small learning communities began to take shape.

**Small Learning Communities**

Educational practitioners and researchers tend to agree on what makes up a successful high school education. Fleishman & Heppen (2009) and Oxley (2008) discussed the need for bringing together rigorous and relevant curricula for all students. These curricula are joined with a learning community that is personalized and responsive to the needs of both students and parents. The relationships between the student and the teacher, and the school and the parents are critical to the success of this educational reform model. Small learning communities (SLC) is the overarching term for this reform movement which is influencing education in more and more communities throughout the United States (Armstead et al., 2010). These SLCs have developed into many variations including schools-within-schools, magnet schools, house plans, and theme-based academies such as career academies and freshmen academies (McAndrews & Anderson, 2002; Ready et al., 2004).
Each of these variations is intended to provide a more personalized learning environment for the student and allow teachers to individualize instruction to the needs of each student with the goal of helping the student become better prepared for life after high school, whether that includes college or career development (Gewertz, Dorko, & Cain, 2009; Oxley, 2008; Shakrani & Michigan State Univ., 2008). One other variation of the SLC is the interdisciplinary team. Interdisciplinary teams are built to allow a group of students to stay with the same teachers for multiple years throughout their high school career (Oxley, 2008). The teaching and learning that takes place is both authentic (Dolejs, 2006) and participatory, and involves demanding, standards-based curricula and community partners (Corbett & Huebner, 2007).

With all of the research conducted, however, there have been situations in which small has not always proven to be better. The Bill and Melinda Gates Foundation has spent one billion dollars creating small learning community schools. While the schools have fewer students, the teachers feel overworked, and the test scores are slightly lower than at similarly large schools (Jehlen & Kopkowski, 2006). The Gates Foundation administrators realized that size is not the only thing that matters and are now focusing more on the quality of instruction. Levine (2010) pointed out that while SLCs as a whole do not conclusively improve academic achievement, attendance, and graduation rates, an improved experience for students due to the supportive environment are proven benefits of SLCs. This more supportive environment compliments the stage-environment fit theory put forth by Eccles and her research partners (Eccles & Midgley, 1989; Eccles et al., 1993; Gutman & Eccles, 2007).
Freshman Academy

The freshman academy or ninth grade academy model was developed to help middle school students successfully navigate the transition to the first year of high school, improve ninth grade academic achievement, and reduce the dropout rate (Reents, 2002). The freshman academy was also designed to provide a more personalized learning environment by being more supportive during this transitional time in the life of adolescents (Cushman, 2006; Dillon, 2008). There are many different iterations of the model, but all have at least a few shared characteristics.

One major similarity between the various models is that the population of the freshman academy model is composed of ninth graders (Holland & Mazzoli, 2001). This may take place during the final year of middle school or the first year of high school. Another similarity is that freshman academies are first-time ninth graders (Ratliff, 2009). Members of freshman academies are often separated in some manner from the other students at the school. This separation may be a separate building, a separate hall, or a stand-alone separate campus. Such separation facilitates movement between classes, which are usually grouped or teamed, and allows for more intimate camaraderie among the students and teachers. Separation also helps to isolate freshmen from upper classmen in comprehensive high schools (Fulco, 2009). Freshman academies typically incorporate some type of freshman-only tutoring for academic subjects, which is designed to reduce the failure rate and ultimately reduce the dropout rate for the school (Mincey, 2012). Many freshman academies also provide freshmen with their own group of support personnel such as counselors, administrators, and office personnel for parental contact (Ratliff, 2009).
Since the mid-1990s when the freshman academy concept began, significant progress has been achieved related to reducing the dropout rate and improving academic performance (James, 2001). Previous research has reported the benefits of separating the freshman student body from the other students, including improved academics, better socialization, increased attendance and graduation rates, reduction in discipline issues, and cost savings (Gewertz et al., 2009)

**Dropouts**

The word “dropout” connotes a specific event in the life of nearly one-third of all high school students (Alliance for Excellent Education, 2009b) and high school dropout rates in the United States have been cited as being at crisis levels (Neild, 2009). According to the Alliance for Excellent Education (2009a), “Dropouts from the class of 2008 will cost Georgia almost $15.5 billion in lost wages over their lifetime” (p. 1). Ninth graders have the highest dropout rate of any grade in high school (Donegan, 2008), and ninth graders account for over one-third of all high school dropouts lost (Editorial Projects in Education, 2007). By 2010 nationwide, nearly seven thousand students dropped out of school every day, totaling approximately 1.3 million students per year (Alliance for Excellent Education, 2010). Students who comprise the lowest twenty-five percent relative to academic achievement, totaling over six million students, are twenty times more likely to leave high school before graduation than the top twenty-five percent of high school students (Carnevale, Strohl, & Smith, 2009).

Considering all students who fail to graduate, more than half are minority, including students of Native American, African-American, and Hispanic ancestry (Editorial Projects in Education, 2010). Studies by Green & Winters (2005), and
Kinchlow (2006) echoed the finding by pointing out that the dropout rate for minority students is a problem of national concern. According to one prominent study (Greene & Winters, 2005), nearly 30% of white students can be expected to not graduate from high school in four years while at the same time close to 50% of minority students will fail to graduate in four years. Additionally, high school students who make up the lowest 25% of their class. are twenty times more likely to drop out of high school than the top 25% of the class (Alliance for Excellent Education, 2010)

Balfanz & Legters (2006) pointed out that in cities with the largest dropout rates, nearly forty percent of ninth-grade students end up repeating their freshman year of high school. Of the percentage of ninth grade repeaters, only about one in ten will go on to graduate from high school. Another study of 425 high schools nationwide, conducted by Hertzog & Morgan (1998), found that students who failed just one academic class in their ninth grade year only graduated 60% of the time.

**Lack of engagement: A strong predictor.** Researchers have considered that dropping out is more of a process than a specific event (Rumberger & Sun, 2008). Rumberger and Sun (2008) divided dropout predictors into three categories: background, engagement, and educational performance. A student’s background, including demographics; social economic status; attitudes; and family educational background, can influence a student’s decision to drop out of high school (Rumberger & Sun, 2008). Engagement includes social and academic components. Social engagement aspects that influence the decision to remain in school include school attendance, school activities outside the classroom, misbehavior in school, and delinquent behavior outside of school (Rumberger & Sun, 2008). Academic engagement, they clarified, includes preparation
for class, homework completion, and perceived expectations of success—both intrinsic (self) and extrinsic (family, peers, authority figures). Additional educational performance factors affecting a student’s decision to dropout include the number of credits earned toward graduation and the number of educational years completed (Rumberger & Sun, 2008).

Research has shown that a student’s lack of engagement is a strong predictor of dropping out even when student background and academic achievement were controlled (Rumberger & Sun, 2008). This engagement includes students’ perception of and feelings toward their teachers. Reyes, Gillock, Kobus, & Sanchez (2000) found that the academic performance of eighth grade students during the transition to high school was significantly affected by these perceptions. Improving student engagement not only agrees with the stage-environment fit theory of Eccles & Midgley (1989) and Eccles (2004), but it also encompasses a more recent study related to positive teacher-student relations to improved student motivation by Fleischman and Heppen (2009). Student engagement must be improved throughout all grades, but especially in high school, as a critical piece in the attempt to reduce the dropout rate in high school.

**Other predictors of dropout status.** Some predictors of future dropout behavior have a stronger influence on students’ decision than others. One of the strongest predictors of dropping out is poor academic achievement, which can be seen as early as elementary school (Rumberger & Sun, 2008). In the research of academic achievement, low grades are more predictable of future dropout behavior than test scores. Additionally, behaviors such as delinquency, absenteeism, and substance abuse have been noted as strong predictors of dropping out (Rumberger & Sun, 2008). Students who
live with both a mother and a father in a stable home environment with little mobility and few school changes have both lower dropout and higher graduation rates. Additionally, students who live in households with more familial resources including sufficient income, parental educational level, and vocational status are less likely to drop out of school (Rumberger & Sun, 2008).

Werblow and Duesbery (2009) reported results showing a significant relationship between school size and dropout rates. They found that an increase in school size can be attributed to an average of 12% dropout rate. The researchers determined that larger school sizes may be detrimental for students by increasing the likelihood of dropping out of high school. Data from this study and similar previous studies have led to research examining ways to reduce the size of the school as well as reduce the dropout rate among ninth graders.

Small learning communities such as freshman academies have shown promise in reducing the dropout rate of high school students which will prove economically beneficial to the state over time. In a review of 25 years of literature on why students drop out of high school, Rumberger and Sun (2008) identified several traits found in educational performance that are seen as strong predictors of a student dropping out of high school. These predictors in high school include test scores and grades, student mobility throughout the high school years, and whether or not a student was retained in one or more grades during high school.

Research has shown that there is not one singular reason causing students to drop out of high school (Alliance for Excellent Education, 2010). Most of the reasons students give for dropping out, however, relate to the lack of academic and social engagement
and, therefore, the lack of progress made during the ninth grade year. This review of literature has shown that policy reformers and school leaders need to be more vigilant with regards to the key factors that lead to students dropping out. This vigilance is even more important during the ninth grade transition year to reduce both dropouts and ninth grade retention.

**Retention**

The term *retention* has been defined by Ratliff (2009) as “the practice of holding students back a grade level for either academic or disciplinary reasons” (p. 30). In their report to the National Association of School Psychologists, Anderson, Whipple, and Jimerson (2002) stated that retention “refers to the practice of requiring a student who has been in a given grade level for a full school year to remain at that level for a subsequent school year (e.g. “flunking”)” (para. 2). Currently between 5-10% of students in the United States (over 2.4 million) are retained each year (Anderson et al., 2002). Grade retention occurs in all grades, but the trend is most notable at the beginning of high school.

Neild (2009) reported that many students seem to “hit a brick wall” in the ninth grade by failing too many classes. This level of failure translates into the student not being promoted to the tenth grade. More students, as a percentage, are retained in the ninth grade than any other grade (Wheelock & Miao, 2005). This retention rate causes the ninth grade to be disproportionately large and has been called the ninth grade bottleneck or the ninth grade bulge. The retention rate can also be influenced by other factors.
Jonsson (2004) reported that factors such as ethnicity, socio-economic status, and gender can all be influential in retention rates. More males are retained than females, and more minority students are retained than white students. In addition, students with disabilities (SWD) are more likely to be retained (Anderson et al., 2002) than other students. The descriptor “students with disabilities” includes, but is not limited to, students with Specific Learning Disabilities (SLD) and/or behavioral disorders such as Attention Deficit Hyperactivity Disorder (ADHD) and Conduct Disorder (CD) or Emotional Behavioral Disability (EBD). These two special education categories (SLD and behavioral disorders) have the largest percentage of student retention among the commonly accepted twelve listed categories (Anderson et al., 2002). The debate about the efficacy of retention, however, rages on.

According to Anderson et al. (2002), separate meta-analyses of grade retention research throughout the 20th century conducted by Holmes (1989) and Jimerson (2001) resulted in the determination that “cumulative evidence does not support the use of grade retention as an intervention for academic achievement” (p. 1). Haney (2003) testified before the New York Senate Standing Committee on Education that retaining students is a poor decision. Denton (2001) stated that retained students are emotionally, socially, and academically harmed. Studies looking at subsequent academic progress of retained students found no significant difference in student dropout rates later in high school whether the student was retained in the lower grades (kindergarten through third grade) or the middle grades (fourth through eighth grades) (Anderson et al., 2002). “Retention was found to be one of the most powerful predictors of high school dropout, with retained
students two to eleven times more likely to drop out of high school than promoted students” (Anderson et al., 2002, p. 2).

In the high school setting, the majority of students were retained because they failed to earn the proper number of credits required for promotion (Hauser, 2000). Jordan et al. (2002) argued that first-time ninth graders are often unaware of the consequences carried by low grades and high absenteeism in the high school setting. Unlike the elementary and middle school years where the lack of academic progress is often overlooked, in high school these issues can have serious implications on promotion. As a result, retention in the ninth grade year of high school can ultimately lead to dropping out of high school. Balfanz & Legters (2004) pointed out that failing specific core academic subjects like English and math can cause students to be held back which can also lead to dropping out of school. The requirement for grade promotion to the tenth grade in Georgia for the graduating class of 2011 (the class being studied) was that each student must have passed five of six possible classes with two of the passing classes being a full year each of math and English (GADOE, 2009). Kennelly & Monrad (2007) indicated that students with discipline and behavioral problems in middle school are more likely to fail the ninth grade year which eventually may lead to dropping out.

**Graduation**

Research about high school graduation tends to be divided into two foci: the social effects of graduation and the lifelong economic outcome associated with high school graduation (Hauser & Koenig, 2011). Investigations and discussions of the social and economic effects of high school graduation on the life of an individual often lead to the topic of dropouts. Hauser and Koenig (2011) acknowledged that trying to determine
a “cause” for an individual graduating from high school or dropping out is very difficult, if not impossible. Rumberger and Sun (2008) pointed out that part of the reason researching the topic of graduation is so difficult is that the typical reasons students are not successful in high school are the same reasons they do not function successfully in society in their future lives. For example, low achievement and low motivation are often factors demonstrated in individuals who drop out of high school as well as those who are not successful in society. Hauser and Koenig (2011) posited that these personal characteristics, along with others, may be underlying causes of the poor economic and social outcomes experienced by this group. Dropping out may be more of a symptom in lieu of the cause of the problem (Hauser & Konig, 2011). Most research in the area of high school graduation is descriptive rather than experimental because of concerns about the ethical treatment of human subjects (Hauser & Koenig, 2011).

A common view is that the road to high school graduation begins in the ninth grade (Neild, 2009), but most ninth graders are not thinking about high school graduation. They are more concerned with adjusting to life in high school, and for many students the ninth grade year is a “make-it or break-it” year (Hertzog & Morgan, 1999; McCallumore & Sparapani, 2010). The ninth grade year is the first time that many students are required to earn passing grades in core subjects to be promoted to the next year in school (Neild, 2009). These core subject classes tend to be the most difficult and academically rigorous courses students will take during their time in high school (Neild, 2009; Smith, Akos, Lim, & Wiley, 2008). In addition to the increased rigor of the curriculum found in ninth grade and high school, most states now require the passage of standardized end-of-course-tests and exit examinations for graduation. These
standardized tests measure academic achievement and increase the importance of performing well in the ninth grade specifically, and high school overall (Schemo, 2004). This increased rigor encountered by students in the ninth grade has led to ninth graders having the most failing grades, which leads to the lowest GPA, the highest truancy rate, and more discipline referrals than any other grade level in high school (Cohen & Smerdon, 2009; Pharris-Ciurej, et al., 2012). These ninth grade trends have in many cases led to a lower graduation rate at many schools around the country (McCallumore & Sparapani, 2010).

**Graduation rates.** According to data from the National Center for Education Statistics (NCES) the average graduation rate for the freshman class of 2001-02 (graduation class of 2005) was 72.6% with some states, like Georgia, below the 60% mark (Alliance for Excellent Education, 2009). But even these graduation rates are deceptive. According to a report from the Alliance for Excellent Education (2008) the nation’s ninth graders are basically divided into three groups. The first third of a typical ninth grade class will graduate in four years, and will be prepared for the workforce or postsecondary education. The next third will also graduate in four years, but they will have neither the knowledge nor the skills needed to be successful in college or the workforce. The lowest third of this average ninth grade class will drop out of school before they graduate from high school. This lack of adequate preparation is costly to both the national economy and the economy of the state of Georgia.

**Economic consequences.** Economically, high school graduates have better chances of being employed and having higher wages (Hauser & Koenig, 2011) than high school dropouts. When discussing the economics of high school graduation, Rouse
(2005) pointed out that a high school graduate will earn an average of $260,000 more over one’s lifetime than a high school dropout. The Alliance for Excellent Education estimated that 73,000 additional high school graduates (1.7%) would add about $63 million annually to state and local tax revenues while increasing their own earning power by over $17 billion (Alliance for Excellent Education, 2013b). At the state level in Georgia, an increase to a graduation rate of 90% would add over 39,000 more high school graduates annually to the workforce. These additional graduates would earn a combined $457 million which would add about $42 million annually to the state and local tax revenues (Alliance for Excellent Education, 2013a). Increasing the high school graduation rate will increase the economic output of both our nation and the state of Georgia.

