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EXPLORE Test and Ninth Grade Success in English 9 and Algebra I as related to End-of- Course Exams and Final Averages in a Rural East Tennessee High School

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by

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ABSTRACT

EXPLORE Test and Ninth Grade Success in English 9 and Algebra I as related to End-of-Course Exams and Final Averages in a Rural East Tennessee High School

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The purpose of this study was to compare scores students received on the eighth grade EXPLORE test in math and English to scores received in English 9 and Algebra I on both the End-of-Course (EOC) test and the final average in those courses. These scores were taken from a rural East Tennessee High School and the middle schools that feed into the high school. Data were collected over a 2-year period (2012 – 2014). Students who had a score in eighth grade and a corresponding score in ninth grade were included. All others were omitted. A series of Pearson correlations were conducted between EXPLORE scores in Math and English with final averages in English 9 and Algebra I and EOC scores in English 9 and Algebra I. An independent samples t test was conducted to determine whether the mean scores on the EXPLORE English and math test, mean scores for English 9 and Algebra I final averages and mean scores for EOC exams in English 9 and Algebra 1 differ between female and male students. Based on the findings of this study, the score received on the eighth grade EXPLORE in English has a strong positive correlation to the score received on the English 9 EOC and the final average in English 9. The same was

true for the score on the EXPLORE in math, it also had a strong positive correlation to the score received on the Algebra I EOC and the final average in Algebra I. Additionally gender has an impact upon English 9 final averages, English 9 EOC scores, Algebra I final averages and EXPLORE scores in English, with female students scoring higher than male students in those categories. Conversely gender did not have an effect on Algebra I EOC scores or EXPLORE scores in math.

DEDICATION

This dissertation is dedicated to my family who has continually supported me throughout my educational career. Without the love and encouragement of my family, this process would have encountered numerous roadblocks and success would have been difficult to obtain. Although there were times that I had to continue writing instead of watching a movie, you all understood and encouraged me to push through and stay the course.

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CHAPTER 1

INTRODUCTION

The change from middle school to high school is a standard transition usually connected with an increase in stress and freedom in both social and educational settings (Jackson & Schulenber, 2013). Ninth grade students have the highest occurrences of absenteeism, discipline referrals, class failures and retention (Habeeb, 2013). Moving from one school to another adversely affects student performance as observed by achievement drops between middle school and high school (West & Schwerdt, 2012).

One form of assessing ninth grade readiness is the eighth grade EXPLORE test. According to the ACT website (http://www.act.org), the benchmark for the English Composition score of 13 on the EXPLORE test represents the level of achievement required for students to have a 75% chance of obtaining a C or higher in corresponding credit-bearing first-year college courses. Students who are prepared for high school will be more successful in careers and postsecondary coursework. High school readiness is a regional problem in Sullivan County, Tennessee.

Examining how secondary school environments and their structures affect students' transition into high school is an important part of school that merits increased attention (Ellerbrock & Kiefer, 2013). Therefore, the purpose of this study is to determine what, if any, correlation exists between the score on the eighth grade EXPLORE test and (1) score on English 9 End-of-Course (EOC) test, (2) English 9 final average, (3) score on Algebra I EOC, and (4) Algebra I final average. Differences in gender on each test were also examined.

High schools are under pressure to produce college and career ready students. The preparation of these students does not begin just in high school but it must begin in middle school and even as early as elementary school. Being able to accurately place students in appropriate academic classes in high school can have an impact on the students' success throughout their years in high school. Making academic course placements randomly without any forethought could be devastating to the student. According to Christie (2008) the Tennessee legislature adopted the EXPLORE test as the test used to identify students who are unprepared for ninth grade. High schools educators are asked to place students in courses without much information about the students to be placed. Using the EXPLORE test is one avenue to place students in classes that are most appropriate for those students; however, whether or not that test actually is an accurate representation of how a student will perform is the question. High school teachers and staff want all students to be successful and the importance of the freshmen year is critical.

Statement of the Problem

The problem investigated was the relationship between the EXPLORE test administered in the fall of the eighth grade year and performance in ninth grade English 9 on the End-of-Course (EOC) exam and the students' final averages in English 9, along with performance in Algebra I on the EOC and students' final averages in Algebra I at a rural high school in upper East Tennessee. Gender differences on the EXPLORE test in English and math and EOC scores and final averages in English 9 and Algebra I were examined. Demands for understanding the criteria for a successful transition for students

from middle school to high school are on the increase. Therefore, the purpose of this study was to identify if there was a correlation between a score on the EXPLORE test administered in the eight grade and success in ninth grade English 9 and Algebra I as measured by both EOC exam and final averages in both courses for a cohort of students in a rural East Tennessee school district.

Research Questions

The following research questions guided this study:

- Is there a significant correlation between eighth grade EXPLORE scores in English and the scores received on the English 9 End-of Course (EOC) exam?
- Is there a significant correlation between eighth grade EXPLORE scores in English and the final averages received in English 9?
- Is there a significant correlation between eighth grade EXPLORE scores in math and the score received on the Algebra I EOC exam?
- Is there a significant correlation between eighth grade EXPLORE score in math and the final averages received in Algebra I?
- Is there a significant difference on eighth grade EXPLORE test in English when compared by gender?
- Is there a significant difference on eighth grade EXPLORE test in math when compared by gender?
- Is there a significant difference in the final averages received in English 9

when compared by gender?

- Is there a significant difference in the English 9 EOC scores when compared by gender?
- Is there a significant difference in the final averages received in Algebra I when compared by gender?
- Is there a significant difference in the Algebra I EOC scores when compared by gender?

Significance of the Study

High schools are held accountable for the graduation rates of their students. Effectively transitioning students from middle school to high school can have an impact on graduation rates. Freshmen who do not make a smooth transition to high school are more likely to have failing grades during their freshman year and then subsequently drop out. This study examined if there was a correlation between the EXPLORE test given in the eighth grade and performance in Algebra 1 and English 9 both on the final averages and the End-of-Course exam and based on gender.

Definitions of Terms

The following defines key terms used in this dissertation:

College Readiness: The level of preparation a student needs to enroll and be successful without remediation in credit-bearing general education course at a postsecondary institution (Conley, 2007).

Correlational Research Design: A research design in which data are collected to describe the statistical association between two or more variables (A policymaker's primer on education research, 2004).

Criterion-referenced test: End-of-course exam. A test for which a score is interpreted by comparing it to levels of performance established for the test by professionals in the field that the test addresses (A policymaker's primer on education research, 2004).

End-of-Course Exam (EOC): Examinations given in Algebra I, Algebra II, English I, English II, English III, US History, Biology I, and Chemistry (Tennessee Department of Education, 2014a).

EXPLORE: Standardized test taken in the eighth or ninth grade that tells you things you need to know to plan your high school course, prepare for the ACT, or choose a career direction (ACT Explore Program, 2014).

Middle School Transition Program: Program that prepares students for rigorous high school work (Tennessee Department of Education, 2014b).

Status Dropout Rate: The percentage of 16- through 24-year-olds who are not enrolled in school and have not earned a high school credential (National Center for Education Statistics, 2014).

Reliability: The extent to which a measuring instrument produces consistent results when it is administered again under similar conditions. (A policymaker's primer on education research, 2004).