**Social consequences.** Socially, high school graduates are more prepared for life (Belfield & Levin, 2007) than are their counterparts who fail to graduate from high school. Receiving a high school diploma is recognized as a signal in American society that the individual is prepared both cognitively and non-cognitively for life as an adult (Hauser & Koenig, 2011). According to various studies, high school graduates are less likely to become teenage parents and have children born out of wedlock (McLanahan, 2009); they are more likely to be civically involved and vote (Bartels, 2008); their prospects for inter-generational social improvement are better (McLanahan, 2009); and fewer high school graduates are incarcerated (Alliance for Excellent Education, 2013c). As a society, high school graduation needs to be a priority for all students.

The level of an individual’s education has also been tied to the probability of incarceration. According to Harlow (2003) the lower the level of an individual’s
educational achievement, especially males, the higher the likelihood they will be arrested and incarcerated. Sum, Khatriwada, McLaughlin, & Palma (2009) found that high school dropouts between the ages of 16 and 24 were 63 times more likely to be incarcerated than individuals with a bachelor’s degree or higher. According to Department of Justice (2004) statistics, 67% of state prisoners, 56% of federal prisoners, and 69% of prisoners in city and county jails, did not complete high school. These statistics can be described in economic terms also. McCollister, French, & Fang (2010), asserted that a five percent increase in the graduation rate of males would create an annual savings of over 18 billion dollars nationally, in 2010. In addition to this savings in the cost of incarceration expenses, over 1.2 billion dollars would be added to the national tax base. Referring to the same report, the state of Georgia would add over $660 million to the state’s economy. The literature on the topic of the importance of high school graduation abundantly shows that graduation from high school is an important first step toward a successful life.

**Transition Perceptions**

Transition into high school has been shown to be a difficult time for many students (Ganeson & Ehrich, 2009). Part of the difficulty in transitioning is the inaccurate perceptions of high school held by students and parents (Cooper & Liou, 2007; Ganeson & Ehrich, 2009; Smith, Feldwisch, & Abell, 2006). Both groups are generally unrealistic about the skill level needed and level of preparation necessary to achieve in middle school for success in high school.

Bushaw (2007) reported that leaders of three eminently respected organizations, Phi Delta Kappa (PDK) International, the National Association of Secondary School Principals (NASSP), and the Lumina Foundation for Education, wanted to find how well
middle school students felt they had been prepared for high school. Researchers used a poll created by Harris Interactive that was administered in February and March of 2007. The sample consisted of 1,814 seventh and eighth grade students. Results of the survey indicated that 3% of students did not feel at all prepared for high school, and 12% of the students expressed not being very prepared. The majority of students, 84%, felt they were either somewhat prepared or very prepared for high school.

Fulk (2003) surveyed teachers at a central Illinois high school to determine their areas of greatest concern regarding incoming ninth graders’ study skills and attitudes about school. The top four results were poor testing skills (both preparation and administration), poor organizational and time management skills, high level of apathy and lack of concern/motivation for good grades, and low homework completion rate. Students in the same study concurred with the teachers’ perceptions about study habits but rated themselves higher in all other areas. The literature clearly shows a disconnect in the expectations and understanding of incoming ninth grade students with the reality of high school life.

The transition from eighth to ninth grade has been referred to as a critical point in a student’s life (Kerr, 2002). How well students perform academically in the eighth grade and how well they make the transition to ninth grade is important because it sets a foundation that will be built upon for the remainder of their high school careers (American Psychological Association, 2012). Morgan and Hertzog (2001) asked rising eighth grade students what concerns they had about going to high school. In addition to curiosity about the teachers, the responses were broken down into five areas of concern: curriculum, facilities, safety, rules and discipline, and general information. Concerning
curriculum, students wanted to better understand what would be expected of them academically. Going to an unfamiliar environment, students wanted to feel comfortable with the new facilities available. Getting lost and not knowing the layout were a concern. Regarding safety, students felt they might be in danger by going to a place where all the other students would be older and bigger. New rules applied, and students wanted to understand rules and consequences for infractions. The last concern covered general information like which bus to ride and what the food would be like in the cafeteria. Out of this study, Morgan and Hertzog (2001) developed a list of field-tested suggestions to help in the transition to high school. Some of the suggestions were:

- Host an informational assembly at the middle school covering high school requirements.
- Discuss registration procedures and provide informational packets to facilitate the transition.
- Conduct a tour of the high school for eighth grade students to allow them to become more familiar with the school’s layout. Ideally this tour would be conducted by current ninth graders so eighth graders feel more comfortable.
- Give each student a map of the school prior to the tour.
- Host a parent’s night at the high school before school begins to explain rules and expectations. Have high school counselors, ninth grade teachers, and administrators present for questions.
- Host a “fair” where incoming ninth graders and their parents can learn about the different classes and educational “tracks” available in high school.
Summary

This review of literature contains discussions of many of the difficulties faced by students transitioning from eighth to ninth grade. Much of the literature suggests that smaller is better (Fleischman & Heppen, 2009; Oxley, 2008). Nevertheless, there is still a segment of researchers that hold to the idea that larger schools are more cost effective (Hylden, 2004) in providing more choices. Some school leaders throughout the United States are choosing to mitigate this challenge by implementing small learning communities like the school-within-a-school or freshman academy models. This review of the literature focused on the freshman academy model which has shown promise at increasing ninth grade academic performance, attendance, and promotion while reducing dropouts. The literature shows that one of the keys to the freshman academy model’s success is the small and close knit atmosphere that is promoted within the freshman academy. This atmosphere, or environment, is an important part of Eccles & Midgley’s stage-environment fit theory (1989). According to the stage-environment fit theory, educational institutions that provide age and developmentally appropriate interactions with and among their students will produce a more appropriate and encouraging environment. The environment of the freshman academy model allows students more personal interaction with and support from their teachers, counselors, and administrators which has been shown to improve attendance and graduation rates while reducing dropouts.
CHAPTER THREE: METHODOLOGY

The purpose of this causal-comparative (ex-post facto) and correlation study was to investigate the freshman academy model by comparing transition outcomes and student achievement of ninth graders at two comprehensive high schools in a suburban Atlanta, Georgia school district. Following the post-positivist framework, this study added relevant data to the limited amount of current research regarding outcomes of implementing a freshman academy, evaluated by the dropout rate, promotion rate, and grade point average at the end of the ninth grade year, and considering the ultimate graduation rate of study participants. Student achievement was evaluated using the ninth grade Literature End of Course Test (EOCT) scores when controlling for the eighth grade Reading Criterion Referenced Competency Test (CRCT) scores and the eighth grade English/Language Arts CRCT scores. In a review of the relevant literature, other studies investigating the freshman academy model were encountered. However, no studies were found that explored the relationship between participation status in a freshman academy and academic outcomes of ninth grade students while controlling for the eighth grade Reading and English/Language Arts CRCT scores. This study will contribute information that may help educators make informed decisions about the value of implementing a freshman academy.

Design

Causal-comparative (ex post facto) and correlation designs were employed to explore the effect of the freshman academy on ninth grade students. Researchers may apply a causal-comparative design when attempting to describe a possible cause-effect relationship between an independent variable and a dependent variable (Campbell &
Stanley, 1963; Gall, Gall & Borg, 2007). The causal-comparative design component was chosen because it “is more consistent with how practitioners and other education stakeholders think about the world; and the statistical results typically are easier to comprehend and interpret” (Gall et al., 2007, p. 307). The correlational component of the study design was utilized to determine the relationship between the independent variable and categorical dependent variables, using multiple logistic regression. In contrast, the causal-comparative design was applied to variables that were measured on a continuous measurement scale, using analysis of covariance. The sample was determined by convenience (Gall et al., 2007) in that both schools utilized in the study are located in the same county where the researcher lives.

The study involved a two-group, static group comparison design to compare a single year of freshmen class data at two similar comprehensive high schools, designated High School “A” (control group) and High School “B” (treatment group). The primary independent variable of interest was the implementation, or lack thereof, of a high school freshman academy. The independent variable was denoted as FA participation status, on two levels: attended or did not attend a freshman academy. Additional independent variables, functioning as control variables, were ethnicity and eighth grade CRCT scores in two subjects: Reading and English/Language Arts. Analysis focused on determining if there was any difference in transition outcomes and student achievement. Dependent variables were dropout rate, promotion rate, graduation rate, student grade point averages (GPAs), and EOCT scores in ninth grade Literature/Composition.

The sample consisted of a portion of the freshman class of 2007-08 at High School “A” as the control group and a portion of the freshman class of 2007-08 at High School “B” as the treatment group.
School “B” as the treatment group with both classes graduating in 2011. The graduation class of 2011 was chosen for two primary reasons. First, at the time of data collection (May, 2012) it was the most recent data available that included high school graduation, which was one of the dependent variables. Using later test scores (after 2007-08) would have prevented a comparison with graduation rates of the same students. Second, beginning in the fall of 2012, new Common Core State Standards began to be implemented. Graduation data for the class of 2011 represented the final opportunity to study the outcome measure of high school graduation, before the new Georgia Performance Standards (GPS) would be in full effect. To comply with NCLB legislation, the Georgia Performance Standards were first implemented in the 2004-05 school year for ninth grade English Language Arts, and educators updated state standards with the Common Core Georgia Performance Standards (CCGPS) beginning in the fall of 2011 (GADOE, 2009).

The sample was chosen based on students’ scores on the eighth grade Reading CRCT and English/Language Arts CRCT. Any student who either failed to meet the CRCT minimum passing standard (800) or met the standard by 15 points or less (801-815) on any of the tests was included in the sample. The comparison between the two classes was used to determine if the treatment, participation in the freshman academy, made a statistically significant difference in the studied outcomes.

All data from both schools were collected during the same school year, thus eliminating the possibility of a history threat to validity from a comparison group. The purpose of selecting similar classes from two different schools in the same school district was three-fold: for convenience, to minimize unintended bias, and to better represent the
student population of the school district as a whole. Control and treatment groups in similar high school classes were selected to minimize the history threat to validity and the selection threat of non-equivalent groups. Recognizing the possibility that the two schools were different in the distribution of gender, ethnicity, education, and eighth grade Reading CRCT scores and English/Language Arts CRCT scores, which could confound the results, these variables were compared between the two schools using Chi-square and $t$-tests. Chi-square tests were applied to compare the groups’ gender and ethnicity distributions.

**Research Questions and Hypotheses**

Based on the significance of the study and similar studies of the efficacy of freshman academies, the following research questions and hypotheses guided this study:

**Research question 1.** When controlling for ethnicity, what, if any difference is there in the odds of dropping out of ninth grade between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

**Research question 2.** When controlling for ethnicity, what, if any difference is there in the odds of being promoted to the tenth grade between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

**Research question 3:** When controlling for ethnicity, what, if any difference is there in the odds of graduating in four years between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?
**Research question 4:** When controlling for ethnicity, what, if any difference is there in the average grade point average between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

**Research question 5:** When controlling for ethnicity, what, if any difference is there in the average ninth grade Literature/Composition End of Course Test (EOCT) score between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

**Research question 6:** When controlling for ethnicity and eighth grade Reading CRCT scores, what, if any difference is there in the average ninth grade Literature/Composition End of Course Test (EOCT) score between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

**Research question 7:** When controlling for ethnicity and eighth grade English/Language Arts CRCT scores, what, if any difference is there in the average ninth grade Literature/Composition End of Course Test (EOCT) score between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

**Research Hypotheses**

\( H1_a: \) When controlling for ethnicity, there is a significant difference in the odds of dropping out of ninth grade between students that attended the freshman academy and students that did not attend the freshman academy.
**H2**<sub>a</sub>: When controlling for ethnicity, there is a significant difference in the odds of being promoted to tenth grade between students that attended the freshman academy and students that did not attend the freshman academy.

**H3**<sub>a</sub>: When controlling for ethnicity, there is a significant difference in the odds of graduating in four years between students that attended the freshman academy and students that did not attend the freshman academy.

**H4**<sub>a</sub>: When controlling for ethnicity, there is a significant difference in the average GPA between students that attended the freshman academy and students that did not attend the freshman academy.

**H5**<sub>a</sub>: When controlling for ethnicity, there is a significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.

**H6**<sub>a</sub>: When controlling for ethnicity and eighth grade Reading CRCT scores, there is a significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.

**H7**<sub>a</sub>: When controlling for ethnicity and eighth grade English/Language Arts CRCT scores, there is a significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.
Null Hypotheses

$H_{10}$: When controlling for ethnicity, there is no significant difference in the odds of dropping out of ninth grade between students that attended the freshman academy and students that did not attend the freshman academy.

$H_{20}$: When controlling for ethnicity, there is no significant difference in the odds of being promoted to tenth grade between students that attended the freshman academy and students that did not attend the freshman academy.

$H_{30}$: When controlling for ethnicity, there is no significant difference in the odds of graduating in four years between students that attended the freshman academy and students that did not attend the freshman academy.

$H_{40}$: When controlling for ethnicity, there is no significant difference in the average GPA between students that attended the freshman academy and students that did not attend the freshman academy.

$H_{50}$: When controlling for ethnicity, there is no significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.

$H_{60}$: When controlling for ethnicity and eighth grade Reading CRCT scores, there is no significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.

$H_{70}$: When controlling for ethnicity and eighth grade English/Language Arts CRCT scores, there is no significant difference in the average ninth grade
Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.

Participants

The population was first-time ninth graders in high school who had taken all of the eighth grade benchmark Criterion Referenced Competency Tests (CRCT) the previous year. Students were enrolled in first year classes at two large, comprehensive high schools in which each school consisted of approximately 600 students in each grade-level class. The freshman class of 2007-08 at High School “A” was used as the control group because there was no freshman academy model being utilized at the school. The treatment group, the freshman class of 2007-08 that graduated in 2011, was the first freshman class to participate in the freshman academy model at High School “B”.

The sampling frame was all freshmen who were first time ninth graders, who were registered and attended ninth grade for the first time within the first four weeks (before Labor Day) of the freshman school year. It did not include students who were repeating ninth grade or students who registered and first attended ninth grade after Labor Day in the academic year under study. This ensured that the participants had the full advantage of participating in the freshman academy for all grading periods. Students with Disabilities who were not participating in Georgia Alternate Assessment were included in the study but were not disaggregated. Each of the students in the sampling frame also needed to have participated in all of the eighth grade benchmark exams, the CRCT in each required subject.

Total sample size was 425, with 194 in the control group and 231 in the treatment group. The treatment group sample was chosen with consideration of the intention of the
freshman academy model: to provide extra support and encouragement to those students at risk of dropping out of high school (Hertzog & Morgan, 1997; Neild, 2009). The central eligibility criterion was the ninth grade students’ scores received on the CRCT benchmark exams taken in eighth grade. All students who failed any of the subject area tests or were within fifteen points of failing any of the CRCT subject area tests were selected for the study. The fifteen point buffer above the failing grade was arbitrarily chosen. Any student in the freshman class with a scaled score of 815 or lower was included in the study. The sampling procedure was convenience sampling because both High School “A”, where the control group students were located, and High School “B,” where the freshman academy was located, were in the same school system where the researcher lived and worked. In addition, all of the data required for this study were located in the student information system (SIS) of the school district where the researcher is employed.

To evaluate the comparability of the control and treatment groups for potential confounding variables, the distribution of student gender, ethnicity, eighth grade CRCT Reading and English/Language Arts CRCT scores was compared between the two groups. There was not a statistically significant difference in the gender distribution between the two groups, Chi-square (1) = 1.38; \( p = .24; \) \( w = .057 \) with the probability of a Type II error = .78. Concerning ethnicity, there were too few study participants in several of the ethnic groups to compare statistically and therefore, ethnicity was recoded into two groups, White versus non-White. There was a statistically significant difference in the ethnic distribution between the two groups. There were significantly more non-Whites in the control group compared to the treatment group, Chi-square (1) = 11.6; \( p =
There were no differences in the distribution of scores on the two eighth grade CRCTs.

**Setting**

The setting of this study consisted of two large, comprehensive high schools in Georgia. While the county where the high schools are located is considered to be part of the Atlanta metropolitan area, the county consists of both suburban and rural sections. With over 200 school systems in Georgia, the school district studied represents the tenth largest. In the metropolitan Atlanta area, the district ranks sixth largest. With over 37,000 students enrolled in the 2008-2009 school year, it is a moderately large school system when compared nationally. The school system is comprised of six high schools, seven middle schools, twenty-two elementary schools, and one each: intermediate school, alternative school, and night school (GADOE, 2008). According to school district information the county-wide ethnic distribution of students in 2008 was 75.5% White, 12.8% Hispanic, 6.8% Black, 2.7% Multi-racial, 1.8% Asian, and 0.4% American Indian/Native Alaskan.