Validity: The degree to which an instrument measures what it is designed to measure and the degree to which it is used appropriately. (A policymaker's primer on education research, 2004).

Delimitations and Limitations

The population of this study was delimited to students in a rural East Tennessee high school who took the EXPLORE test during their eighth grade year and then the following year enrolled in both Algebra 1 and English 9 and took the end-of-course test in both of those classes. Results may not be generalized to any other rural high schools or to other cohorts within the same building. Limitations of this study include the validity and reliability of the EXPLORE test and also of the end-of-course exams in both Algebra I and English 9. Another limitation of this study was that students took the EXPLORE test during eighth grade but subsequently moved or did not enroll in the school used in this study. Therefore, the results of this study will not necessarily generalize to other schools or subject areas.

CHAPTER 2

LITERATURE REVIEW

The purpose of this literature review is to provide a context for this study at a rural East Tennessee High School. Multiple elements of the literature review have applicability for this study. The relevant factors to be considered from the literature are: (a) historical significance of transitions from middle school to high school setting, (b) current trends in transitions from middle school to high school, (c) using tests as a placement tool for ninth grade students, (d) dropout rates for high school students, (e) transitions from high school to college and careers, and (f) differences in academic performance of boys and girls.

Historical Perspective of Transitions

In the early 1800s it was not uncommon to have a classroom filled with students of different age groups and abilities. However, as this practice continued to grow, parents began to become concerned about younger students and older students being together. It was this concern that led to the reform of graded schools. During the beginning of the 20th century, decisions concerning students being moved from grade to grade were largely grounded on student performance on standardized test results (Carifio & Carey 2010). The hope was that with a standard test teachers' personal judgment would be left out of the promotion or retention debate. Also using a standard test meant that the results were standard, or the same for all students. Students were treated equally without any accommodations being made for differences with students both academically and socially.

Prior to the 1980s, high school transition received very little attention from

educational researchers, possibly because it was not viewed as a problem for either students or schools (Schiller 1999). The freshmen year is a time of academic choice and freedom socially. Students are given new responsibility to choose classes and social groups change rapidly (Kerr, 2002; Neild, 2009; Oakes & Waite, 2009). According to Law (2011) students who are successful in their freshmen year will positively contribute to their community and are more probable to graduate from high school. The National Center for Education Statistics estimates approximately 500,000 high school students per year leave before graduation and Neild reported a link between ninth grade failure and high school dropout rate. Two fifths of ninth-graders have difficulty with the change from middle school to high school (Akos & Galassi, 2004). Both middle and high schools need to intervene at this stage to make the transition as smooth as possible, thus providing students with a better background to become successful high school students. A portion of what makes the transition so problematic is not merely just the juvenile age of the students, but the meaningful differences between middle school and high school both academically and socially (McCallumore & Sparapani, 2010). According to Oakes and Waite (2009) ninth grade students need to establish their place and independence when they enter high school. Ninth grade students are entering a new complicated atmosphere when they transition from middle school to high school (Kerr, 2002). Middle schools are historically more nurturing and teachers get to know their students on a more personal level (Oakes & Waite, 2009). Neild also suggested that if students fall off pace during their freshmen year their odds of earning a high school diploma decrease dramatically. Kerr stated that ninth grade is a crucial year for students' expansion of an educational plan that will continue

throughout their high school career. It is at this point in a student's academic career that intervention and proper class placement need to take place. Ninth grade students are placed in appropriate academic classes based upon a myriad of choices: student and parent requests, placement tests, and teacher recommendations, along with random assignments from the student information system.

Prior to the ninth grade many students have not had to earn passing grades in core academic classes (Fulk, 2003). To complicate matters, ninth grade students have been exposed to the concept of social promotion: students are promoted to the next grade regardless of their preparedness for the work requirements of the upcoming grade level. Historically, social promotion began because the primary purpose of school was socialization and the need to keep students in the same age-appropriate group supported that view (Carifio & Carey, 2010). When students enter high school they are required to meet certain credit requirements in order to graduate. In addition to credit requirements, standardized tests account for 25% of a student's grade for a course that has an End-of-Course exam. Ninth grade students often do not understand the significance that the freshmen year holds for graduation, thus they continue with the same procedures they have been using during middle school. According to Allensworth and Easton (2005) students that were on-track for graduation at the end of their freshmen year were more than three times more likely to graduate on time than students that were off-track for graduation and being on-track was a much better predictor of graduation than performance on eighth grade examination scores. Fritzer and Herbst (1996) discovered that ninth grade students have the lowest grade point average, the most failing grades, more truancy, and more discipline

concerns than any other grade level in the high school setting. According to Benner and Wang (2014), during the transition from middle school to high school engagement is disrupted and attendance is then negatively affected for a majority of students.

Transition to High School

The Tennessee State Board of Education adopted rules in 2008 that persuaded schools to use students' eighth grade EXPLORE results and other standardized assessments to distinguish students who are unprepared for ninth grade and to intervene with assistance for those students (Christie, 2008). Assistance varied from summer programs before ninth grade to tutoring available during school, before and after school, and on the weekend. With poor academic skills in high school, school systems should focus support on better preparation of students in the elementary and middle grades (Horwitz, 2008). As students transition between schools they need to have teachers, and staff that supports them during their first year at a new school (Conner & McKee, 2008). Furthermore Conner and McKee stated students need have self-discipline, be able to handle an adjustment, and be hard workers to make a successful transition. The adolescent period is one of high emotional changes and physical changes and at the height of these changes students are placed in a difficult situation where they want to gain independence but they need to have more close relationships with adults. Hertzog and Morgan (1998) stated that how students make the transition between middle school and high school is a forecaster of success in ninth grade. It is significant how students make the transition into their new school environment from middle school (Horwitz, 2008; Reyes, Gillock, Kobus

& Sanchez, 2000). The ninth grade year is crucial in relation to adjustment and achievement in high school (Donegan, 2008; Herlihy, 2007; Horwitz, 2008; Kerr, 2002). The transition from middle school to high school often results in the loss of academic energy (Gold et al. 2010). Students fail the ninth grade at a much higher rate than any other grade level (Education Partnerships, Inc., 2012; Horwitz, 2008). Middle schools traditionally have smaller classes and more personalization than a high school (Herlihy, 2007). Creating an internal environment that resembles a smaller school within a larger school would be beneficial for ninth graders making the transition to high school (Butts & Cruziero, 2005). Butts and Cruziero reported that schools with transition programs in place beginning in eighth grade have fewer dropouts.

According to Maitre (2014) how well a student does in college is better correlated to his or her grades in high school than with the ACT or SAT test scores. Regardless of their ACT or SAT scores, students' academic accomplishment during college closely reflected their academic performance during high school. According to ACT (2014) the benchmark readiness scores for the EXPLORE test are: English 13, Mathematics 17, Reading 16, and Science 18. A student who receives these scores has a 75% chance of earning a C or higher in college level, credit-bearing courses that correspond to the same subject area. The benchmark readiness scores for the ACT test are as follows, English 18, Mathematics 22, Reading 22, and Science 23. Those scores indicate a 75% chance of earning a C or higher in college level, credit-bearing courses that correspond to the same subject area. In 2012 of all the high school graduates who took the ACT only 25% meet the college readiness benchmark in all four areas (Venezia & Jaeger, 2013).