The high schools studied are large, comprehensive high schools. High School “A” (source of the control group) had 2,391 students in four grades, 9 through 12 (GADOE, 2008). In the school’s total population, 19% of students were eligible for free/reduced meals. Other student population demographics included 11% of the student population qualified as Students with Disabilities and 2% were English Language Learners. High School “B” (source of the treatment group) had 2,157 students in four grades, 9 through 12 (GADOE, 2008). In that school’s total population, 24% of students were eligible for free/reduced meals. Other student population demographics included
12% of the student population qualified as Students with Disabilities, 13% were gifted, and 4% were English Language Learners. Of the six high schools in the school district, High School “B” is the county’s oldest, is the lowest socio-economically, and the most ethnically diverse. Ethnic diversity of the 2007-2008 freshman population in each school is shown in Table 1. In the 2007-2008 school year, the control group population (High School “A”) contained a higher percentage of minority students (31%) compared to the treatment group population (High School “B”), with approximately 25% minority students.

Table 1

*Ethnicity of Freshman Class Population in High School “A” (Source of Control Group) and High School “B” (Source of Treatment Group)*

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>High School &quot;A&quot; (Source of Control Group)</th>
<th>High School “B” (Source of Treatment Group)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Asian</td>
<td>14</td>
<td>2.24%</td>
</tr>
<tr>
<td>Black</td>
<td>75</td>
<td>12.00%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>93</td>
<td>14.88%</td>
</tr>
<tr>
<td>Native American</td>
<td>1</td>
<td>0.16%</td>
</tr>
<tr>
<td>Multi-Racial</td>
<td>13</td>
<td>2.08%</td>
</tr>
<tr>
<td>White</td>
<td>429</td>
<td>68.64%</td>
</tr>
<tr>
<td>Total</td>
<td>625</td>
<td>100%</td>
</tr>
</tbody>
</table>

The classes and curriculum for both High School “A” and High School “B” were similar. Ninth graders in both schools were required to take six credits, with one credit equaling a full year of class. The academic classes required for all ninth graders included a class in math, English, social studies and science. Each ninth grade student also attended two elective classes. To graduate, every student must have completed one half
credit of physical education and one half credit of health. These two “elective” classes
typically made up one of the two elective credits ninth graders had the option to earn.
The final elective credit was chosen by the student and could be any elective class offered
by the school, such as band, foreign language, art, or a technical class such as automotive
repair, construction, welding, or Junior Reserve Officer Training Corps (Jr. ROTC).

The difference between ninth grade students in High School “A” and High School
“B” was not the curriculum but the manner in which it was delivered. In High School
“A” the ninth graders freely intermingled with upper classmen throughout the day. At
High School “B” the ninth graders were essentially isolated in their own ninth grade
building with a separate period for ninth grade lunch in order to keep them separated
from the upper classmen as much as possible.

Each of the two high schools had two “feeder” middle schools with one of the
middle schools dividing their graduates between each high school in the study.
Therefore, technically, each high school had 1.5 feeder middle schools. Both of the
feeder middle schools to High School “B” were Title I schools but for High School “A,”
only the shared middle school was a Title I school (GADOE, 2008). In the school year
studied, 2007-2008, both high schools made Adequate Yearly Progress (AYP).
Specifically, according to the Georgia Department of Education score report (GADOE,
2008), both high schools met the AYP criteria for test participation, academic
performance, and the “second indicator” which was graduation rate for the year being
studied (2011).

Prior to 2005 both high schools in this study provided a similar educational
opportunity to the students attending. Each school offered six academic periods each day
that lasted 55 minutes. Each school provided students with a choice of elective classes ranging from foreign language and band, to vocational courses and Junior Reserve Officer Training Corps (Jr. ROTC). Academic courses in each of the high schools included the four major subject areas of English, math, science, and social studies, and each high school had consistently met the adequate yearly progress goals set by the state of Georgia (GADOE, 2008).

**Freshman academy implementation.** In 2005, as county and school administrators looked down the road at the looming requirements presented by the *No Child Left Behind Act of 2001*, they were concerned about graduation rates. In fifty years of existence, High School “B” had never surpassed the 70% graduation rate that was soon going to be required of all high schools in Georgia. At the suggestion of a new assistant principal, county leaders decided to open a freshman academy at High School “B” with the new assistant principal charged to organize and institute policies for the new freshman academy.

The Freshman Academy office and academic classes were situated in a stand-alone building on the High School “B” campus. The initial class of the Freshman Academy consisted of 561 students. Academic classes were contained in the stand-alone building so all students would feel as if they were in a middle school team. All freshmen shared one lunch period away from most upper-class students. Each school day was divided into seven periods, six periods of classes and one period for lunch. All of the freshmen shared the same two periods for elective classes. This also kept them generally segregated from the upper-class students at the school.
Students participating in the Freshman Academy were required to take regular high school classes in all of the core subject areas as would be expected from any ninth grade student. Core classes consisted of ninth grade Literature/Composition, Math I (Algebra, Geometry, and Statistics), Physical Science, and World Geography. Elective courses included one semester of Health and one semester of Physical Education. The student was able to choose another two-semester elective class from those offered at the school such as: Construction, Metals/Welding, Drafting, Automobile Maintenance, Spanish, French, Latin, Foods and Nutrition, Family and Consumer Science, Introduction to Art, Team Sports, Weightlifting, and Computer Science.

The administrative team planning the implementation of the Freshman Academy initially asked for teachers to volunteer if they had a desire to work in the new Freshman Academy. From the group of volunteers, the administrative team chose teachers who understood the nature of ninth graders and were willing to devote additional time as needed to assist students throughout the year. Many of the teachers chosen had previous experience teaching eighth graders and participating on middle school teams. Additionally, teachers were chosen who had well-developed classroom management skills and were known to be consistent in their response to extraordinary situations. Above all, the teachers chosen had an overwhelming desire to assist students that had previously struggled with academic performance.

Discipline was administered by only one administrator for consistency. All teachers shared the same lunch period and a planning period. Once a week all of the Academy teachers met in an Academy-wide meeting to discuss student progress, discipline issues, student safety, and program improvements. Teachers were encouraged
to plan together by subject area at least once a week, which also facilitated grade-level planning and discussions of individual students’ issues. Sharing information among all of the ninth grade teachers occurred in an effort to offer additional support to struggling ninth grade students.

**Large school model: No freshman academy.** At High School “A” there is no grade-level cross curriculum planning for ninth grade teachers separate from their academic departments. Academic subject groups meet together on average of once a month to discuss issues pertinent to the academic department (i.e. English, social studies, science, physical education etc.). There is no grade level planning for core subject ninth grade teachers as is prevalent in a freshman academy. Therefore, individual student issues are not discussed, as in a freshman academy, between all of the ninth grade teachers in an effort to offer additional support to struggling ninth grade students.

Ninth grade teachers were not clustered together and away from upper level teachers, rather teachers at High School “A” were typically grouped by subject area with each academic department occupying a single hallway. High School “A” is also a “combined” campus where one of the two feeder middle schools actually shares the same building. The building is designed with the cafeteria in the center and the middle school “campus” connected by a hallway in one direction with the high school “campus” connected by a hallway in the opposite direction. Both middle school students and high school students ride the same buses which load and unload in the same area. In effect, when a student begins middle school in the sixth grade at High School “A” Middle School, they will go to school in the same building complex for the next seven years.
Instrumentation

The study consisted of one primary independent variable, freshman academy participation status, which consisted of two groups, a control group that did not attend a freshman academy and a treatment group that did attend a freshman academy. Additional independent variables used as control variables were ethnicity, eighth grade reading CRCT scores, and eighth grade English/Language arts CRCT scores. The dependent variables were transition outcomes and student achievement. Transition outcomes measured were the students’ ninth grade dropout status, tenth grade promotion status, grade point averages at the end of the ninth grade year, and graduation rate. The student achievement dependent variable was the ninth grade Literature/Composition End of Course Test (EOCT) scores. All data were collected from the school district’s SIS. Data collected from the freshman class of 2007-08 at High School “A” were then compared to data collected from the freshman class of 2007-08 at High School “B”.

Instrument Reliability

According to the Standards (American Educational Research Association, 2004) reliability has been defined as:

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

Reliability of both subject-level tests, the CRCT and EOCT, was measured using two reliability indices, Cronbach’s alpha and the Standard Error of Measurement (SEM). Cronbach’s alpha reliability coefficient “expresses the consistency of test scores as the
ratio of true score variance to observed total score variance” (EOCT: Validity and Reliability, 2013, p. 7). The Standard Error of Measurement (SEM) was “used to quantify the precision of a test in the metric on which scores will be reported” (EOCT” Validity and Reliability, 2013, p. 8). The GADOE reported Cronbach’s alpha for the Reading CRCT at .86 and the SEM at 2.38; the English/Language Arts CRCT Cronbach’s alpha was .89 and the SEM was 2.70 (CRCT: Validity and Reliability, 2013). The Cronbach’s alpha for the ninth grade Literature/Composition EOCT was .92 and the SEM was 3.30 (EOCT: Validity and Reliability, 2013).

The researcher has attempted to establish validity in this study by asking appropriate questions that answer the hypotheses. In accord with the literature covering freshman academies, the dependent variables were chosen to match variables in similar studies as follows:

- percentage of dropouts (Adcock, 2009; O’Neill, 2013; Royer, 2007);
- percentage of students that were promoted to tenth grade (Hale, 2008; Hendrix, 2007; Woods, 2011);
- grade point averages (Fulco, 2009; Gary, 2004; Hernandez, 2012; Sigler, 2008; Springer-Schwatken, 2004); and

Following the post-positivist framework of this study, using these previous studies as a guide and replicating what others have researched adds to the reliability of all the studies. Objectivity was assured as much as possible because the data had already been collected by the school system, archived, and treated as correct. This study only
involved organizing and analyzing data that had previously been collected from multiple sources and checked by school system personnel for completeness. Data for all the variables were identified from school system records of freshman academy students and students in a traditional high school program.

The primary independent variable was participation status, consisting of control and treatment groups. Control group participants were students that did not attend a freshman academy and treatment group participants were students that attended a freshman academy. The student’s ethnicity and scores on two eighth grade subject level tests, the Reading and English/Language Arts CRCTs, were control variables, a form of independent variable of secondary importance relative to the primary independent variable, participation status. Included in this study were only students who scored 815 or below on any one of the CRCT subject level tests. CRCT scaled scores range from 650-900 or above and are broken down into three performance levels: Does Not Meet Standards (<800); Meets Standards (800-849); Exceeds Standards (850+). “Scores above 900 generally indicate exceptional performance” (CRCT: Score Interpretation Guide, 2013, p. 4).

The Criterion Referenced Competency Test was created by the Georgia Department of Education to meet a portion of the federal requirements for a state standards and assessments system (CRCT: Validity and Reliability, 2013). An external team of standards and assessment experts from the United States Department of Education reviewed the test. According to the Georgia Department of Education, “The CRCT was found to meet nationally recognized professional and technical standards for assessment programs” (CRCT: Validity and Reliability, 2013, para. 8). Validity of the
CRCT is described in conjunction with the EOCT (dependent variable) in a discussion of Georgia standardized test validity, following descriptions of all dependent variables.

**Dependent Variables: Definition, Measurement, Validity**

**Dropout status: the student’s ninth grade dropout status.** A student was considered a dropout if: a) the student missed school for ten or more consecutive days of unexcused absences during the school year; b) left school and did not transfer to another school; or c) after completing the first year in high school did not re-enroll within the first thirty days of the next school year. Dropout status is a defined term related to factual data which does not require validity. Students who met criteria for dropout status were coded as 1 in the data and those who did not meet criteria were coded as 0.

**Promotion status: the student’s tenth grade promotion status.** To be promoted, the student must have earned at least five of six possible credits including one full credit in both math and ninth grade Literature/Composition (Course Selection Guide, 2008) by the end of their first attempt at ninth grade. Promotion status is a defined term related to factual data which does not require validity. Promotion status was coded as 0 = not promoted; 1 = promoted.

**Graduation status: the student’s high school graduation status.** To graduate from high school the student must complete all state-required graduation requirements within the four years of high school. Students were counted as on-time graduates if they completed requirements either to graduate in May, at the end of the school year, or at the conclusion of summer school in June of their fourth year in high school. Graduation status is a defined term related to factual data which does not require validity. The following coding was used for graduation status: 0 = did not graduate, or 1 = graduated.
**Grade Point Average.** The student’s ninth grade GPA was calculated as the student’s grade point average at the end of the ninth grade school year. GPA was the end of year unweighted average of all final grades received at the end of the ninth grade year. Both academic and elective grades were used to calculate the GPA. The school district under study used percentage scores to calculate GPAs. Equivalent numerical grades in the school district studied are as follows: A = 90-100; B = 80-89; C = 71-79; D = 70; F = Below 70 (Academic Achievement Manual, 2013). GPA is a scaled score and has been shown to be a valid measure of school performance.

Researchers and educators have discussed whether the grade point average is a valid and reliable instrument in determining student progress. Zwick and Himelfarb (2011) asserted GPA provides predictive evidence of future academic achievement, but one of the major concerns that opponents have of the high school GPA is its subjectivity (Geiser & Santelices, 2007). Researchers who conducted a study by The College Board (Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008) admitted the strong predictive value of high school GPA but explained a stronger predictability exists when coupled with standardized test scores such as the SAT. Geiser and Santelices (2007) showed that although the predictability is greater when using both the high school GPA and SAT scores, the high school GPA consistently predicts future college success more reliably. Al-Hattami (2012) at the University of Pittsburgh also found that both high school GPA and college entrance exam scores had significant predictive value in measuring academic performance in the first year of college. Geiser and Santelices (2007) reported among almost 80,000 students admitted to the University of California and in every test performed, high school GPA was statistically the best predictor of future college success.
Geiser and Santelices (2007) and Zwick and Himelfarb (2011) agreed that high school grades alone are much less correlated with the socio-economic status of students than are standardized tests which makes GPA more valuable as an overall predictor of academic success. Bacon and Bean (2006) performed a similar study at the college level and quoted Nunnally (1978) when explaining validity, pointing out that “a measuring instrument is valid if it does what it is supposed to do” (p. 36). They explained that the validity of GPA can be “conceptualized as the degree to which GPA correlates with a measure of academic performance (p. 36). Gall et al. (2007) stated that validity “refers to the appropriateness, meaningfulness, and usefulness of specific inferences made from test scores” (p. 151).

Applying the GPA as a dependent variable was intended to demonstrate academic success and has been shown to do so in previous research (Geiser & Santelices, 2007; Zwick & Himelfarb, 2011). The GPA utilized in the current study was an average of all final course grades during the freshman year. Accounting for all of the grades may reduce individual teacher bias and makes the GPA a more reliable indicator of the student’s true performance than a single grade.

**Ninth grade Literature/Composition EOCT score:** The student’s score for the ninth grade Literature/Composition End of Course Test as determined by the state. The End of Course Test is a mandated standardized test that must be taken by all high school students in Georgia at the conclusion of a tested course. The state requires the EOCT to be taken at the conclusion of eight pre-selected courses, two in each core subject area. Test results are provided to the students in both scaled score and converted score form. Scaled scores are provided to the students ranging from <400, which do not
meet performance standards, to 450 or higher, which exceed the performance standards. Scaled scores from 400-449 are considered as meeting the performance standard.

Scaled scores are then converted by the state to a numerical percentage. The scaled scores from 200-399 are converted to grades from 0-69. The scaled scores from 400-449 are converted to grades from 70-89. The scaled scores from 450-600 are converted to grades from 90-100 in the ninth grade Literature/Composition EOCT (GADOE, 2012). The final converted EOCT score for each student counts as 15% of the final grade in the class. Converted grades were used in the current study in conformance with the Georgia Department of Education (2012) guideline, “The grade conversion scale is helpful because it can be more readily incorporated into course grades than can scale scores” (p. 16) and the conversion scores are the scores recorded by the school district in the database.

Validity of State-Mandated Standardized Tests: CRCT and EOCT

All state mandated tests in the state of Georgia are managed by the Georgia Department of Education (GADOE). State test developers strictly follow the Standards for Educational and Psychological Testing (AERA, 2004) which was published jointly by the American Educational Research Association, American Psychological Association, and the National Council on Measurement in Education. In discussing validity, Trochim (2006) stated reliability and validity are related. Reliability is the consistency or repeatability of a measure while validity describes how well a test measures what it is expected to measure (Trochim, 2006). “For a test to be valid, it must also have reliability. However, the inverse of this is not true—a reliable measure is not necessarily valid” (EOCT: Validity and Reliability, 2013, p. 7). The Georgia Department
of Education has employed a multiple step process to confirm that the CRCT and EOCT are valid tests.

The first step in developing a valid test is to identify the purpose of the test (EOCT: Validity and Reliability, 2013). The tests were developed to measure student achievement relative to the Georgia Performance Standards (GPS). Each test is only able to assess a small sample of the required content covered in the GPS curriculum.

“Validity of the EOCT [and CRCT] relies primarily on how well the assessment instruments match the intended curriculum and how the score reports inform the various stakeholders—students, parents, and educators—about the students’ performance” (EOCT: Validity and Reliability, 2013, para. 4).

The second step in developing a valid test falls to various committees of educators who decide which parts of the curriculum should be assessed and then how to assess that acquisition of knowledge, concepts, and skills. From these committees two documents are developed which lay out which standards will be tested and how they are to be presented on the test (EOCT: Validity and Reliability, 2013). The third step is write the test questions. Test questions are written by an assessment contractor and overseen by curriculum specialists from the Georgia Department of Education. Questions are carefully written to include the correct cognitive level and content scope required and reviewed by the curriculum specialists. Various committees of educators in Georgia review the items for curriculum alignment, potential bias, and age/grade-level suitability. The reviewing committees have the authority to keep, revise, or discard any question. Questions that are accepted by the committee are added to current tests as field-test
questions to allow the test designers to determine if the questions appropriately assess achievement without confusing the students (EOCT: Validity and Reliability, 2013).

After the test questions have been field tested, a different committee of educators examines each question with its field test data. The committee considers the percent of correct answers, and how the test question was answered by different groups of students. Questions may once again be kept, revised, or discarded. Only questions that meet specific requirements are accepted and added to a test question bank for inclusion in future versions of the CRCT or EOCT (EOCT: Validity and Reliability, 2013).

The next step in validity is to develop a test. Test questions are organized by domain into a test version making certain that the content weight of each domain strictly adheres to state requirements that each test produced is of equal difficulty. The first time a test is administered, the Department of Education sets performance level standards. Setting these standards provides educators with the number of correct responses a student must get to achieve the various performance levels set by the state. Finally, state education personnel produce a test (EOCT: Validity and Reliability, 2013).

**Procedures**

Permission to conduct research in the target school district was applied for and received on April 27, 2012 (Appendix A). Permission was then requested to conduct the research study from the Liberty University Institutional Review Board (IRB). The IRB approved the research proposal on May 1, 2012 (Appendix B). Student data for the school year 2007-08 was collected following the IRB mandated protocol. Data were collected from the school system between May 1, 2012 and June 7, 2012. The school system provided data for: (a) school name, (b) student ID, (c) student name, (e) student
ethnicity, (f) student gender, (g) student grade, (h) ninth grade entry date, (i) unweighted GPA, (j) ninth grade Literature/Composition EOCT, (k) eighth grade Reading CRCT scaled score, (l) eighth grade English/Language Arts CRCT scaled score, (m) eighth grade Math CRCT scaled score, (n) eighth grade Science CRCT scaled score, (o) eighth grade Social Studies CRCT scaled score, (p) dropout Y/N, (q) number of discipline incidents, (r) 2nd year grade level, (s) known graduation status after four years Y/N.

To ensure anonymity, confidentiality, and ethical treatment of participants, numbers in the 1,000s were assigned to students in the control group and numbers in the 2,000s were assigned to participants in the treatment group. Data was secured and stored away from the school site at all times during analysis. Upon completion of analysis, all data were securely locked in the records vault at the studied school for the required length of time in case data needed to be verified.

The data for this study were collected by running queries in the student information system (SIS) utilized by the school district being studied. Freshman year data for all groups were collected from SASI, a student information system previously used by the school district being studied. The data were collected and exported to Microsoft Excel spreadsheets and then imported into SPSS for Windows, Version 19.0 (IBM Corp., 2010) for analysis.

Research Questions

Seven research questions guided the research study. The first three questions concerned student progression measured by three variables respectively: dropping out of ninth grade, promotion to tenth grade, and graduating in four years. Research questions
4, 5, 6, and 7 reflected a comparison of academic achievement of the ninth grade students, specifically GPA and ninth grade Literature/Composition EOCT score.

**Research question 1.** When controlling for ethnicity, what, if any difference is there in the odds of dropping out of ninth grade between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

**Research question 2.** When controlling for ethnicity, what, if any difference is there in the odds of being promoted to the tenth grade between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

**Research question 3:** When controlling for ethnicity, what, if any difference is there in the odds of graduating in four years between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

**Research question 4:** When controlling for ethnicity, what, if any difference is there in the average grade point average between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

**Research question 5:** When controlling for ethnicity, what, if any difference is there in the average ninth grade Literature/Composition End of Course Test (EOCT) score between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?
Research question 6: When controlling for ethnicity and eighth grade Reading CRCT scores, what, if any difference is there in the average ninth grade Literature/Composition End of Course Test (EOCT) score between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

Research question 7: When controlling for ethnicity and eighth grade English/Language Arts CRCT scores, what, if any difference is there in the average ninth grade Literature/Composition End of Course Test (EOCT) score between ninth grade students who attended a freshman academy as compared to similar ninth grade students who did not participate in the freshman academy model?

Null Hypotheses

$H_{10}$: When controlling for ethnicity, there is no significant difference in the odds of dropping out of ninth grade between students that attended the freshman academy and students that did not attend the freshman academy.

$H_{20}$: When controlling for ethnicity, there is no significant difference in the odds of being promoted to tenth grade between students that attended the freshman academy and students that did not attend the freshman academy.

$H_{30}$: When controlling for ethnicity, there is no significant difference in the odds of graduating in four years between students that attended the freshman academy and students that did not attend the freshman academy.

$H_{40}$: When controlling for ethnicity, there is no significant difference in the average GPA between students that attended the freshman academy and students that did not attend the freshman academy.
When controlling for ethnicity, there is no significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.

When controlling for ethnicity and eighth grade Reading CRCT scores, there is no significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.

When controlling for ethnicity and eighth grade English/Language Arts CRCT scores, there is no significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy.

**Data Analysis**

All statistical analyses were performed using SPSS for Windows Professional version 19 (IBM Corp., 2010). Prior to data collection an alpha level of significance of 5% was selected to make a decision to reject or fail to reject the null hypothesis. According to Gall et al. (2007) the level of significance actually obtained after the data have been collected and analyzed is called the probability value and is denoted with the symbol $p$. For this study, as is typical in the social sciences, a two-tailed alpha level of .05 was selected on which to reject or fail to reject the null hypothesis (Gall et al., 2007). A $p$-value <.05 for any statistical test performed in this study was cause to reject the null hypothesis.
Demographics and Group Comparisons

Demographic characteristics of the study sample were described using frequency and percent. Preliminary analyses were conducted prior to hypothesis testing to demonstrate the comparability of the two groups. Chi-square tests were used to compare the gender and ethnic distribution between students that attended the freshman academy and students that did not attend the freshman academy. Two-sample t-tests were used to compare the average eighth grade Reading CRCT scores and English/Language Arts CRCT scores between the two groups. The chi-square tests results showed that the control group had a significantly larger percentage of minorities (non-White) than the treatment group; therefore ethnicity (White versus non-White) was treated as the control variable in hypothesis testing. There was not a statistically significant difference in the distribution of gender or eighth grade CRCT scores between the two groups.

Hypothesis Testing

Hypotheses one, two, and three were tested using multiple logistic regression analysis using SPSS version 19 Professional software. Gall et al. (2007) defined logistic regression as “a type of multiple regression analysis involving the use of two or more measured variables yielding continuous or categorical scores to predict a criterion [dependent] variable that is categorical in nature” (p. 644). This statistical method was appropriate because each hypothesis involved a single dependent variable which was measured on a dichotomous measurement scale (i.e. two categories, such as dropped out or did not drop out) and more than one independent variable. The independent variables were FA participation status (control versus treatment) and ethnicity (White versus non-White). The dependent variables were dropout status, promotion status, and graduation.
status. The assumptions for multiple logistic regression analysis are: (a) The dependent variable must be measured on a dichotomous measurement scale; (b) The observations are independent of one another so that the study participants are measured only once: No study participant appears more than once in the data set; and (c) There is no multicollinearity. Independent variables are not strongly correlated with each other (Gall et al., 2007).

Testing of the first two assumptions was not required because by design, the dependent variable was dichotomous and according to the sampling method, each study participant appeared only once in the data set. The third assumption was tested by using a Chi-Square test to determine if there was a statistically significant strong association between participation status and ethnicity. For each of the three hypotheses, if the $p$-value for participation status was statistically significant ($p < .05$), the null hypothesis was rejected and it was concluded that when controlling for ethnicity, the odds of a student dropping out, being promoted to tenth grade, or graduating, were different for students that attended the freshman academy and students that did not attend the freshman academy. The descriptive statistic reported for these variables was the odds ratio. Effect sizes were measured by Nagelkerke’s $R^2$ (Nagelkerke, 1991). Effect sizes were interpreted according to Cohen’s criteria (Cohen, 1988). Specifically, small, medium, and large effect sizes for $R^2$ were: .020, .130, and .260, respectively.

Hypotheses four, five, six, and seven were tested using Analysis of Covariance (ANCOVA) through SPSS Professional version 19 software. Gall et al. (2007) stated that ANCOVA is the procedure used to determine “whether the difference between the mean scores of two or more groups on one dependent variable is statistically significant,
after controlling for initial differences between the groups on one or more extraneous variables” (p. 632). This statistical method was appropriate for each hypothesis because the dependent variables (GPA, EOCT scores) were measured on a continuous measurement scale and at least one of the independent variables (participation status or ethnicity) was measured on a categorical measurement scale (Gall, Gall, & Borg, 2007). Independent variables were participation status (control versus treatment) and ethnicity (White versus non-White). For hypothesis six, an additional independent variable was eighth grade Reading CRCT scores, and for hypothesis seven an additional independent variable was eighth grade Language Arts CRCT scores. For all four hypotheses, the dependent variable was the ninth grade Literature/Composition EOCT score.

ANCOVA is appropriate in causal-comparative studies because “the researcher cannot always select comparison groups that are matched with respect to all relevant variables except the one that is the main concern of the investigation” (Gall et al., p. 321).

The assumptions for ANCOVA are: (a) The residuals should have a roughly normal distribution; (b) The variance of the error terms should be equal across all levels of the independent variables; (c) The regression slope should be the same for each level of the independent variables; (d) The relationship between the independent and dependent variables should be linear; (e) The error terms should be uncorrelated, and; (f) multicollinearity should not be present (Elashoff, 1969). To test the first assumption, a histogram of the standardized residuals was inspected. The second assumption was evaluated by inspecting boxplots of the standardized residuals by participation status and ethnicity and scatter plots for EOCT versus eighth grade CRCT scores. The third assumption was evaluated by testing the statistical significance of the interaction between
participation status, ethnicity, and eighth grade CRCT scores. The fourth assumption was not evaluated for participation status and ethnicity because both variables were dichotomous and a linear relationship is guaranteed in that case. For hypotheses 6 and 7 scatter plots were used to test the fourth assumption. To test the fifth assumption, a scatter plot of the standardized residuals versus the lagged standardized residuals was inspected. A lagged standardized residual is the same as the standardized residual except the order of the residual is moved by one. For example, the residual for participant 1 is compared to the residual for participant 2; the residual for participant 2 is compared to the residual for participant 3 etc. The sixth assumption was evaluated by measuring the strength of association (i.e. effect size) between participation status, and ethnicity and eighth grade CRCT scores.

If the $p$-value for the independent variable was statistically significant ($p < .05$), it was concluded that when controlling for the other independent variables (i.e. ethnicity, eighth grade CRCT scores), there is a difference in the average EOCT score between those who attended a freshman academy and those who did not attend a freshman academy. The descriptive statistics reported for these analyses were the adjusted average EOCT scores by participation status. The effect size was measured by partial eta squared ($\eta_p^2$). Effect sizes were interpreted according to Cohen’s (1988) criteria. Specifically, small, medium, and large effect sizes for $\eta_p^2$ are: .0196, .13, and .26, respectively. The size of the difference between the two groups was demonstrated by reporting $\eta_p^2$ for participation status.

For hypothesis six, the control variables were ethnicity (White versus non-White) and the eighth grade Reading CRCT score. If the $p$-value for participation status was
statistically significant, it was concluded that when controlling for ethnicity and CRCT score, there was a difference in the average EOCT score between those who attended a freshman academy and those who did not attend a freshman academy. The size of the difference between the two groups was demonstrated by reporting the $\eta^2_p$ for participation status.

For hypothesis seven the control variables were ethnicity (White versus non-White) and the eighth grade English/Language Arts CRCT score. If the $p$-value for participation status was statistically significant, it was concluded that when controlling for ethnicity and CRCT score, there was a difference in the average EOCT score between those who attended a freshman academy and those who did not attend a freshman academy. The size of the difference between the two groups was demonstrated by reporting the $\eta^2_p$ for participation status.
CHAPTER FOUR: FINDINGS

Procedures for the statistical analysis and findings are reported in this chapter that is organized into three sections to reflect data collected: (a) descriptive statistics for demographics and preliminary group comparisons, (b) hypotheses test results, and (c) summary. Using a causal comparative and correlational design, the purpose of the study was to compare academic outcomes of two groups of ninth grade high school students: those who attended a freshman academy at a large comprehensive high school (treatment group) and those who did not attend a freshman academy at a different large comprehensive high school (control group). This is the primary independent variable of interest, referred to as freshman academy (FA) participation status, or FA participation (attended versus did not attend). Independent variables of secondary interest, which were treated as control variables, were ethnicity, eighth grade Reading Criterion Referenced Competency Test (CRCT) score and eighth grade English/Language Arts CRCT score. The dependent variables were dropout status, promotion status, graduation status, GPA, and ninth grade Literature/Composition End of Course Test (EOCT) score. Total sample size was 425, comprised of 194 participants in the control group and 231 in the treatment group.

Descriptive Statistics for Demographics: Gender and Ethnicity

To evaluate the comparability of the control and treatment groups with respect to potentially confounding variables, descriptive findings were compared between the two groups. Possible confounding variables were gender, ethnicity, eighth grade Reading CRCT scores and eighth grade English/Language Arts CRCT scores. Frequency tables and descriptive statistics are presented in Appendix C.
**Gender.** Among the 425 total study participants, the number of females and males in each group approximated half of the total but was not equal, and gender distribution in the control and treatment groups showed similar differences (Table 2). Males outnumbered females in the control group, and females outnumbered males in the treatment group; however, Pearson’s Chi-square test indicated no statistically significant difference in the gender distribution between the two groups, $\chi^2(1) = 1.38, p = .24; w = .057$. The probability of making a Type II error for this analysis was .78.