The Southern Regional Education Board, Making Middle Grades Work mission states that for middle grade students to be prepared for high school work they must be taught to grade-level standards, exercise effort in the classroom, and show that they can use what they have learned in a variety of methods. Schools can and should do a better job of preparing middle grades students for the transition to high school. The transition between middle school and high school provides educators with a unique opportunity to intercede and encourage incoming students (Horwitz, 2008). According to Cauley and Jovanovich (2006) the school environment often exacerbates adolescents' concerns. Students often enter school with fears about where classes are located, the amount of homework that will be assigned, and new social relationships. Upon entering high school, parents begin to become less involved with helping their student understand homework or assisting them with more efficient ways to complete the homework (Deslandes & Rousseau, 2008). When a school provides students with a safe, supportive environment and helps them develop the skills, behaviors, and strategies to deal with problems that arise, schools ease the conduct, scholastic, and social demands placed upon students (Allensworth & Easton, 2005). Deslandes and Rousseau (2008) stated that even with a lower level of parental involvement in homework during the high school years, students could benefit from parental support because students need to find ways to minimize distractions and handle the difficult assignments. Barber (2004) found that ninth graders reported lower preference for school, higher supposed need of a school association, lower help from educators, lower help from administration, less checking from instructors, lower classroom self-governance, less contribution in school activities, lower respect toward oneself, and higher depression.

Students experienced a substantial drop in attendance from the eighth grade to the ninth grade (Benner & Wang, 2014). Absences during the ninth grade year were a high predictor of failing a course during the freshmen year and a predictor of not graduating (Horwitz, 2008). According to Waters, Lester, and Cross (2014) students who have greater peer support have a more positive outlook of the expectation of the transition to high school as well as they have a constructive transition experience. High schools have the unique ability to dispel those fears by providing middle grades students with the correct information. High schools have an abundance of students who had the same fears prior to attending high school and now those students know the reality and can let the middle grade students know what the reality actually is instead of the rumors. Butts and Cruziero (2005) discovered that ninth grade students need teachers who explain the subject matter, are easy to talk with, and who care about their students.

Cooney and Bottoms (2002) suggested that students who are placed in upper-level, more demanding classes are more successful in high school. This suggestion runs counter to what most educators and administrators would believe. Most would argue that more challenging work would increase the failure rate, but Cooney and Bottoms found that students who studied algebra, read more than 11 books, and who expected to graduate from college would take and succeed in upper-level classes in ninth grade. Gamoran (1992) found that when placing students in an Honors English 9 course it was best to look at the quantitative results, test scores, the eighth grade placement exam, prior class ranking and parent and student concerns when considering who to place in the Honors English class. According to Horwitz (2008) students who were in the highest quartile on eighth

grade tests were more likely to be on track at the end of the ninth grade year. A more rigorous curriculum coupled with a strong support network for students was connected to better student outcomes.

Transition Programs

Effective transition programs are ones that are comprehensive and include students, parents, and teachers. Schools can focus on the transition to ninth grade and thus seize the opportunity to address the issue of student failure in the ninth grade (Horwitz, 2008; Williamston, 2010). Students and parents both share concerns about the academic aspect of school and the school procedures (Cauley & Jovanovich, 2006; Kerr, 2002; Williamston, 2010). When schools view the transition from middle school to high school as a process not an event students are more successful (Williamston, 2010). Students need to have the support of peers, teachers, and parents in order to make a successful transition to high school. Students who have academic deficiencies have the most difficult time making a successful transition of high school in terms of academics. Informing parents about the demands of the high school curriculum and providing strategies that parents can use to help their son or daughter be successful are important aspects of a transitional program. Transition programs should have activities that take place district wide and should happen throughout the entire school year not something that just takes place during the summer or the first semester of school (Oakes & Waite, 2009; Williamston, 2010). Grade configuration does not appear to have an impact on achievement loss. Districts that use a K-8, 9-12 and K-5, 6-8, and 9-12 configuration all experienced achievement loss

with the transition to high school.

Student perceptions of transition to high school provide insight into the thoughts and fears of the incoming freshmen student. The social factors of moving into a new school are a significant worry for students (Williamston, 2010). Many students are concerned about being teased by older students for being small or not wearing the right clothing (Andrews & Bishop, 2012). Two themes that reoccur in students' perceptions of transition to high school are social interaction and activity involvement. Peers have a dominant function in providing support for each other during the transition to high school (Waters et al., 2014). Eighth grade students have different concerns before they begin their freshmen year than they do after they have completed their freshmen year.

There are many factors that contribute to a successful transition to high school. According to Roybal, Thornton, and Usinger (2014) structures that are designed to facilitate a sense of belonging are directly related to academic success. When students have the needed support from parents and peers, they are more likely to attend school on a regular basis (Williamston, 2010). Butts and Cruziero (2005) described several ways to increase the sense of belonging for ninth graders: parent meetings of incoming ninth graders at several points throughout the school year; reward program for grades, citizenship, and attendance; an orientation day with only ninth graders on campus; and a ninth grade community service project creating ownership of the school building. According to Donegan (2008) for students to have a successful transition to high school it needs to be an ongoing continual process, not a one-day or week long event but a transition that begins in middle school and continues throughout the first year of high school.

Donegan stated that for students to have a successful transition to high school the school has to have a fundamental shift in the culture of the school and of individual classrooms. Grade point average (GPA) has historically been an indicator of academic achievement (Caskie, Sutton, & Eckhart, 2014; Roybal et al., 2014). Teachers can play a vital role in the transition to high school; teachers who are thoughtful and kind are more likely to help ease the transition to high school than those who are uncompromising and unapproachable (Butts & Cruzeiro, 2005; Roybal et al., 2014). Another factor that limits student success with the transition to high school is the amount of work, not that the work is too hard but that the teachers do not communicate with each other so students are inundated with a large amount of work each day (Akos & Galassi, 2004). In middle school the teachers focus more on teaching and developing the whole child whereas high school teaching focuses more on the academic content (Herlihy, 2007). Some of the biggest stumbling blocks for success in the ninth grade are poor preparations for high school content and the structure of the high school (Horwitz, 2008; McCallumore & Sparapani, 2010).

Ninth grade transition programs can help ease the change from a middle school to a high school setting. According to Roybal et al. (2014) many different aspects make up transition programs; however, some interventions have been more successful than others including:

- Working with middle school teachers and high school teachers
- Parental involvement
- Homework assistance
- Incentives for attendance and grades

- Core classes in a block schedule
- Smaller class size

Having an effective transition program in place will help students with the transition from the eighth grade to the ninth grade. Summer programs for incoming freshmen help build success in the ninth grade (Cauley & Jovanovich, 2006). Those students who are involved with a summer transition program have better GPAs, higher attendance, fewer course failures, and fewer discipline referrals. Donegan (2008) stated that there are two keys to making the transition from middle school to high school successful for students:

1. Change your staffing. Place the top teachers with the ninth grade students.
2. Change your schedule. Offer English and math electives for freshmen who need extra help to catch up to grade level.

According to Donegan (2008) schools that implement these changes will yield great results, but by implementing the changes the principal will step on the toes of some teachers who feel like all the new teachers should teach the ninth grade and the more veteran teachers should be given the luxury of teaching the advanced level classes and upperclassmen.

Other successful transition programs include having the eighth grade students introduced to the high school in the fall of their eighth grade year. According to Uvass and McKevitt (2013), planning takes place where the principal, counselor, and central office personnel work together to design a transition program for freshmen. In the spring

meetings for parents are held in the evening and in May the eighth grader students visit the high school. Juniors show an eighth grade student around the school and on the first day of school only ninth grade students attend (Lindsay, 1998; Neild, 2009; Uvass & McKevitt, 2013). Transition programs that target students, parents, and school staff have more success with transition than programs that do not target those populations.

High achieving students can experience the same academic loss with the transition to high school as well as lower-achieving students (Leonard, 2013). High-achieving students generally have a smaller academic loss than their lower-achieving counterparts (Cooney & Bottoms, 2002). Cooney and Bottoms also stated that high-achieving students could be taken for granted because they have always performed well so they are expected to continue with that same performance. However Allensworth and Easton (2005), stated that students that have high achievement on test scores are more likely to be on-track than low achieving students but low-achieving students can do well in their high school course work and this leads to graduation.

Change in school settings can be a time of great promise for students, having the potential for growth personally, new academic learning, and greater freedom and new accountabilities (Neild, 2009). Ninth grade students are given new freedoms, class choices, opportunities to make new relationships, and experience belonging to clubs, sports, and other extracurricular activities. In addition, parents generally see the entrance into ninth grade as a time to release more responsibility to their children in hopes of their gaining independence. Students entering a new school setting face challenges to which

they must adapt. Neild also stated that one of the most convincing arguments for focusing on ninth grade is the indication that getting off-track in ninth grade can have negative long-standing educational repercussions. Students reported that having friends are a great support in the transition to high school (Cauley & Jovanovich, 2006; Cushman, 2006). Also a self-guided tour of the new high school was important for a successful transition to high school (Cushman, 2006).

According to Uvaas and McKevitt (2013) there are five suggestions to use when developing freshmen transition programs for schools.

- Develop a curriculum along with your transition program
- Promote academic strategies
- Promote school connections
- Consider school structure
- Recognize students with multiple pressure

Education Partnerships, Inc. (2012), developed five areas that effective transition programs should address:

- Information about the school provided for parents and students
- Provide social encouragement and peer contacts
- Occasions for family involvement
- Open communication between middle school and high school teachers
- Additional academic assistance for incoming ninth graders

Developing a transition program with a curriculum that is individualized for a school will help make that program more successful for an individual school. The teachers in the building will need to promote the academic strategies to make the program more supportive for the new students as they adjust to a new level of academic rigor (Roybal et al., 2014; Uvass & McKevitt 2013). All school connections that a transition program can promote help students feel like they are a part of many different aspects of school, not just the academic side. School structure is not something that is easily controlled at the building level but a school can create a different structure within the building. Uvass and McKevitt (2013) also stated that schools could team groups of teachers and students together creating a different structure for students. Schools also need to be able to identify students who are experiencing multiple stressors with the transition to high school. These students will be the most at risk for failure and an increased risk for dropping out. Using these five strategies a school can more accurately design and develop a transition program that will meet the needs of the new incoming students.

Neild (2009) also stated that promotion to the next grade level is typically determined at a district level, and few districts follow the same guidelines. Providing freshmen with an academically and socially successful first year can have a lasting effect and should be a high priority in the minds of secondary educators and leaders (Goodwind, Mrug, Borch, & Cillessen 2012).

Gender Differences

According to Driessen and van Langen (2013) gender inequalities are mostly based upon stereotype identity. They also indicate that far more boys than girls are involved in special education and boys are more likely to repeat a year of school. Sadker (2002) stated that males make up two thirds of the special education population. He also goes further to state that males and females have different strengths and needs. While females now take more Advanced Placement tests, they score lower on these exams as well as on the math and verbal sections of the SAT and the Graduate Record Exam (Sadker, 2002). Sadker stated that females consistently received higher grades from elementary school through college; however, this could be a result of females being rewarded for being more compliant and less of a classroom disturbance. According to Halpern (2012) and Stoet and Geary (2013) the difference that gender plays in reading strongly favors females and it is three times larger than the gender difference in math. The difference that gender plays in mathematics is the most common topic even though the gender difference in reading is much greater. Voyer and Voyer (2014) found similar results, females generally scored higher on reading achievement test, whereas males scored higher on math and science achievement tests. They also found that females had an advantage when it came to grades in school, females scored higher than their male counterparts regardless of what subject. Males and females typically respond to traditional teaching styles differently, which may support females' typical learning style (Meece, Glienke, & Burg, 2006). Teachers exhibit bias between males and females in their classes; teachers call on males more frequently, wait longer for their answers, and provide males with more specific feedback. On the

other hand, teachers also punish males more frequently than females for similar behavior (Sadker & Zittleman, 2005).

According to Eliot (2011) boys and girls do not respond to stress, nor hear, learn, see, or remember in significantly different manners. It was also suggested that teachers' and other adults' inaccurate beliefs about gender differences are more important and influential than any real difference. The main problem that arises from this misbelief is that the adults have the potential to mold students' opinions of themselves and they can inaccurately form stereotypes of learning when they should be forming opinions that stress potential and possibilities. Nonetheless many proponents of single-sex classrooms and schools are vocal in their desire for such programs. Consequently the more parents and educators hear that boys and girls are born different the more likely each gender is to living up to that stereotype (Eliot, 2011). Caskie et al. (2014) found that student gender may be an indicator in reporting GPA accurately. They found that female students were more likely to report their GPAs as being higher than they actually were and males were more likely to report their GPAs as being lower than they actually were. This indicates that female students were more concerned with their academic ability being reported in a better light than male students. Chee, Pino, and Smith (2005) found that GPA does differ by gender. They also reported that females were as academically successful as males but that they receive less recognition for their academic achievement. According to Voyer and Voyer (2014) earning higher grades in school requires more determination and perseverance than performance on a standardized test, which only assesses skills at that one point in time. They also stated that female students have an advantage in school

grades compared to male students. This advantage was across all content areas. This is similar to the findings of Aniodo and Egbo (2013), who found that female students scored higher than male students in chemistry. Additionally Serbin, Stack, and Kingdom (2013) found that gender was a factor in academic achievement; males' performance in reading, science, and other subjects fell below females' performance by the eighth grade. According to Bennett, Gottesman, Rock, and Cerullo (1993) this could be attributed to teachers' subjective opinions of male students whose behavior might negatively affect their grade, this belief was true for the elementary school teachers, the middle school teachers, and the high school teachers. Furthermore Meece et al. (2006) reported that although more girls are enrolled in advanced high school math and science classes, they report that they enjoy those classes less than their male counterparts. Good, Aronson, and Inzlicht (2003) stated that students who were coached in the idea that with hard work they can get smarter scored higher on achievement tests than did a control group of students. Similarly Fulk (2003) stated that students' belief in their ability to master content was more important for females in predicting outcome than it was for males. This indicated that females are more susceptible to challenges to their aptitude beliefs than males.