Table 2

*Cross-classification of Gender by Control and Treatment Group*

<table>
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<tr>
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<th>Female</th>
<th>Male</th>
<th>Total (N = 425)</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control Group</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count (n)</td>
<td>88</td>
<td>106</td>
<td>194</td>
<td>45.64%</td>
</tr>
<tr>
<td>% within Group</td>
<td>45.36%</td>
<td>54.63%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td><strong>Treatment Group</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Count (n)</td>
<td>118</td>
<td>113</td>
<td>231</td>
<td>54.35%</td>
</tr>
<tr>
<td>% within Group</td>
<td>51.08%</td>
<td>48.92%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

**Ethnic distribution and creation of two groups (white/non-white).** Regarding ethnic distribution of the total study sample, almost 63% of the participants were White (267; 62.82%) and the next largest group was Hispanics (83; 19.53%). The remaining 17.65% was divided among Blacks (50; 11.76%), mixed race (14; 3.29%), Asians (9; 2.13%); and Native Americans (2; .47%). For statistical comparison, there were too few study participants in several of the ethnic groups in both schools for valid statistical comparison; therefore, ethnicity was recoded into two groups: White and non-White. Table 3 is a cross-classification table showing the ethnicity distribution of the White and non-White groups, separately for the control and treatment groups.
Table 3

Cross-classification of Ethnicity (White and Non-White) by Control and Treatment Group

<table>
<thead>
<tr>
<th></th>
<th>Ethnicity</th>
<th>Total (N = 425)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White</td>
<td>Non-White</td>
</tr>
<tr>
<td>Control Group</td>
<td>Count (n)</td>
<td>105</td>
</tr>
<tr>
<td></td>
<td>% within Group</td>
<td>54.12%</td>
</tr>
<tr>
<td>Treatment Group</td>
<td>Count (n)</td>
<td>162</td>
</tr>
<tr>
<td></td>
<td>% within Group</td>
<td>70.13%</td>
</tr>
</tbody>
</table>

Note: Chi-square test indicated percent of non-Whites in control group was statistically significant compared to percent of non-Whites in treatment group.

Potentially confounding effect of ethnicity. A Pearson’s Chi-square test indicated there was a statistically significantly greater percentage of non-Whites in the control group compared to the treatment group, $\chi^2(1) = 11.57; p = .001; w = .16$. As a result of the statistically significant association between participation status and ethnicity, ethnicity was a potentially confounding variable. To control for this potentially confounding effect, ethnicity was included as a control variable in each of the hypothesis tests. Although the association between participation status and ethnicity could create a multicollinearity problem, the effect size was only $w = .16$, which is a small effect size according to Cohen (1988). Small, medium and large effect sizes for a Chi-square test are: $w = .10$, $w = .30$, and $w = .50$ respectively.

Descriptive Statistics for Preliminary Group Comparisons

Eighth grade reading CRCT and language arts CRCT scores. A two-sample t-test was used to compare the average eighth grade Reading CRCT score between the control and treatment groups, and another two-sample t-test was used to compare the average eighth grade English/Language Arts score of the two groups (see Appendix C). In both t-tests, the control group had a larger average score but the difference between the
two groups was not statistically significant. Results of the Reading CRCT \(t\)-test were 
\(t(423) = .84; p = .40; d = .083\). The probability of a Type II error for the Reading CRCT 
analysis was .86. Results of the E/LA CRCT \(t\)-test were 
\(t(423) = 1.51; p = .13; d = .15\). The probability of a Type II error for E/LA CRCT analysis was .67. Table 4 shows 
descriptive statistics for eighth grade reading CRCT scores by participation status. Table 
5 shows descriptive statistics for eighth grade English/Language Arts CRCT scores by 
participation status.

Table 4

*Descriptive Statistics for the Eighth Grade Reading CRCT Score by Participation Status*

<table>
<thead>
<tr>
<th>Participation</th>
<th>(n)</th>
<th>(M)</th>
<th>(SD)</th>
<th>(SEM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>194</td>
<td>818.08</td>
<td>15.62</td>
<td>1.12</td>
</tr>
<tr>
<td>Treatment</td>
<td>231</td>
<td>816.70</td>
<td>17.77</td>
<td>1.17</td>
</tr>
</tbody>
</table>

Table 5

*Descriptive Statistics for the Eighth Grade English/Language Arts CRCT Score by Participation Status*

<table>
<thead>
<tr>
<th>Participation</th>
<th>(n)</th>
<th>(M)</th>
<th>(SD)</th>
<th>(SEM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English/Language</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>194</td>
<td>821.48</td>
<td>19.35</td>
<td>1.39</td>
</tr>
<tr>
<td>Treatment</td>
<td>231</td>
<td>818.52</td>
<td>20.88</td>
<td>1.37</td>
</tr>
</tbody>
</table>

**Controlling for eighth grade CRCT scores.** This study did not show a 
statistically significant difference between the control and treatment groups for eighth 
grade Reading or E/LA CRCT scores. However, to examine ninth grade EOCT scores, 
two of the primary hypotheses of this study (hypotheses six and seven) were that type of 
FA participation (in FA or not) might or might not be statistically significant when 
controlling for eighth grade Reading and English/Language Arts CRCT scores.
respectively. For that reason, the eighth grade Reading score was included in testing of hypothesis six, and the eighth grade English/Language Arts CRCT score was included in the testing of hypothesis seven.

**Hypothesis One: Ninth Grade Dropout Status.**

*H1₀*: When controlling for ethnicity, there is no significant difference in the odds of dropping out of ninth grade between students that attended the freshman academy and students that did not attend the freshman academy. Hypothesis one was tested using multiple logistic regression analysis. The independent variable was freshman academy participation status (control versus treatment group). The dependent variable was dropout status. The control variable was ethnicity (White versus non-White).

**Descriptive statistics.** Table 6 shows frequency and percent of dropout status by participation in freshman academy (control and treatment groups) and for the total sample. Two (1.03%) non-freshman academy (non-FA) students dropped out during their freshman year, compared to one FA student (.43%). Number and percent of missing records are also reported. A limitation of this analysis is that some expected cell counts were less than five which can result in inaccurate estimates of the *p*-values.

Table 6

<table>
<thead>
<tr>
<th>Dropout Status (Did Not Enroll in 10th Grade)</th>
<th>Entire Sample</th>
<th>Did Not Attend Freshman Academy (Control Group)</th>
<th>Attended Freshman Academy (Treatment Group)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Count</td>
<td>Percent</td>
</tr>
<tr>
<td>No</td>
<td>421</td>
<td>191</td>
<td>98.45%</td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>2</td>
<td>1.03%</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>1</td>
<td>0.52%</td>
</tr>
<tr>
<td>Total</td>
<td>425</td>
<td>194</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
**MLR assumption testing.** Being a dichotomous variable (did/did not drop out) that was measured only once, testing was not required for two assumptions of multiple logistic regression: dichotomy and singular measurement. The assumption of no multicollinearity was tested by using a Chi-Square test to determine if there was a statistically significant strong association between participation status and ethnicity. Results showed that although there was a statistically significant association between participation status and ethnicity, the strength of the association was weak ($w = .16$). Therefore, multicollinearity was not considered to be a problem, and all assumptions for multiple logistic regression were assumed to be satisfied.

**Findings.** When controlling for ethnicity, there was no difference in the odds of dropping out between the control and treatment groups. The odds ratio for participation status was $< .001 \ (p = .99)$ and the probability of a Type II error was $> .999$. The null hypothesis was not rejected, and it was concluded that when controlling for ethnicity, there is no difference in the odds of a student dropping out between students that attend a freshman academy and students that do not attend a freshman academy. Nagelkerke’s $R^2$ was .14 which is a medium effect size according to Cohen (1988). It should be noted that in both groups studied, the dropout rate was significantly lower than average for the general population. This should be taken into consideration when designing studies for replication.

**Hypothesis Two: Promotion to Tenth Grade Status**

$H_{20}$: When controlling for ethnicity, there is no difference in the percentage of students that were promoted to the tenth grade between students that attended a freshman academy and students that did not attend a freshman academy. Hypothesis two was
tested using multiple logistic regression analysis. The independent variable was freshman academy participation status (control versus treatment group). The dependent variable was promotion status. The control variable was ethnicity (White versus non-White).

**Descriptive statistics.** Table 7 shows frequency and percent of promotion to tenth grade status (promoted/not promoted) by participation in freshman academy (control and treatment groups) and for the total sample. Promotion to the tenth grade was realized by a total of 261 (61.41%) students, consisting of 106 (54.64%) non-FA students and 155 (67.10%) FA students. Number and percent of missing records are also reported.

Table 7

<table>
<thead>
<tr>
<th>Promotion to 10th Grade</th>
<th>Entire Sample</th>
<th>Did Not Attend Freshman Academy (Control Group)</th>
<th>Attended Freshman Academy (Treatment Group)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Count</td>
<td>Percent</td>
</tr>
<tr>
<td>Yes</td>
<td>261</td>
<td>106</td>
<td>54.64%</td>
</tr>
<tr>
<td>No</td>
<td>122</td>
<td>67</td>
<td>34.54%</td>
</tr>
<tr>
<td>Missing</td>
<td>42</td>
<td>21</td>
<td>10.82%</td>
</tr>
<tr>
<td>Total</td>
<td>425</td>
<td>194</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

**MLR assumption testing.** Promotion was a dichotomous variable (was or was not promoted) that was measured only once; thus testing was not required for two assumptions of multiple logistic regression: dichotomy and singular measurement. The assumption of no multicollinearity was tested by using a Chi-Square test to determine if there was a statistically significant strong association between participation status and ethnicity. Results showed that although there was a statistically significant association
between participation status and ethnicity, the strength of the association was weak \( w = .16 \). Therefore, multicollinearity was not considered to be a problem.

**Findings.** When controlling for ethnicity, the odds of promotion were statistically significantly greater for the treatment group compared to the control group. The odds ratio for FA participation status was 1.67. The interpretation of this odds ratio is, when controlling for ethnicity, the odds of being promoted from ninth to tenth grade are 67% greater for those who attended a freshman academy compared to those who did not attend a freshman academy. The null hypothesis was rejected and it was concluded that when controlling for ethnicity, students that attend a freshman academy are more likely to be promoted from ninth to tenth grade compared to students that do not attend a freshman academy. Nagelkerke’s \( R^2 \) was .018 which is a small effect size according to Cohen (1988).

**Hypothesis Three: Graduation Status**

*H3*: When controlling for ethnicity, there is no difference in the percentage of students that graduated from high school between students that attended a freshman academy and students that did not attend a freshman academy. Hypothesis three was tested using multiple logistic regression analysis. The independent variable was freshman academy participation status (control versus treatment group). The dependent variable was graduation status. The control variable was ethnicity (White versus non-White).

**Descriptive statistics.** Table 8 shows frequency and percent of graduation status by participation in freshman academy (control and treatment groups) and for the total sample. Graduation from high school (research question three) was achieved by 259
(60.94%) students, consisting of 76 (17.88%) students did not graduate, and the graduation status was unknown for 90 (21.18%) students.

Table 8

*Graduation from High School by Freshman Academy Participation Status*

<table>
<thead>
<tr>
<th>Graduation from High School</th>
<th>Entire Sample</th>
<th>Did Not Attend Freshman Academy (Control Group)</th>
<th>Attended Freshman Academy (Treatment Group)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Count</td>
<td>Percent</td>
</tr>
<tr>
<td>Yes</td>
<td>259</td>
<td>110</td>
<td>56.70%</td>
</tr>
<tr>
<td>No</td>
<td>76</td>
<td>39</td>
<td>20.10%</td>
</tr>
<tr>
<td>Missing</td>
<td>90</td>
<td>45</td>
<td>23.20%</td>
</tr>
<tr>
<td>Total</td>
<td>425</td>
<td>194</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

*Multiple logistic regression assumption testing.* Graduation was a dichotomous variable (did or did not graduate from high school) that was measured only once; thus testing was not required for two assumptions of multiple logistic regression: dichotomy and singular measurement. The assumption of no multicollinearity was tested by using a Chi-Square test to determine if there was a statistically significant strong association between participation status and ethnicity. Results showed a statistically significant association between participation status and ethnicity, but the strength of the association was weak ($w = .16$). Therefore, multicollinearity was not considered to be a problem.

*Findings.* When controlling for ethnicity, there was no difference in the odds of graduating between non-FA students and FA students (the control and treatment groups). The odds ratio for participation group was 1.33 ($p = .28$). Probability of a Type II error was .81. The null hypothesis was not rejected and it was concluded that when controlling for ethnicity, there is no difference in the percentage of graduates between students that
attend a freshman academy and students that do not attend a freshman academy.

Nagelkerke’s $R^2$ was .005 which is a small effect size according to Cohen (1988).

**Hypothesis Four: Student’s Grade Point Average**

$H4_0$: When controlling for ethnicity, there is no difference in the average Grade Point Average (GPA) for ninth grade students that attended a freshman academy and students that did not attend a freshman academy. The independent variable was freshman academy participation status (control versus treatment group). The dependent variable was ninth grade GPA, and the control variable was ethnicity (White versus non-White).

**Descriptive statistics.** Participants’ grade point average was 74.98 with a standard deviation of 11.52 and the range was 0.0 to 93.50. Descriptive statistics for GPA by FA participation status prior to adjusting for ethnicity are presented in Table 9. Descriptive statistics for GPA after adjusting for ethnicity are presented in Table 10. The treatment group had a slightly larger unadjusted average GPA compared to the control group and a slightly lower adjusted GPA compared to the control group.

Table 9.

**Descriptive Statistics for Ninth Grade GPA by Freshman Academy Participation Status, Not Adjusted for Ethnicity.**

<table>
<thead>
<tr>
<th>FA Participation Status Group</th>
<th>$n$</th>
<th>$M$</th>
<th>$SD$</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-FA (Control)</td>
<td>194</td>
<td>74.90</td>
<td>11.49</td>
<td>.00</td>
<td>90.58</td>
</tr>
<tr>
<td>FA (Treatment)</td>
<td>231</td>
<td>75.06</td>
<td>11.56</td>
<td>19.75</td>
<td>93.50</td>
</tr>
</tbody>
</table>
Table 10

Descriptive Statistics for Ninth Grade GPA by Freshman Academy Participation Status, Adjusted for Ethnicity.

<table>
<thead>
<tr>
<th>FA Participation Status</th>
<th>M</th>
<th>SE</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
<tr>
<td>Non-FA (Control)</td>
<td>75.15</td>
<td>.83</td>
<td>73.52</td>
</tr>
<tr>
<td>FA (Treatment)</td>
<td>74.85</td>
<td>.76</td>
<td>73.36</td>
</tr>
</tbody>
</table>

Note. *Covariate ethnicity appearing in the model was evaluated at .37.

Assumptions of ANCOVA. Inspection of a histogram of the standardized residuals showed evidence that the residuals were roughly normally distributed. Therefore, this assumption was satisfied (see Figure 2). The variance of error terms across both levels of participation status (independent variable) and both levels of ethnicity was determined to be approximately equal by inspecting boxplots of the standardized residuals by FA participation status and ethnicity (see Figure 3; Figure 4). There were no significant outliers and the variables met the assumption of normality; therefore, no observations were omitted from the analysis on account of being outliers.
Figure 2. For hypothesis four, the frequency distribution of the standardized residuals shows a roughly normal distribution.

Figure 3. For hypothesis four, the boxplot shows the distribution of the standardized residuals separately for each FA group (treatment and control).
For hypothesis four, the boxplot shows the distribution of the standardized residuals separately for each ethnic group (White versus Non-White). Testing for the similarity of regression slope for each level of FA participation and ethnicity was conducted. The result showed the interaction between FA participation status and ethnicity was not statistically significant ($p = .423$), indicating this assumption was satisfied. Ethnicity and FA participation status were not evaluated for a linear relationship with the dependent variable because those variables are dichotomous and a linear relationship is guaranteed in that case. A scatterplot of the standardized residuals versus the lagged standardized residuals was inspected for correlation of error terms, and the figure gave no indication of correlation (see Figure 5).
Multicollinearity was evaluated by measuring the strength of association (i.e. effect size) between FA participation status and ethnicity using a Chi-square test. Results showed there was a statistically significant association between FA participation status and ethnicity, but the strength of the association was weak ($w = .16$), indicating multicollinearity should not be considered a problem.

**Findings.** The model was statistically significant, $F(2, 422) = 3.03; p = .049; R^2 = .014$. However, only ethnicity was statistically significant ($p = .014$). In particular, when controlling for ethnicity, there was not a statistically significant difference in the average GPA between those who did and did not participate in a

*Figure 5.* For hypothesis four, the scatterplot shows the standardized residuals compared to the lagged residuals and indicates no correlation of error terms.
freshman academy ($p = .79$). The partial eta squared ($\eta^2_p$) for the total model was .014, which means ethnicity and participation status collectively explain 1.4% of the total variance in GPA. However, the partial eta squared ($\eta^2_p$) attributed to participation status was < .001, corresponding to an effect size of $f < .01$. According to Cohen (1988), small, medium and large effect sizes for ANCOVA are $f = .10$; $f = .25$, and $f = .40$, respectively, therefore the effect size for participation status was small. The probability of a Type II error for this analysis was .95. The null hypothesis was not rejected and it was concluded that when controlling for ethnicity, there is no difference in the average GPA between students who participate in a freshman academy and students who do not participate.