Dropout Rates

Dropout rates in high school have decreased from 12% in 1990 to 7% in 2012 (National Center for Educational Statistics, 2014). Although the dropout rate has decreased, the number of students who do not complete high school or who do not have the necessary skills they need to be successful when the leave the education system (Horwitz,

2008; Styron & Peasant, 2010). According to Sadker (2002) males have a higher dropout rate than females (13% to 10%). Although females who repeat a grade are more likely to drop out of school than males that repeat a grade (Sadker, 1999). Low scholastic performance during the first year of high school is associated with not earning a high school diploma and a lifetime of low career achievements and economic hardship (Day & Newburger, 2002). Earning a high school diploma has become more important to having a career and being successful. Students who experience academic setbacks and students who have attendance issues are more likely to drop out of high school (Christle, Jolivette, & Nelson, 2007; Styron & Peasant, 2010). Consequently students who experience a sense of belonging to the school are not as likely to drop out. Song, Benin, and Click (2012) found that students who where more active in school activities and had better test scores were less likely to drop out of high school. Ninth grade students typically have the most truancy, more class failures, and more behavior referrals than any other high school grade (Fritzer & Herbst, 1996). Schools can have a significant influence on reversing the number of dropouts by making the transition from middle school to high school successful (Gold et al., 2010). When the ninth grade students get off-track so early in their high school career it can have dramatic effects on their ability to stay the course and graduate on time or graduate at all. According to Allensworth and Easton (2005) students are off-track for graduation if they have done both of the following during their freshmen year; more than two F's in core areas (Math, Science, Social Studies, or English/Language Arts) and have received four or fewer course credits. As students begin high school they need to understand the significance of passing the core classes during their freshmen year and

schools need to provide the required support to students to assist them in passing those courses (Bangser, 2008).

Murnane (2013) stated that students who have poor attendance, have repeated a grade, and have low test scores in middle school have a higher probability of dropping out of high school. There is a strong relationship between being retained and dropping out of high school particularly when the retention occurs during the middle grades (Christle et al., 2007). Students who dropout regularly experience lifelong struggles as a direct result of dropping out of high school (Neild, 2009; Reyes et al., 2000). Christle et al. (2007) found that student attendance and academic achievement were both negatively correlated with dropping out. They also discovered that a sense of belonging and connectedness with the school made students less likely to drop out. According to Dynarski and Gleason (2002) students who began to experience academic success and became connected to adults and peers in the school were less likely to drop out of high school. Dropping out of school is a cumulative process not something is just an impulsive act (Christle et al., 2007).

Transition from High School to College

After high school students have another transition to prepare for, either college or the work force. High schools are given the responsibility of making sure that all students are adequately prepared for each given path. The academic experiences of high school students too often do not prepare them for the rigors of a college education or for the work that is required in a technological economy (Bangser, 2008). Gilroy (2011) stated that a community high school could strengthen its college prep curriculum by partnering with a

local college and thus encouraging an attitude in students who want to go to college. According to Barnes and Slate (2013) the idea of college and career readiness is inaccurate, politicians and educational leaders place a greater emphasis on college readiness when they are designing curriculum and academic preparedness than they do on career readiness. According to the U.S. Department of Labor (2013) only 65.9% of high school graduates were enrolled in college. This leaves 34.1% of high school graduates either in the work force or looking for work. If high school curriculum is focused mainly on the college preparation path, then some students are not being adequately prepared for life after high school. For a variety of reasons students are not being prepared for college level work while in high school (Venezia & Jaeger, 2013). High school curriculum needs to be demanding, applicable, and engaging enough for students to be successfully prepared for college and careers (Bangser, 2008). According to Adelman (2006) high school students should take the most rigorous classes in high school and read all the time to better prepare themselves for college level work. Furthermore, high school students need to begin their college careers while still enrolled in high school either through Advanced Placement (AP) classes or with dual enrollment where students earn both a high school credit and college credit simultaneously.

Cohen (2007) stated that faculty members expect college freshmen to work at a higher level in order to be successful in college. A disconnect exists between what is taught during high school and what college instructors expect students to be capable of doing during their freshmen year in college (Venezia & Jaeger, 2013). High school students are not used to being required to read 10 books in a class, but rather they are

accustomed to reading two to four books in a class. High school students who take harder, more challenging classes are more successful during their freshmen year in college (Adelman, 2006). Students who are not prepared for college level work are required to take remedial course(s) that carry no credit and then extend the time it takes to graduate. For a student to be college ready he or she needs to be prepared to attempt and pass college level work without taking remedial classes (Venezia & Jaeger, 2013). In Tennessee all high school students are required to take a mathematics class each year, thus providing them with continuous enrollment (Zelkowski, 2010). This should make the students more prepared for college level mathematics work if they enroll in a college or university upon graduation (Adelman, 2006). Prior to students being required to take a mathematics class each year students would take two mathematics classes during 1 year and would then be able to avoid a year of mathematics (Zelkowski, 2010). According to Adelman (2006) students that take more challenging courses during high school will enroll and succeed in college at higher rates than students who take less challenging courses in high school. With programs like the HOPE scholarship, student attendance at colleges has increased. In Georgia the college attendance rate for 18 to 19 year olds increased by 7.0 to 7.9 percentage points (Dynarski, 2000). With this increase comes the need for college freshmen who are adequately prepared for the level of academic requirements. Bangser (2008) and Leonard (2013) stated that students who are not in the top quartile in their high school might be headed to college but some will fail the placement exams and thus waste time and money by having to take remedial non credit bearing courses. Barnes and Slate (2013) contended that college-readiness is not the same for all students; they maintained

that components other than high-stakes testing, statistical data, and accountability measures should be considered when deciding if a student is college ready. Policymakers have recently placed increasing importance on the links between education and work (Shultz & Stern, 2013). Employers and colleges are requiring higher expectations for high school graduates.

Students who possess solid high school grade point averages are more likely to prosper in college, and students with lesser high school grade point averages have a lower college grade point average (Hiss & Franks, 2014). The importance of preparation in high school for college level work has a direct impact on a student performance at college. Beginning in middle school or during the ninth grade year in high school students need to know that financial aid is available if certain criteria are met (Bangser, 2008). Students are reminded that their grade point averages are an important aspect of high school life but the correlation of that grade point average to college is rarely stated to students (Conley, 2006). As freshmen, students rarely understand the magnitude of their grade point average. If they did they would place more emphasis on it (Hiss & Franks, 2014; Maitre, 2014). Also having colleges and universities reiterate this same information to high school students would be a valuable resource. When high school students hear the importance of their grade point average from multiple sources, they will listen more carefully (Hiss & Franks, 2014). Furthermore, high school students whose parents attended college are more apt to attend college as well (Venezia & Jaeger, 2013).

Chapter Summary

Academic requirements for high school students have increased significantly. Educators need to find a way to help make high school students prepared for the academic requirements they will encounter. The transition from middle school to high school can be a tumulus time for students. According to the research educators at both the middle school and high school can play a significant role in making the transition a smooth one. When incoming ninth grade students feel prepared academically and socially they make the transition smoothly and school report fewer absences, less discipline problems, and higher scores academically. A strategy used by many schools to address the transition to high school is to examine eighth grade EXPLORE scores and place students in classes that are most appropriate academically.

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this study was to identify factors that affect the transition from middle school, eighth grade, to high school, ninth grade. Particularly, this research was an analysis of students' scores on the eighth grade EXPLORE test, scores on end-of-course exam in Algebra I, final averages in Algebra I, scores on end-of-course exam in English 9, and final averages in English 9. Differences in performance by gender were also examined. This chapter includes the research questions and null hypotheses, population, instrumentation, data collection, data analysis, and a summary.

Quantitative research proposals emphasize objectivity in quantifying and defining phenomena (McMillan & Schumacker, 2006). The relationships between variables are typically analyzed via quantitative research designs. In this study I used tests as the variables that could be measured, then I used statistical procedures on the numbered data and I analyzed the numbered data (Creswell, 2009). This study used a quantitative research with a design that provided an analysis of relationships and differences.

Research Questions and Null Hypotheses

The following questions and corresponding null hypotheses relating to EXPLORE scores, Algebra I End-of-Course scores, Algebra I final averages, English 9 End-of-Course scores, English 9 final averages, and gender were addressed:

1. Is there a significant correlation between eighth grade EXPLORE scores in

English and the scores received on the English 9 End-of Course (EOC) exams?

$H_0$1. There is no significant correlation between eighth grade EXPLORE scores in English and the scores received on the English 9 EOC.

2. Is there a significant correlation between eighth grade EXPLORE scores in English and the final averages received in English 9?

$H_0$2. There is no significant correlation between eighth grade EXPLORE scores in English and the final averages received in English 9.

3. Is there a significant correlation between eighth grade EXPLORE scores in math and the scores received on the Algebra I EOC exams?

$H_0$3. There is no significant correlation between eighth grade EXPLORE scores in math and the scores received on the Algebra I EOC exam.

4. Is there a significant correlation between eighth grade EXPLORE scores in math and the final averages received in Algebra I?

$H_0$4. There is no significant correlation between eighth grade EXPLORE scores in math and the final averages received in Algebra I.

5. Is there a significant difference in scores on eighth grade EXPLORE tests in English when compared by gender?

$H_0$5. There is not a significant difference in scores on eighth grade EXPLORE tests in English when compared by gender.

6. Is there a significant difference in scores on eighth grade EXPLORE tests in math when compared by gender?

$H_0$6. There is not a significant difference in scores on eighth grade EXPLORE tests

in math when compared by gender.

7. Is there a significant difference in the final averages received in English 9 when compared by gender?

$H_0$7. There is not a significant difference in the final averages received in English 9 when compared by gender.

8. Is there a significant difference in the English 9 EOC scores as compared by gender?

$H_0$8. There is not a significant difference in the English 9 EOC scores as compared by gender.

9. Is there a significant difference in the final averages received in Algebra I when compared by gender?

$H_0$9. There is not a significant difference in the final averages received in Algebra I when compared by gender.

10. Is there a significant difference in the Algebra I EOC scores when compared by gender?

$H_0$10. There is not a significant difference in the Algebra I EOC score when compared by gender.

Population

The population for this study consisted of ninth grade students enrolled in a rural East Tennessee High School, in Sullivan County, Tennessee. This class consisted of 253 students. Of those students 136 were males and 117 were females, 247 students were

classified as white, 133 males and 114 females, 1 Pacific Islander, 1 Asian, 1 African American, and 3 Hispanic students. The school was a Title I school that had 61% of the total student body as free and reduced price meal students. Students who had EXPLORE scores during their eighth grade year, 2012 – 2013, and who were enrolled in Algebra I and English 9 during the 2013 – 2014 school year and received scores on the EOC and a final averages in both Algebra I and English 9 were included in this study. All other ninth grade students were omitted.

Instrumentation

The instrumentation used for this proposed research study was achievement tests, EXPLORE and EOC. These tests measure a student's ability in particular areas. According to Gay (1996) tests that produce numerical scores can be used to classify, evaluate, or identity test takers.

The EXPLORE test is administered at the discretion of the school. The test is administered during a students' eighth grade year; historically it is administered during the months of September and October. The EXPLORE test is designed to measure preparedness for college and career after high school graduation. It provides educators and students with an early look at areas of academic weakness, thus providing intervention for students prior to beginning high school. The EXPLORE test is divided into four sections: English, Mathematics, Science, and Reading. Each section of the EXPLORE test is a timed 30-minute test. According to the EXPLORE Technical Manual, the EXPLORE test has reliability coefficients of: .87 in English, .84 in Mathematics, .85 in Reading, and .83

in Science on form A for eighth grade students. On form B for eighth grade students the reliability coefficients change to: .87 in English, .86 in Mathematics, .87 in Reading, and .86 in Science. It also states that the most common use of the EXPLORE test is for measuring eighth-grade students' educational achievement in particular subject areas. EXPLORE scores, subtest scores, and skill statements based on the ACT College Readiness Standards are directly related to student educational progress and can be readily understood and interpreted by instructional staff, parents, and students (EXPLORE Tech Manual, 2013-2014).

End-of-course (EOC) tests are administered three times a year, at the end of the first semester (beginning of December), at the end of the second semester (beginning of May), and as a make-up day during the summer in June. EOC tests are given in the following subject area tests: English I, English II, English III, Algebra I, Algebra II, Biology I, Chemistry I and US History. All EOC tests are untimed. Special education accommodations are permitted when they are documented on the students' individual education program (IEP). Per Tennessee Code Annotated (T.C.A.) §49-1-302 (2) The End of Course exam will count 25% of the second semester grade. Students will not be required to pass any one examination, but instead students must achieve a passing score for the course in accordance with the State Board of Education's uniform grading policy. According to the Tennessee Department of Education's website, item validity is determined during field-testing of items. An in-depth item analysis is completed for each and every field-tested item before it ever becomes operational on an EOC exam.

Data Collection

Data were collected from a rural East Tennessee High schools' records of EXPLORE scores and the individual student scores on Algebra I EOC exams, English 9 EOC exams, and final averages in both Algebra I and English 9. Student names were omitted from the data collection and a unique identifier was created for each student. The data were de-identified by the building level testing coordinator prior to the researcher analyzing the data. The data sources are separate and were merged to generate a single file with all test data and course averages. The data are contained in different locations, the EOC data were located on the Randa Solutions website, where all EOC scores are contained, the EXPLORE data were sent from the system level testing coordinator in an excel spreadsheet form, and the final average in English 9 and Algebra I were located on the school's student information database. This particular data set was chosen because the researcher had a vested interest in the outcome of this study. Prior to beginning the research, permission to conduct the research was obtained from the Institutional Review Board (IRB) at East Tennessee State University. Once approval was granted a meeting with the Director of Schools for Sullivan County was held to discuss the purpose of the research and clarify any items that needed to be answered prior to beginning research. Then a meeting was held with the researcher's dissertation committee to determine if he could proceed with the data collection and analysis. Next, the data were collected with all identifying information about students omitted prior to the collection of the data. The data were collected and downloaded into an Excel spreadsheet, the building level testing coordinator de-identified each data set and assigned a unique identifier for each student.

Data sources for this study are the eighth grade EXPLORE test scores during the 2012 – 2013 school year, EOC scores from Algebra I and English 9 and final averages from Algebra I and English 9 during the 2013 – 2014 school year using ninth grade students. The researcher worked at the high school under study. The director of Sullivan County Schools granted access to the data.