**Hypothesis Five: Ninth Grade Literature/Composition EOCT Scores When Controlling for Ethnicity.**

$H_5_0$: When controlling for ethnicity, there is no difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended a freshman academy and students that did not attend a freshman academy. The independent variable was freshman academy participation status (control versus treatment group). The dependent variable was the ninth grade Literature/Composition EOCT score and the control variable was ethnicity (White versus non-White).

**Descriptive statistics.** Among the 387 students with ninth grade Literature/Composition EOCT scores, the average (SD) score was 74.13 (8.03) and the range was 49 to 92. Ninth grade Literature/Composition End of Course Test (EOCT) scores by participation status prior to adjusting for ethnicity and after adjusting for ethnicity are presented in Table 11 and Table 12, respectively.
Table 11.

Descriptive Statistics for Ninth Grade Literature/Composition End of Course Test (EOCT) scores by Freshman Academy Participation, Not adjusted for Ethnicity.

<table>
<thead>
<tr>
<th>Freshman Academy Participation</th>
<th>( n )</th>
<th>( M )</th>
<th>( SD )</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-FA Participation (Control)</td>
<td>182</td>
<td>12</td>
<td>74.07</td>
<td>7.05</td>
<td>82</td>
</tr>
<tr>
<td>FA Participation (Treatment)</td>
<td>205</td>
<td>26</td>
<td>75.19</td>
<td>8.83</td>
<td>49</td>
</tr>
</tbody>
</table>

Table 12.

Descriptive Statistics for Ninth Grade Literature/Composition End of Course Test (EOCT) scores by Freshman Academy Participation Status, Adjusted for Ethnicity.

<table>
<thead>
<tr>
<th>Freshman Academy Participation</th>
<th>( M )</th>
<th>( SE )</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-FA (Control)</td>
<td>75.15(^a)</td>
<td>.83</td>
<td>73.52</td>
</tr>
<tr>
<td>FA (Treatment)</td>
<td>74.85(^a)</td>
<td>.76</td>
<td>73.36</td>
</tr>
</tbody>
</table>

*Note. \(^a\) The covariate ethnicity appearing in the model is evaluated at the following value: .37.*

Assumptions of ANCOVA. Inspection of a histogram of the standardized residuals showed evidence that the residuals were roughly normally distributed, indicating this assumption was satisfied (see Figure 6). The variance of error terms across both levels of participation status (independent variable) and ethnicity (White versus non-White) was determined to be approximately equal by inspecting boxplots of the standardized residuals by participation status and ethnicity (see Figure 7 and Figure 8.)
Figure 6. For hypothesis five, the frequency distribution of the standardized residuals approximates a normal distribution.

Figure 7. For hypothesis five, the boxplot shows the variance of the standardized residuals for the independent variable FA participation: control and treatment groups. Variances are approximately equal.
Figure 8. For hypothesis five, the boxplot shows the variance of the standardized residuals for the control variable ethnicity: white/non-white. Variances are approximately equal.

Testing for the similarity of regression slope for each level of FA participation and ethnicity was conducted and showed the interaction between FA participation status and ethnicity was not statistically significant ($p = .308$), indicating this assumption was satisfied. Ethnicity and FA participation status were not evaluated for a linear relationship with the dependent variable because those variables are dichotomous and a linear relationship is guaranteed in that case. A scatterplot of the standardized residuals versus the lagged standardized residuals was inspected for correlation of error terms, and the figure gave no indication of correlation (see Figure 9).
For hypothesis five, the scatterplot shows the standardized residuals compared to the lagged residuals and indicates no correlation of error terms.

Multicollinearity was evaluated by measuring the strength of association (i.e. effect size) between FA participation status and ethnicity using a Chi-square test, and the strength of relationship between FA participation status and eighth grade Reading CRCT scores using a two-sample \( t \)-test. Results showed there was a statistically significant association between FA participation status and ethnicity, but the strength of the association was weak \((w = .16)\), indicating multicollinearity should not be considered a problem. Although the control group had a larger average eighth grade reading CRCT score compared to the treatment group, the difference was not statistically significant, \( t(423) = .840; \ p = .401 \), and multicollinearity was not considered to be a problem.

Findings. The model was statistically significant, \( F(2, 384) = 7.69; \ p = .002, R^2 = .039 \). However, only ethnicity was statistically significant \((p < .001)\). In
particular, when controlling for ethnicity, there was not a statistically significant difference in the average EOCT score between those who did and did not participate in a freshman academy \( (p = .62) \). When controlling for ethnicity, the average (and standard deviation) EOCT scores were 74.34 (7.96) versus 73.94 (7.95) for the control and treatment groups respectively.

The partial eta squared \( (\eta_p^2) \) for the total model was .039, which means ethnicity and participation status collectively explained 3.9% of the total variance in EOCT scores. However, the partial eta squared \( (\eta_p^2) \) attributed to participation status was .001 corresponding to an effect size of \( f = .032 \). According to Cohen (1988), small, medium and large effect sizes for ANCOVA are \( f = .10; f = .25, \) and \( f = .40, \) respectively, therefore the effect size for participation status was small. The probability of a Type II error for this analysis was .90. The null hypothesis was not rejected and it was concluded that when controlling for ethnicity, there is no difference in the average EOCT score between students who participate in a freshman academy and students who do not participate.

**Hypothesis Six: Ninth Grade Literature/Composition EOCT Scores When Controlling for Ethnicity and Eighth Grade Reading CRCT.**

**H_{06}:** When controlling for ethnicity and eighth grade Reading CRCT scores, there is no difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended a freshman academy and students that did not attend a freshman academy. The independent variable was freshman academy participation status (control versus treatment). The dependent variable was the ninth
grade Literature/Composition End of Course Test (EOCT) score. The control variables were ethnicity (White versus non-White) and the eighth grade Reading CRCT score.

**Descriptive statistics.** Among the 425 students (N), the average (SD) eighth grade Reading CRCT score was 817.33 (16.82) and the range was 763 to 867. Descriptive statistics for ninth grade Literature/Composition EOCT scores by FA participation prior to adjusting for ethnicity and eighth grade Reading CRCT score were presented in Table 12 in the discussion about hypothesis five. Descriptive statistics for ninth grade Literature/Composition EOCT scores after adjusting for ethnicity and eighth grade Reading CRCT score are presented in Table 13.

Table 13.

*Table 13. Descriptive Statistics for Ninth Grade Literature/Composition End of Course Test scores by Freshman Academy Participation, Adjusted for Ethnicity and Eighth Grade Reading CRCT score.*

<table>
<thead>
<tr>
<th>Freshman Academy Participation</th>
<th>M</th>
<th>SE</th>
<th>95% Confidence Interval</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-FA (Control)</td>
<td>73.81a</td>
<td>.47</td>
<td>72.89</td>
<td>74.74</td>
<td></td>
</tr>
<tr>
<td>FA (Treatment)</td>
<td>73.91a</td>
<td>.47</td>
<td>73.00</td>
<td>74.83</td>
<td></td>
</tr>
</tbody>
</table>

*Note. a Covariates appearing in the model are evaluated at the following values: Ethnicity = .37, Reading CRCT Score = 818.07.*

**Assumptions of ANCOVA.** Inspection of a histogram of the standardized residuals showed evidence that the residuals were roughly normally distributed, indicating this assumption was satisfied (see Figure 10).
Figure 10. For hypothesis six, the frequency distribution of the standardized residuals is normally distributed.

The variance of error terms across both levels of FA participation status (independent variable) and ethnicity (white versus non-white) were determined to be approximately equal by inspecting boxplots of the standardized residuals by FA participation status and ethnicity (see Figure 11 and Figure 12). Ethnicity and FA participation status were not evaluated for a linear relationship because those variables are dichotomous and a linear relationship is guaranteed in that case.
Figure 11. For hypothesis six, the boxplot shows the variances of the standardized residuals for participation status (control versus treatment) are approximately equal.

Figure 12. For hypothesis six, the boxplot shows the variances of the standardized residuals for the control variable ethnicity (white/non-white) are approximately equal.
The similarity of regression slope for each level of FA participation and ethnicity showed the interaction between FA participation status and ethnicity was not statistically significant \((p = 0.596)\), indicating this assumption was satisfied. The interaction between FA participation and eighth grade Reading CRCT scores was not statistically significant \((p = 0.196)\), also indicating the assumption was satisfied.

A scatter plot was inspected to evaluate the assumption of a linear relationship with respect to the eighth grade reading CRCT test score and ninth grade Literature/Composition EOCT score. The figure indicates linearity between the two variables (see Figure 13). A scatterplot of the standardized residuals versus the lagged standardized residuals gave no indication of a correlation among the error terms and the assumption of uncorrelated error terms was satisfied (see Figure 14).

*Figure 13.* For hypothesis six, the scatterplot shows a linear relationship between the ninth grade Literature/Composition EOCT score and eighth grade Reading CRCT score.
Figure 14. For hypothesis six, the scatterplot shows the standardized residuals compared to the lagged standardized residuals indicating error terms are uncorrelated.

Multicollinearity was evaluated by measuring the strength of association (i.e. effect size) between FA participation status and ethnicity using a Chi-square test, and the strength of relationship between FA participation status and eighth grade reading CRCT scores using a two-sample t-test. Results showed there was a statistically significant association between FA participation status and ethnicity, but the strength of the association was weak ($w = .16$), indicating multicollinearity should not be considered a problem. Although the control group had a larger average eighth grade reading CRCT score compared to the treatment group, the difference was not statistically significant, $t(423) = .840; p = .401$, and multicollinearity was not considered to be a problem.
There was not a statistically significant relationship between the eighth grade reading CRCT score and FA participation, $t(423) = .840; p = .401$. There was a statistically significant relationship between the eighth grade Reading CRCT scores ($p = .005$) and ethnicity; the white group scored higher on average on the Reading CRCT scores than the non-white group. However, the effect size was only $d = .29$ which is a medium effect size. Therefore, multicollinearity was not considered to be a problem.

**Findings.** The model was statistically significant, $F = (3, 383) = 79.56; p < .001; R-Square = .38$. However, only ethnicity ($p = .004$) and CRCT score ($p < .001$) were statistically significant. When controlling for ethnicity and CRCT score, there was not a statistically significant difference in the average EOCT score between those who did and did not participate in a freshman academy ($p = .88$). When controlling for ethnicity and CRCT score, the average (and standard deviation) EOCT score was 74.08 (6.38) for the control group versus 74.18 (6.37) for the treatment group. The partial eta squared ($\eta_p^2$) for the total model was .38, which indicates ethnicity, CRCT score, and FA participation group collectively explained 38% of the total variance in EOCT scores. However, the partial eta squared ($\eta_p^2$) attributed to FA participation was < .001, corresponding to an effect size of $f < .01$. According to Cohen (1988), small, medium and large effect sizes for ANCOVA are $f = .10; f = .25$, and $f = .40$, respectively, therefore the effect size for FA participation was small. The probability of a Type II error for this analysis was .95. The null hypothesis was not rejected and it was concluded that when controlling for ethnicity and CRCT score, there is no difference in the average EOCT score between students who participate in a freshman academy and students who do not participate.
Hypothesis Seven: Ninth Grade Literature/Composition EOCT Scores when Controlling for Ethnicity and Eighth Grade English/Language Arts CRCT Scores

\( H_7^0 \): When controlling for ethnicity and eighth grade English/Language Arts CRCT scores, there is no difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended a freshman academy and students that did not attend a freshman academy. The independent variable was participation status (control versus treatment). The dependent variable was the ninth grade Literature/Composition EOCT score. The control variables were ethnicity (White versus non-White) and the eighth grade English/Language Arts CRCT score.

Descriptive statistics. Among the 425 students (\( N \)), the average (SD) eighth grade English/Language Arts CRCT score was 819.87 (20.23) and the range was 759 to 875. Descriptive statistics for ninth grade Literature/Composition End of Course Test (EOCT) scores by FA participation prior to adjusting for ethnicity and eighth grade Reading CRCT score were presented previously in the discussion about hypothesis five (Table 12). Descriptive statistics for ninth grade Literature/Composition EOCT scores after adjusting for ethnicity and eighth grade English/Language Arts CRCT scores are presented in Table 14.
Table 14

Descriptive Statistics for Ninth Grade Literature/Composition End of Course Test (EOCT) scores by Freshman Academy Participation Status, Adjusted for Ethnicity and Eighth Grade English/Language Arts CRCT score.

<table>
<thead>
<tr>
<th>FA Participation Group</th>
<th>M</th>
<th>SE</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>73.78(^a)</td>
<td>.49</td>
<td>72.82 - 74.73</td>
</tr>
<tr>
<td>Treatment</td>
<td>74.45(^a)</td>
<td>.46</td>
<td>73.55 - 75.35</td>
</tr>
</tbody>
</table>

Note. \(^a\) Covariates appearing in the model are evaluated at the following values: Ethnicity = .37, Language Arts CRCT Score = 821.22.

**Assumptions of ANCOVA.** Inspection of a histogram of the standardized residuals showed evidence that the residuals were roughly normally distributed, indicating this assumption was satisfied (see Figure 15).

![Histogram of Standardized Residuals](image)

Figure 15. For hypothesis seven, the frequency distribution of the standardized residuals is normally distributed.
The variance of error terms across both levels of FA participation status (independent variable) and ethnicity (white versus non-white) were determined to be approximately equal by inspecting boxplots of the standardized residuals for FA participation status and ethnicity (see Figure 16 and Figure 17). Ethnicity and FA participation status were not evaluated for a linear relationship because those variables are dichotomous and a linear relationship is guaranteed in that case.

*Figure 16.* For hypothesis seven, the boxplot shows the variances of the standardized residuals for the independent variable FA participation (control/treatment) are approximately equal.
Figure 17. For hypothesis seven, the boxplot shows the variances of the standardized residuals for the control variable ethnicity (white/non-white) are approximately equal.

The similarity of regression slope for each level of FA participation and ethnicity showed the interaction between FA participation status and ethnicity was not statistically significant ($p = .182$), indicating this assumption was satisfied. The interaction between FA participation and eighth grade English/Language Arts CRCT scores was not statistically significant ($p = .401$), also indicating the assumption was satisfied. A scatter plot was inspected to evaluate the assumption of a linear relationship with respect to the eighth grade English/Language Arts CRCT test score and ninth grade Literature/Composition EOCT, which showed a linear relationship, thus satisfying the assumption (see Figure 18). The scatterplot of the standardized residuals versus the lagged standardized residuals gave no indication of a correlation among the error terms, and the assumption of uncorrelated error terms was satisfied (see Figure 19).
Figure 18. For hypothesis seven, the scatterplot shows a linear relationship between the ninth grade Literature/Composition EOCT score and eighth grade English/Language Arts CRCT score.

Figure 19. For hypothesis seven, the scatterplot shows the standardized residuals compared to the lagged standardized residuals indicating error terms are uncorrelated.
Multicollinearity was evaluated by measuring the strength of association (i.e. effect size) between FA participation status and ethnicity using a Chi-square test, and the strength of relationship between FA participation status and eighth grade English/Language Arts CRCT scores using a two-sample \( t \)-test. Results showed there was a statistically significant association between FA participation status and ethnicity, but the strength of the association was weak \((w = .16)\), indicating multicollinearity should not be considered a problem. Although the control group had a larger average eighth grade English/Language Arts CRCT score compared to the treatment group, the difference was not statistically significant, \( t(423) = 1.507; p = .132 \), also indicating multicollinearity was not considered to be a problem.

There was not a statistically significant relationship between the eighth grade English/Language Arts CRCT score and FA participation, \( p = .132 \). There was a statistically significant relationship between the eighth grade English/Language Arts CRCT scores and ethnicity; the white group scored higher on average on the English/Language Arts CRCT \((p = < .001)\) than the non-white group. However, the effect sizes were only \( d = .40 \), which is a medium effect size. Therefore, multicollinearity was not considered to be a problem.

**Findings.** The model was statistically significant, \( F(2, 384) = 7.69; p = .002, R-Square = .039 \). However, only ethnicity was statistically significant \((p < .001)\). In particular, when controlling for ethnicity, there was not a statistically significant difference in the average EOCT score between those who did and did not participate in a freshman academy \((p = .62)\). When controlling for ethnicity, the average (and standard
deviation) EOCT score was 74.34 (7.96) versus 73.94 (7.95) for the control and treatment groups respectively.