The researcher was the principal at the school where the data were collected. The researcher was responsible for scheduling all students and analyzing student data. The researcher analyzed data for the purpose of determining areas of strength within the tested subject areas and areas where improvement could be gained. All data were de-identified by the building testing coordinator prior to the researcher analyzing the data. The validity and reliability of both tests are determined at a state level.

Data Analysis

Data analysis was conducted using Microsoft Excel for Mac version 2011 and Statistical Package for Social Sciences (SPSS). A series of Pearson correlations were calculated between EXPLORE scores in English and math and final averages in Algebra I, English 9, Algebra I EOC, and English 9 EOC. The differences between gender and EXPLORE scores in English and math, final averages in English 9 and Algebra I and EOC scores in English 9 and Algebra I were also analyzed using an independent samples t test. This output provided the researcher the significance level of the relationship. All data were analyzed at .05 significance level.

Research questions 1 – 4 were analyzed using a series of Pearson correlations. The type of relationship was described either positively or negatively, and the strength of the relationship was also determined using the Pearson correlation coefficient. According to Witte and Witte (2010) as the value of the correlation coefficient approaches zero the weaker the relationship and as the value of the correlation coefficient approaches either -1.00 or +1.00 the stronger the relationship. Research questions 5 – 10 were analyzed using independent samples t tests.

CHAPTER 4

FINDINGS

The purpose of this quantitative study was to determine whether there was a significant relationship between EXPLORE scores in English and math and final averages and EOC scores in English 9 and Algebra I in an East Tennessee high school. The high school was located in a rural section of the state. The difference between gender and scores on EXPLORE in English and math and final averages and EOC scores in English 9 and Algebra I were also analyzed.

In this chapter data were presented and analyzed to answer 10 research questions and 10 corresponding null hypothesis. Data represented EXPLORE scores in English and math from 2012 – 2013 school year from middle schools that feed into the high school. Data also represented English 9 and Algebra I final averages and EOC scores from the 2013 – 2014 school year. Gender data were also represented in EXPLORE scores in English and math from 2012 - 2013 and final averages and EOC scores in English 9 and Algebra I from 2013 – 2014. Data were retrieved from PowerSchool (student data management system), the school's testing coordinator, and the school systems' Director of Testing and Accountability. Table 1 shows the means and standard deviations for female and male students on the eighth grade EXPLORE tests in English and math, final averages in English 9 and Algebra I and EOC scores in English 9 and Algebra I.

Research Question 1

Research Question 1: Is there a significant correlation between eighth grade EXPLORE scores in English and the score received on the English 9 End-of Course (EOC) exam?

$H_0$1. There is not a significant correlation between eighth grade EXPLORE scores in English and the scores received on the English 9 EOC.

A Pearson correlation coefficient was calculated to test the relationship between the eighth grade EXPLORE scores in English and the scores on the English 9 EOC. The results of the analysis, as shown in Figure 1 below, reveal a strong positive relationship between the EXPLORE score in English (M = 14.68, SD = 3.98) and the score received on the English 9 EOC (M = 86.00, SD = 8.41) and a correlation that was statistically significant [$r(252) = .722$, $p < .001$]. As a result of the analysis $H_0$1 was rejected. In general, the results suggest that there is a significant positive correlation between the EXPLORE scores in English and the score received on the English 9 EOC. Students who have high EXPLORE scores in English tend to have high English 9 EOC scores.

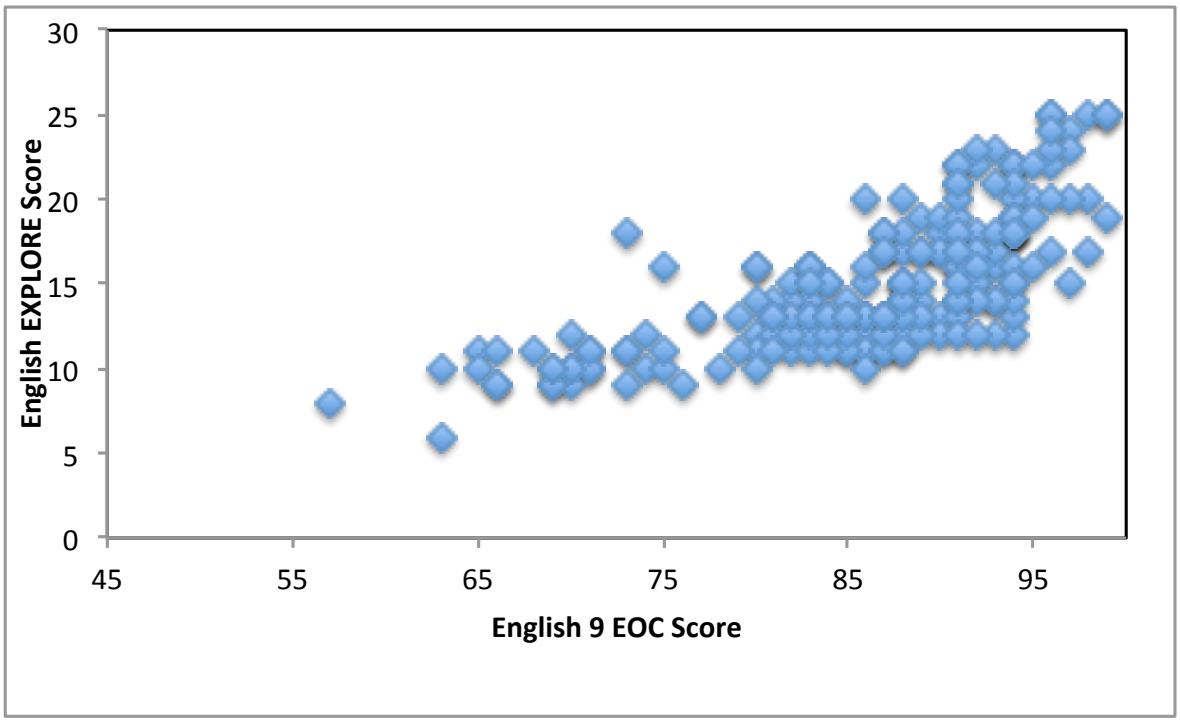

Figure 1. Scatterplot of EXPLORE score in English and English 9 EOC score

Research Question 2

Research Question 2: Is there a significant correlation between eighth grade EXPLORE scores in English and the final averages received in English 9?

$H_0$2. There is no significant correlation between eighth grade EXPLORE scores in English and the final averages received in English 9.

A Pearson correlation coefficient was calculated to test the relationship between the eighth grade EXPLORE scores in English and the final averages received in English 9. The results of the analysis, as shown in Figure 2 below, reveal a weak positive relationship between the EXPLORE scores in English (M = 14.68, SD = 3.98) and the final averages in English 9 (M = 85.46, SD = 10.12) and a correlation that was statistically significant [$r(252) = .392$, $p < .001$]. As a result of the analysis $H_0$2 was rejected. In general, the results suggest that there is a significant positive correlation between the EXPLORE scores in English and the final averages in the English 9. Students who have high EXPLORE scores in English tend to have high English 9 final averages.