The partial eta squared ($\eta_p^2$) for the total model was .039, which means ethnicity and participation status collectively explained 3.9% of the total variance in EOCT scores. However, the partial eta squared ($\eta_p^2$) attributed to participation status was .001 corresponding to an effect size of $f = .032$. According to Cohen (1988), small, medium and large effect sizes for ANCOVA are $f = .10$; $f = .25$, and $f = .40$, respectively, therefore the effect size for participation status was small. The probability of a Type II error for this analysis was .90. The null hypothesis was not rejected and it was concluded that when controlling for ethnicity, there is no difference in the average EOCT score between students who participate in a freshman academy and students who do not participate.

**Limitations of the Study**

A potential limitation of this study, which is present in all non-experimental study designs, is that there may have been unknown differences between the control and treatment groups which were not controlled for. Two examples of this limitation might be the quality of instruction (e.g. better qualified teachers) or a larger budget for instructional materials and programs at the control group school that were not available at the treatment group school. If so, the better teachers or instructional materials may have decreased the dropout rate and increased the promotion and graduation rates and EOCT scores to the same level as the treatment group school, making a comparison of the two groups ineffective with respect to presence/absence of a freshman academy.
Summary

In this study, statistically significant evidence was found to suggest a freshman academy can improve the probability that a student will be promoted from ninth to tenth grade. When controlling for ethnicity, the odds of being promoted from ninth to tenth grade are 67% greater for those who attended a freshman academy compared to those who did not attend a freshman academy. Results showed no evidence to suggest a freshman academy can decrease the percentage of students that dropout, increase the percentage of students that graduate, increase the ninth-grade grade point average, or increase the ninth grade Literature/Composition End of Course Test score.
CHAPTER FIVE: DISCUSSION

Chapter Five presents a summary of the findings regarding academic achievement of ninth grade students looking at participation in a freshman academy versus non-participation. The conclusions found in this chapter draw on the data presented in Chapter Four. This chapter also contains implications of the research and recommendations for future studies.

Statement of the Problem

The ninth grade year is a time of transition and change (Dillon, 2008; Ganeson & Ehrich, 2009) during which some students decide to either drop out of school or finish high school (Research for Action, 2010). The purpose of this causal-comparative (ex-post facto) correlation study was to determine if there were significant differences in student dropout rates, promotion rates, graduation rates, ninth grade GPAs, and ninth grade Literature/Composition EOCT scores. Past research has identified these influences as having a direct bearing on whether a student finishes high school (Shannon & Bylsma, 2003).

Summary of Findings

This study included two similar high school freshman classes at two large, comprehensive high schools in Georgia. For one of the freshman classes, educators implemented a freshman academy in the 2007-08 school year with the intention of improving academic performance, reducing dropouts, and increasing the graduation rate to meet the requirements of NCLB. This study involved an investigation of data from the freshman academy implementation year (2007-08) and graduation year (2011) for both freshman high school classes to determine if the implementation of the freshman
academy would make a significant difference in the questions studied. All of the analyses were two-sided with a 5% alpha level.

Hypotheses one, two, and three were tested using multiple logistic regression analysis. Multiple logistic regression is used for determining a correlation between a dichotomous criterion variable and a set of predictor variables (Gall et al., 2007). For each of the three hypotheses, the independent variable was participation status (control versus treatment). Dependent variables were dropout status (hypothesis 1–dropout versus did not dropout), promotion status (hypothesis 2–promoted to tenth grade versus not promoted to tenth grade), and graduation status (hypothesis 3–graduate versus did not graduate). For each hypothesis, the control variable was ethnicity (White versus non-White).

The null hypothesis for dropout rate (hypothesis one) was that there was no significant difference in dropout rate between students participating in a freshman academy and those that did not participate in a freshman academy; the alternate hypothesis being that a significant difference did exist. The null hypothesis was not rejected and it was concluded that when controlling for ethnicity, there is no difference in the percentage of students that dropout between students that attend a freshman academy and students that do not attend a freshman academy.

The null hypothesis for promotion rate (hypothesis two) was that there was no significant difference in 10th grade promotion status between students participating in a freshman academy and those that did not participate in a freshman academy; the alternate hypothesis being that a significant difference did exist. The null hypothesis was rejected and it was concluded that when controlling for ethnicity, students that attend a freshman
academy are more likely to be promoted from ninth to tenth grade compared to students that do not attend a freshman academy.

The null hypothesis for graduation rate (hypothesis three) was that there was no significant difference in graduation rate between students participating in a freshman academy and those that did not participate in a freshman academy; the alternate hypothesis being that a significant difference did exist. The null hypothesis was not rejected and it was concluded that when controlling for ethnicity, there was no difference in the percentage of students that graduate between students that attend a freshman academy and students that do not attend a freshman academy.

Hypotheses four, five, six, and seven (average GPA, EOCT, Reading CRCT, and English/Language Arts CRCT) were tested using analysis of covariance (ANCOVA). ANCOVA is used when a researcher “wants to control for initial differences between groups before a comparison of the within-groups variance and between-groups variance is made” (Gall et al., 2007, p. 320). ANCOVA has the effect of making the two groups equal with respect to one or more control variables.

In hypothesis four, the independent variable was participation status (control versus treatment), the dependent variable was average GPA, and the control variable was ethnicity (White versus non-White). The null hypothesis was that there was no significant difference in ninth grade GPA between students that did participate, and students that did not participate in a freshman academy; the alternate hypothesis being that a significant difference did exist. The null hypothesis was not rejected and it was concluded that when controlling for ethnicity, there is no difference in the average GPA
between students who participate in a freshman academy and students who do not participate.

In hypothesis five (Lit/Comp EOCT) the independent variable was participation status (control versus treatment) and the dependent variable was the ninth grade Literature/Composition EOCT score. The control variable was ethnicity (White versus non-White). The null hypothesis was that there was no significant difference in ninth grade Literature/Composition EOCT scores between students that participated in a freshman academy and students that did not participate in a freshman academy. The alternate hypothesis was that a significant difference did exist. The null hypothesis was not rejected and it was concluded that when controlling for ethnicity, there is no difference in the average ninth grade Literature/Composition EOCT score between students who participate in a freshman academy and students who do not participate.

In hypothesis seven (Reading CRCT) the ninth grade Literature/Composition EOCT score was evaluated while controlling for ethnicity and eighth grade Reading CRCT score. The independent variable was freshman academy participation status (participant versus non-participant) and the dependent variable was the ninth grade Literature/Composition End of Course Test (EOCT) score. Control variables were ethnicity and the eighth grade Reading CRCT score. The null hypothesis stated that when controlling for ethnicity and eighth grade Reading CRCT scores, there is no significant difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy. The alternate hypothesis stated that there would be a significant difference. The $p$-value for freshman academy participation status
was not statistically significant. The null hypothesis was not rejected and it was concluded that when controlling for ethnicity and CRCT score, there is no difference in the average EOCT score between students who participate in a freshman academy and students who do not participate.

In hypothesis seven (LA CRCT) the independent variable was the freshman academy participation status (participant versus non-participant and the dependent variable was the ninth grade Literature/Composition End of Course Test (EOCT) score. The control variables were ethnicity (White versus non-White) and the eighth grade Language Arts CRCT score. The null hypothesis stated that when controlling for ethnicity and eighth grade Language Arts CRCT scores, there was no difference in the average ninth grade Literature/Composition End of Course Test (EOCT) scores between students that attended the freshman academy and students that did not attend the freshman academy. The alternate hypothesis stated that there would be a significant difference. When controlling for ethnicity and Language Arts CRCT score, there was not a statistically significant difference in the average EOCT score between those who did, and did not participate in a freshman academy. The null hypothesis was not rejected and it was concluded that when controlling for ethnicity and LA CRCT score, there is no difference in the average EOCT score between students who participate in a freshman academy and students who do not participate.

Discussion of Findings

Research question one. What, if any difference is there in the percentage of dropouts among ninth grade students attending the freshman academy as compared to a similar ninth grade class who did not participate in the freshman academy model?
Dropout data were collected from the school’s student information system (SIS). The criteria for being considered a dropout was defined as a first-time ninth grade student who left school after registering and attending at least one day in the ninth grade and subsequently leaving school without re-registering at another school before the 30th day of the second year of high school.

The results of this study showed that there was no significant reduction in the dropout rate by students who participated in the freshman academy when controlling for ethnicity. This finding is consistent with research reported by Royer (2007) but contrary to Chmelynski (2004) and O’Neill (2013). Adcock (2009) compared a rural high school freshman academy and a suburban high school freshman academy and found mixed results.

In the research conducted by Royer (2007) there was a very small sample with a large dropout rate. Royer reported improvement in the dropout rate among the group studied but the improvement was not statistically significant. The current study contained 425 individuals in the two groups with two dropouts in the control group (High School “A”) and only one dropout in the treatment group (High School “B”). This difference in the number of students who dropped out was not enough of a difference between the groups to statistically show that the freshman academy might have some effect on the dropout rate. This study was not longitudinal however, and therefore has no reference to whether students dropped out at a later date in their high school education.

Proponents of the stage environment fit theory (Eccles, 2004) discussed the relationship between student motivation and the school environment. The freshman academy model, like other small learning community models attempts to provide a more
appropriate environment for the transitioning ninth grader. Based on the limited number of dropouts to compare between the control group and the treatment group, it is difficult to determine whether the different environment set-up in the freshman academy model may have had any affect.

Although the difference may not be statistically significant, each individual is significant and cumulatively throughout the state of Georgia and the nation the difference can improve lives. If each high school in the state of Georgia, or even the nation, were to reduce the dropout rate by just one student each year, there would be a significant positive effect on the economy of the state and nation. According to Alliance for Excellent Education (2010) each individual who drops out earns $260,000 less over a lifetime than a high school graduate and costs the government, and thus the taxpayers, tens of thousands of dollars in Medicaid assistance and uninsured health care coverage throughout their lives. The implications of these results demonstrate that while the benefit may be considered negligible from a statistical point of view, the difference is important in the lives of those students who were at risk of dropping out of high school but did not. Any program that can save even one dropout and improve a future can be seen as priceless.

**Research question two.** What, if any difference is there in the percentage of students who were promoted to the tenth grade among ninth grade students attending the freshman academy as compared to a similar ninth grade class who did not participate in the freshman academy model? Promotion, for this study, was defined as students earning enough credits to be considered a tenth grader in the second year of high school. The school district in the study defines a tenth grader as a student who has earned five of six
possible credits during the ninth grade year, including one full credit, or two passing semesters, of both math and English.

The results of this study indicated that when controlling for ethnicity, there was a significant difference in the percentage of students being promoted who participated in the freshman academy than those who did not participate in the freshman academy. In the review of the literature these findings are consistent with Adcock (2009) and Hale (2008). In contrast, studies conducted by Hendrix (2007), and Woods (2011), showed that being a participant in a freshman academy led to lower promotion rates.

Like Hale (2008), the present study evaluated the first year of a new freshman academy. In both studies there was an increase in the promotion rate to tenth grade after the inception year. The new implementation coupled with the excitement of the target school system’s first freshman academy, may have had an inadvertent effect on the outcome. Hale studied two consecutive years of a new freshman academy and found that there was an improvement in the promotion rate the first year but a decrease in the promotion rate the second year. This fact brings into question the longevity of the improvement. Further study would need to be conducted to determine if the increased promotion rate could be maintained over time.

This improvement in promotion to tenth grade seems to confirm the stage environment fit theory as proposed by Eccles (2004). However, this improvement could be approached from two different perspectives. One perspective is that providing an appropriate environment for the life-stage of these students, as proposed in Eccles’ stage environment fit theory, would help additional students get promoted to the tenth grade on time. Timely promotion may increase the student’s positive self-perception, which may
help to reduce overall dropout rates and increase graduation rates. A counter perspective is that providing a more attentive and personalized environment that helps students get promoted to the tenth grade may only delay the dropout activity among students who were “at risk” in the eighth grade. This study can answer neither of these questions due to the limited scope of this study and the longitudinal nature of the proposed scenarios. Additional research may be required to look specifically at the rate of either tenth grade dropouts or the dropout rate of ninth grade repeaters and whether or not participation in a freshman academy was significant.

**Research question three.** What, if any difference is there in the percentage of students who graduated in four years among ninth grade students attending the freshman academy as compared to a similar ninth grade class who did not participate in the freshman academy model?

The results in this study showed that when controlling for ethnicity, there is no significant difference in the percentage of students that graduate between students that attend a freshman academy and students that do not attend a freshman academy. The results of this study are similar to the results found by Fleischman and Heppen (2009), Research for Action (2010), and Kelley (2010) who found no significant improvement in the graduation rate between freshman academy participants and non-participants in a study of multiple schools. In their report, Fleischman and Heppen (2009) came to the conclusion that problems being faced by high schools throughout the United States are so complex that a single reform model by itself might not be enough to improve school performance. In contrast, Nordman (2013) studied a single high school and found a significant improvement in the graduation rate among freshman academy participants.
when compared to non-participants of a freshman academy. These mixed results combined with the results of this study may suggest the need for further research on the effect of freshman academies on high school graduation rates.

One difference between the current study and the studies conducted by Kelley (2010) and Nordman (2013) is that the current study was not longitudinal in nature while the other two were. Kelley (2010) used eight years of freshman academy data and Nordman used seven years of data continuing a study begun by Adcock in 2009. In the current study, every effort was made to collect graduation data on every student in the freshman class, however once a student left the school district, there were no local records that followed the student through to their separation from high school, whether it be graduation or dropout. Of the 425 study participants, 90 students (21.2% of the total) were unaccounted for when attempting to aggregate graduation data. Although some program mortality may be expected in any study, a rate of 21% appears to be extreme. Adequately tracking students through the four years of high school was beyond the scope of the study design, limiting the ability to longitudinally track all students in two complete ninth grade classes until graduation. A future longitudinal study that follows ninth graders participating and not participating in a freshman academy model may shed some additional light on the possible relationship between the freshman academy model and future graduation rates.

Although Eccles (2004) spoke of an appropriate environmental fit for each stage of a student’s life, this study focused on a single year rather than all four years of high school. As students grow through the different stages of maturation, it necessarily follows that the environment should change also according to Eccles. By virtue of
single-year rather than a longitudinal design, there was no follow-up through the tenth, eleventh, or twelfth grades to determine if an appropriate environment was provided for the students. The promotion rate improvement without an improvement in the graduation rate may point to the fact that an extraordinary amount of care was taken during the freshman year to ensure student success, but the care did not continue past the ninth grade. Further qualitative study may be desirable to help determine if maintaining a maturation stage-appropriate environment throughout the high school years would improve the graduation rate.

**Research question four.** What, if any difference is there in the grade point averages of ninth grade students attending the freshman academy as compared to a similar ninth grade class who did not participate in the freshman academy model? Grade point average data were collected from the school’s SIS by looking at the final, overall GPA at the end of the ninth grade year.

The results of this study showed that when controlling for ethnicity, there was no significant improvement in the average GPA among the students who participated in the freshman academy when compared to students who did not participate in the freshman academy. Grade point averages have been the focus of many studies regarding the implementation of a freshman academy. Like other hypotheses posed in this study, there have been mixed results when considering related studies in the literature. An improvement in GPA and academic achievement were found in studies conducted by Fulco (2009) and Hernandez (2012). Hernandez (2012) found an improvement in academic achievement and GPA while studying one high school over a two year period (successive freshman classes). Drawing participants from a single area, Hernandez had,
therefore, no difficulty matching demographic data such as socio-economic status and similarities in school culture. Although there is a basis to infer that the implementation of a freshman academy can be linked to improved ninth grade end-of-year grade point averages, other researchers reported similar results to this study in their findings that GPA is not significantly affected by freshman academy participation. Barbour (2009), and Daniel (2011), found that the implementation of a freshman academy could not be shown to significantly increase the average GPA of participants more than non-participants.

Daniel (2011) found that the lack of a full implementation of the freshman academy model may have contributed to a lack of improvement. Similarly, in the present study, the High School “B” included students who were not considered “at risk” in the freshman academy model which may have masked the actual improvement of the at-risk students. As Fleischman and Heppen (2009) stated, there is a “need for educators to implement each reform program with fidelity to its requirements and to support it for the time required for success” (p. 105). Reserving use of the freshman academy model for at-risk students, as the model is intended, may provide a greater improvement on GPA and academic outcomes.

The stage environment fit theory (Eccles, 2004) generalizes that academic improvements can be associated with a proper fit between a student’s stage and their environment. There is no specific mention that an increase in GPA will occur. It could be argued that because there was an improvement in promotion to tenth grade that the stage environment fit theory is accurate in its assumption. More specific research could be accomplished to help determine how closely an improvement in GPA can be attributed
to the stage environment fit theory. The fact that there is such a preponderance of evidence on both sides of the question of the efficacy of the freshman academy model clearly demonstrates the need for further research. Determining similarities and differences in the studies to understand why a small learning community (SLC) model, such as a freshman academy, may work at some schools but may not be appropriate for other schools would benefit the field of education.

**Research question five.** What, if any difference is there in the ninth grade Literature/Composition End of Course Test (EOCT) scores of ninth grade students attending the freshman academy as compared to a similar ninth grade class who did not participate in the freshman academy model?

The results of this study show that, when controlling for ethnicity, there was not a significant difference in the ninth grade Literature/Composition End of Test (EOCT) scores of ninth grade students attending the freshman academy as compared to a similar ninth grade class that did not participate in the freshman academy. Although no other research specifically involved the relationship between a freshman academy and the ninth grade Literature/Composition EOCT scores from Georgia, other investigators have studied ninth grade English end-of-year examination scores from other states.

Similar to the current study, Barbour (2009), Jordan (2009), and Mincey (2012) found no significant difference in ninth grade English end of course state-developed exams between freshman academy participants and non-participants. Barbour (2009) found that overall, the freshman academy model did not increase the English I End of Course Test scale score. However, when breaking out the data by ethnicity, the freshman academy model did have a significantly positive effect on the African American students
in the study. While the current study had too few participants to analyze data by individual ethnicity, the model was statistically significant for the ethnicity variable only similar to Barbour (2009). This may present an opportunity to consider the freshman academy model as an effective approach for specific socio-economic groups and or ethnic groups as further research. Contrary to those findings and the findings of this study, Adcock (2009), Sewell (2009), and Sigler (2008) did encounter significant improvement in test scores among freshman academy participants over non-participants.

**Research Questions 6 and 7**

**Research question 6.** When controlling for eighth grade Reading CRCT scores, what, if any difference is there in the ninth grade Literature/Composition End of Course Test (EOCT) scores of ninth grade students attending the freshman academy as compared to a similar ninth grade class who did not participate in the freshman academy model?

**Research question 7.** When controlling for eighth grade English/Language Arts CRCT scores, what, if any difference is there in the ninth grade Literature/Composition End of Course Test (EOCT) scores of ninth grade students attending the freshman academy as compared to a similar ninth grade class who did not participate in the freshman academy model?

The results of this study show that when controlling for ethnicity and eighth grade Reading CRCT scores, or ethnicity and English/Language Arts CRCT scores, there was not a significant difference in the ninth grade Literature/Composition EOCT scores of ninth grade students attending the freshman academy as compared to a similar ninth grade class who did not participate in the freshman academy. There are no similar studies to compare regarding freshman academy participation versus non-participation.
and ninth grade Literature/Composition EOCT scores when controlling for Reading and English/Language Arts CRCT scores. Bruton (2011) however, investigated the predictive value between the eighth grade Reading CRCT scores and the ninth grade Literature/Composition EOCT scores and found that “for every one point increase in the CRCT score in Reading or ELA, an increase ranging from 0.882 to 1.228 can be expected on the EOCT score in ninth grade Literature” (p. 104). These results may demonstrate that implementation of a freshman academy in and of itself does not improve every aspect of a student’s academic achievement. The freshman academy model may not significantly improve test scores on the ninth grade Literature/Composition EOCT, but success is not always measured by test scores.

**Stage environment fit theory and research questions five, six, and seven.** The stage environment fit theory (Eccles, 2004) is an over-arching theory. Eccles and her colleagues over the years never specifically stated that the theory would hold for specific tests or models. In promoting the stage environment fit theory, Eccles (2004) urged that schools must “change in developmentally appropriate ways if they are to provide the kind of social context that will continue to motivate students’ interest and engagement as the students mature” (p. 126). This change in “developmentally appropriate ways” is a part of the freshman academy model. Performance on individual tests, be it high stakes or not, has so many interacting conditions that one theory could never hope to apply to all. Test anxiety, student disability (diagnosed or not), and social issues (i.e. family, peers, school) are just a few of the confounding influences that may hinder the successful outcomes on any given day. If the stage environment fit theory improved only one measure of student performance it could be called a success. For those students who
benefitted from the additional attention, the more appropriate interaction provided by the theory could reap the benefits for the remainder of their lives and that in itself would make the theory successful.

**Findings Compared to the Literature**

This study, as with other studies, provides a mixed message as to the success of the freshman academy model. Jordan (2009) concluded in her study that standardized testing data do not support a significant relationship between the freshman academy model and student achievement. Conversely Fulco (2009) and Hernandez (2013) both found an increase in test scores and academic achievement among freshman academy participants. This study determined that there was not a significant difference for any independent variables except promotion to the tenth grade. These results can be interpreted to show that the benefits from implementing a freshman academy, while not generally being statistically significant, in practical terms do show a possible relationship to improving the ninth grade promotion rate which may or may not persist through later years toward a reduction in the dropout rate and high school graduation. This improved promotion rate, while appearing to be insignificant in the study as a whole, did positively affect the lives of those few individuals who were promoted when the eighth grade data may have placed them “at risk” of dropping out before entering the 10th grade. From that perspective, the implementation of a freshman academy may be considered a success.

One of the purposes of the freshman academy model, like other small learning community models, was to provide a smaller and more nurturing environment for the student (Oxley, 2008; Royer, 2007). This goal falls in line with the stage-environment fit
theory put forth by Eccles and her colleagues (Eccles, 2004; Gutman & Eccles, 2007). Although the stage-environment fit theory typically focused on transition to middle school, I believe the theory can be expanded in a post-positivist manner to encompass the transition to high school. The freshman academy model provides for individualized attention in the life stage of these adolescents to facilitate adaptation to the new environment of high school and thereby providing the “fit” needed by some individuals to make the transition as successful as possible.

Loveless and Hess (2006/2007), on the other hand, noted that in 2003 the American Educational Research Association (AERA) reported that “it is difficult to determine whether reducing class size or school size is the best way to spend limited educational resources” (p. 7). Also, according to Wainer and Zwerling (2006), the Bill and Melinda Gates Foundation decided to change the practice of funding programs designed to make large schools into small schools; choosing to direct their funds toward improving leadership practices in light of recent research regarding the benefits of school size. Bill Gates (2009) in his annual letter stated that “Many of the small schools that we invested in did not improve students’ achievements in any significant way” (p. 4). This study may be interpreted to support the conclusion of Bill Gates with its lack of overall student improvement.

Literature is mixed in its approval of the freshman academy model. This study seems to duplicate those findings. While a significant difference in the promotion rate was found in this study, the remaining questions were shown to lack significance. Yet, throughout the country, for the individuals who have benefited from a freshman academy model implementation, the model is worthwhile.
Study Limitations

Several limitations existed in this study. Although correlations may show important relationships between variables, a causal-comparative (ex post facto) correlation study does not prove causation. The results of this study only provide evidence suggesting (Gall et al., 2007) that implementation of the freshman academy improved student promotion to tenth grade. A second limitation is the unaccounted for and unmeasured extraneous variables that may have actually influenced student achievement (Bordens & Horowitz, 2007; Gall et al., 2007; Trochim, 2006). Outside influences such as family, friends, and social environment could have had an unmeasured influence on the students, causing the measured outcome.

A third limitation is that this study was restricted to two suburban public high schools in the state of Georgia. The study was limited to the first-time freshman class of 2007-08 from High School “A” which lacked a freshman academy, and the treatment (freshman academy) first-time freshman class of 2007-08 from High School “B”. This study was limited to a sample population of 425 participants: 194 (45.6%) in the control group and 231 (54.4%) in the treatment group. For the total sample of 425 students (control and treatment groups combined), there were 206 (48.5%) females and 219 (51.5%) males. The ethnic distribution was 9 (2.1%) Asians, 50 (11.8%) Blacks, 83 (19.5%) Hispanics, 2 (.5%) Indians, 14 (3.3%) mixed race, and 267 (62.8%) White. The study was limited to two large, comprehensive high schools with a student population of approximately 2200 students each. The results of this study may only be generalizable to other first-time freshman in schools with similar characteristics.
A fourth limitation is the culture of the schools. There is no way to account for the difference in administrative decisions and the attitude toward education being brought to school by the students. Whether this attitude has foundation in the student’s past educational history, social environment, or other unexpected life events, the overall culture between and among students may or may not have a significant effect on the ninth grade year of high school.

A fifth limitation turned out to be the ability to follow and track students after leaving the participation status. When students moved from the groups being studied, if they remained in the same school system, the researcher was able to track the graduation rate. If, however, the student moved out of the school district, no system was in place for this study to follow the student longitudinally and see whether they eventually graduated or dropped out of school. The ability to track students over time (throughout their high school experience) is critical to be able to more accurately test the effect of participation versus non-participation in a freshman academy.

**Implications of the Study**

Unlike a machine in a modern production facility which is designed to replicate part after part, individuals do not perform exactly the same in similar situations because of the many uncontrollable independent variables involved. As with many sociological and educational “fixes” it is very difficult to control and duplicate a program from one location to another. With this in mind, school systems and administrators who are searching for ways to improve academic achievement and reduce the dropout rate of their high school freshmen, should carefully consider the pros and cons of implementing a program such as a freshman academy. From this study, and from others in the literature,
some significant improvements have been shown to accompany the implementation of a freshman academy. Whether all of those improvements can be or ought to be attributed to participation in the freshman academy is unclear. However, those students who are helped by the more nurturing environment of a freshman academy may be changed for the rest of their lives. The implications of this study are that the freshman academy concept provides evidence suggesting that the student’s rate of promotion to the tenth grade can be increased. Each school system administrator should know their population well enough to determine if this model would be beneficial or not.

This study adds to the literature showing that when controlling for eighth grade Reading CRCT and English/Language Arts CRCT scores, ninth grade Literature/Composition EOCT are not significantly improved by participation in a freshman academy. This study also provides additional evidence and support, in a post-positivist framework, to previous studies showing that the implementation of a freshman academy may improve academic achievement with relation to the promotion rate among “at-risk” first-time ninth graders. Relative to the application of the stage-environment fit theory (Eccles & Midgley, 1989) this study shows that with the proper environment, adolescents may be more likely to increase academic achievement and remain in school.

**Recommendations for Practice**

School district leadership should be cognizant of the interaction and intuition provided by local school administration. Being in the school and knowing the school’s population is imperative and invaluable when trying to determine the best course of action for a local school. As in the case of High School “B”, the suggestion to add the freshman academy model came after looking at the school and its demographic data and
determining that the small learning community could be accommodated at the school and would facilitate school improvement – most importantly ninth grade promotion rates which could lead to increased graduation rates.

In High School “B,” administrators originally planned to only include the lowest 25% of rising eighth graders in the freshman academy model. This group is shown to be most likely to drop out of high school (Rumberger & Sun, 2008). However, for various administrative reasons, the freshman academy size was increased to include over 70% of the incoming freshman class by including all students not taking advanced level classes (i.e. honors and Advanced Placement). Would the academy have been more successful if only those students most liable to drop out were included? Administrators of High School “B” expressed concern that isolating the lowest performers might stigmatize participation in their Freshman Academy (M. P. Seng, personal communication, August 1, 2012). The decision was made to make the freshman academy more inclusive to help those students most at risk feel as if they were of equal status with the rest of the freshman class. The recommendation stemming from this study would be to implement the freshman academy model with only the most high risk students. This would allow greater individualization among the participants.

**Recommendations for Further Research**

Further research is needed to strengthen the findings in this study. One issue that needs to be considered in future research is longitudinal data. This study’s scope was limited to only the ninth grade year and graduation year, four years later. Many significant events happen after ninth grade that ultimately affect the graduation rate. Following individual students through the four years of high school will add significant
value to future studies. Many students, through no fault of their own, must transfer to
other schools during their high school career. A longitudinal study would help
understand the true value of a freshman academy.

Additional research may also be conducted comparing the true freshman academy
model to the adapted model used in this study. The original model was designed to offer
support to those students most at risk of dropping out of high school which would include
the lowest performing 20-25%. Many freshman academies in use include all ninth
graders. Is there a difference in improved academic performance and reduction in
dropouts between the two variations?

More research questions that could be answered to provide additional insight to
the benefits of the freshman academy model could include: Does the influence of the
freshman academy help to increase academic performance for the remainder of the high
school years? Additional research into the dropout rate in years after participation in a
freshman academy would be appropriate. Once again, longitudinal data would help
clarify the role the freshman academy might have in future decisions by students to
remain in school or dropout. Small learning communities, like the freshman academies,
are intended to smooth the transition from middle school to high school. Do they in fact
only delay the decision to leave school? Does the nurturing nature of a freshman
academy cause students to postpone dropping out of high school until later years when
the nurturing environment is no longer present? Do tenth-grade teachers notice any
difference in the behavior or academic expectations of students after participating in the
nurturing environment of a freshman academy? Is there a statistical difference in
academic performance in the year following a freshman academy when the support
network is not as readily available? All of these questions could be answered with further research to help determine the true value of the freshman academy model.
REFERENCES


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http://dx.doi.org/10.1353/foc.0.0020


doi:10.1016/j.ssresearch.2011.11.014


http://dx.doi.org/10.3102/0013189X012003006


APPENDIX A: PERMISSION TO CONDUCT RESEARCH AT RESEARCH SITE

COUNTY SCHOOL DISTRICT
OFFICE OF ASSESSMENT

April 27, 2012
Liberty University
University IRB Office:
As Director, Office of Assessment for County School District, I have given Mr. Mark Seng permission to conduct research within the County School District (CSD). I have spoken with Mr. Seng and understand the scope of his research and that he will collect data utilizing the XCSD Student Information System under the supervision of an Assistant Principal. All information to be gathered will be done in a confidential and appropriate manner.
Should you have any questions, please feel free to contact me.
Sincerely,

[Name]
Ed.D.
Director, Office of Assessment
County School District

[Redacted]

[Redacted]
May 1, 2012

Mark Seng

IRB Exemption 1320.050112: The Impact of a freshman academy on Transition, Retention, High Stake Test Grades, Discipline Referrals, and Graduation Rates at Two Comparative High Schools in Georgia

Dear Mark,

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

Your study falls under exemption category 46.101 (b)(4), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:
(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

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

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

Sincerely,

[Redacted name, Psy.D.]

IRB Chair, Associate Professor

Center for Counseling & Family Studies

LIBERTY UNIVERSITY

40 Years of Training Champions for Christ: 1971-2011
APPENDIX C: FREQUENCY TABLES, DESCRIPTIVE STATISTICS, AND DATA ANALYSIS TABLES

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<td>.5</td>
<td>.5</td>
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<td>99.3</td>
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### Promoted to 10th grade?

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<td>28.71</td>
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<td>261</td>
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### Graduated From High School?

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<td>17.88</td>
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<td>Graduated</td>
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### Unweighted GPA and Test Scores

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<th>SD</th>
<th>Minimum</th>
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<td>UnWeighted GPA</td>
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<td>74.98</td>
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<td>9th Grade Literature EOCT</td>
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<td>74.13</td>
<td>8.033</td>
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<tr>
<td>8th Grade Reading Score</td>
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<td>817.33</td>
<td>16.819</td>
<td>763</td>
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<tr>
<td>8th Grade English/Language Arts Score</td>
<td>425</td>
<td>819.87</td>
<td>20.228</td>
<td>759</td>
<td>875</td>
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### Two-sample t-Test to Compare the Average Eighth Grade Reading CRCT Score by Participation status (Control versus Treatment)

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<td>423</td>
<td>.401</td>
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*Note: Equal variances were assumed.*

### Two-sample t-test to Compare the Average Eighth Grade English/Language Arts CRCT Score by Participation status (Control versus Treatment)

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<td>.132</td>
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*Note: Equal variances were assumed.*