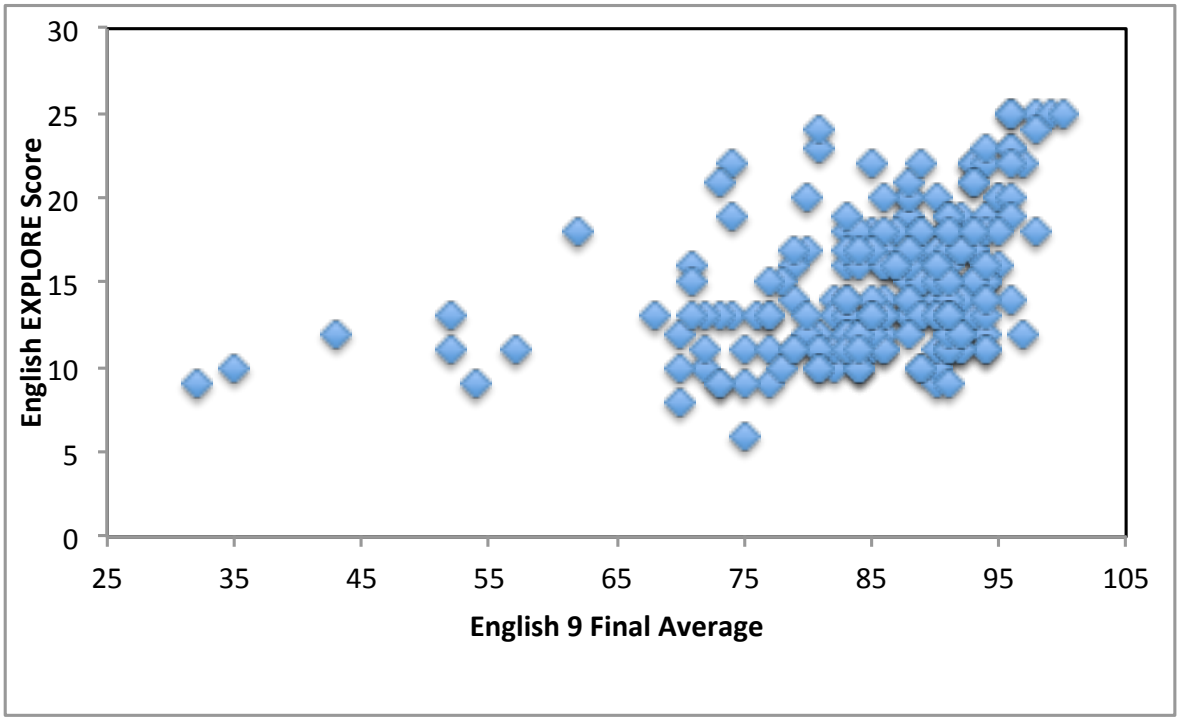

Figure 2. Scatterplot of EXPLORE score in English and the final average received in English 9

Research Question 3

Research Question 3: Is there a significant correlation between eighth grade EXPLORE scores in math and the scores received on the Algebra I EOC exam?

$H_0$3: There is no significant correlation between eighth grade EXPLORE scores in math and the scores received on the Algebra I EOC exam.

A Pearson correlation coefficient was calculated to test the relationship between the eighth grade EXPLORE scores in math and the Algebra I EOC scores. The results of the analysis, as shown in Figure 3 below, reveal a strong positive relationship between the EXPLORE scores in math (M = 15.84, SD = 2.96) and the scores received on the Algebra I EOC (M = 87.20, SD = 7.91) and a correlation that was statistically significant [$r(252)$ = .686, $p < .001$]. As a result of the analysis $H_0$3 was rejected. In general, the results suggest that there is a significant positive correlation between the EXPLORE scores in math and the scores received on the Algebra I EOC. Students who have high EXPLORE scores in Math tend to have high Algebra I EOC scores.

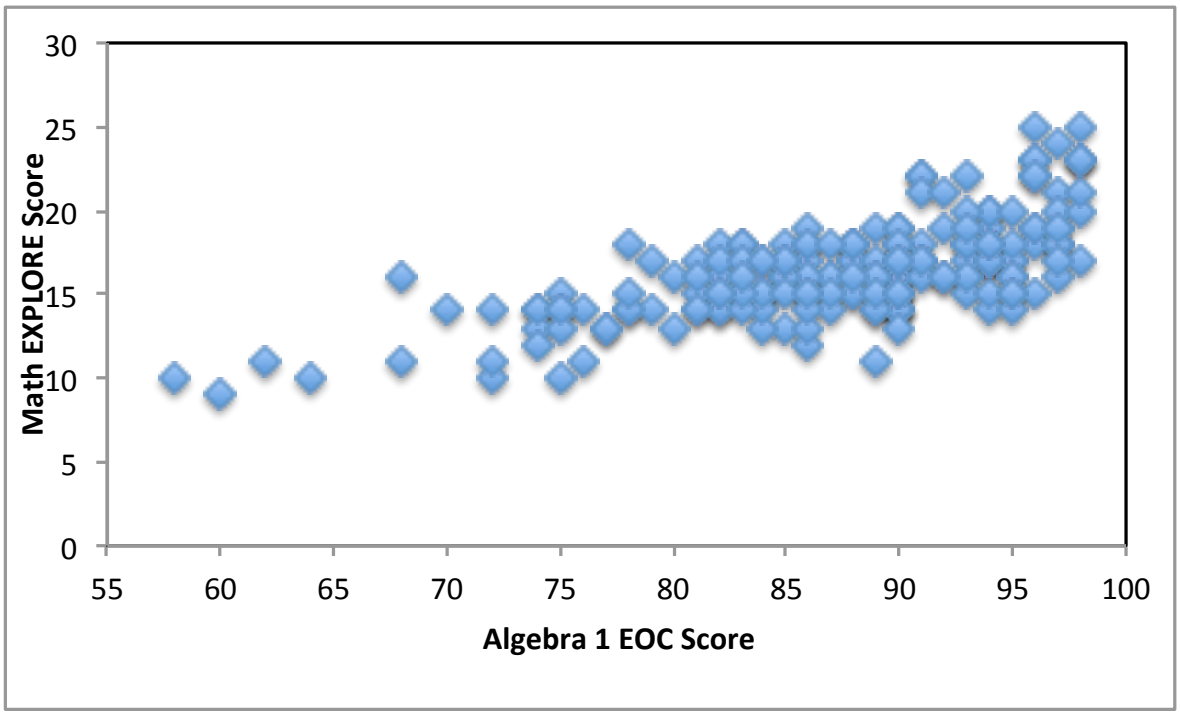

Figure 3. Scatterplot of EXPLORE score in math and Algebra I EOC score

Research Question 4

Research Question 4: Is there a significant correlation between eighth grade EXPLORE scores in math and the final averages received in Algebra I?

$H_0$4: There is no significant correlation between eighth grade EXPLORE scores in math and the final averages received in Algebra I.

A Pearson correlation coefficient was calculated to test the relationship between the eighth grade EXPLORE scores in math and the final averages received in Algebra I. The results of the analysis, as shown in Figure 4 below, reveal a weak positive relationship between the EXPLORE scores in math (M = 15.84, SD = 2.96) and the final averages received in Algebra I (M = 83.27, SD = 12.07) and a correlation that was statistically significant [$r(252) = .435$, $p < .001$]. As a result of the analysis $H_0$4 was rejected. In general, the results suggest that there is a significant positive correlation between the EXPLORE scores in math and the final averages received in Algebra I. Students who have high EXPLORE scores in math tend to have high Algebra I final averages.

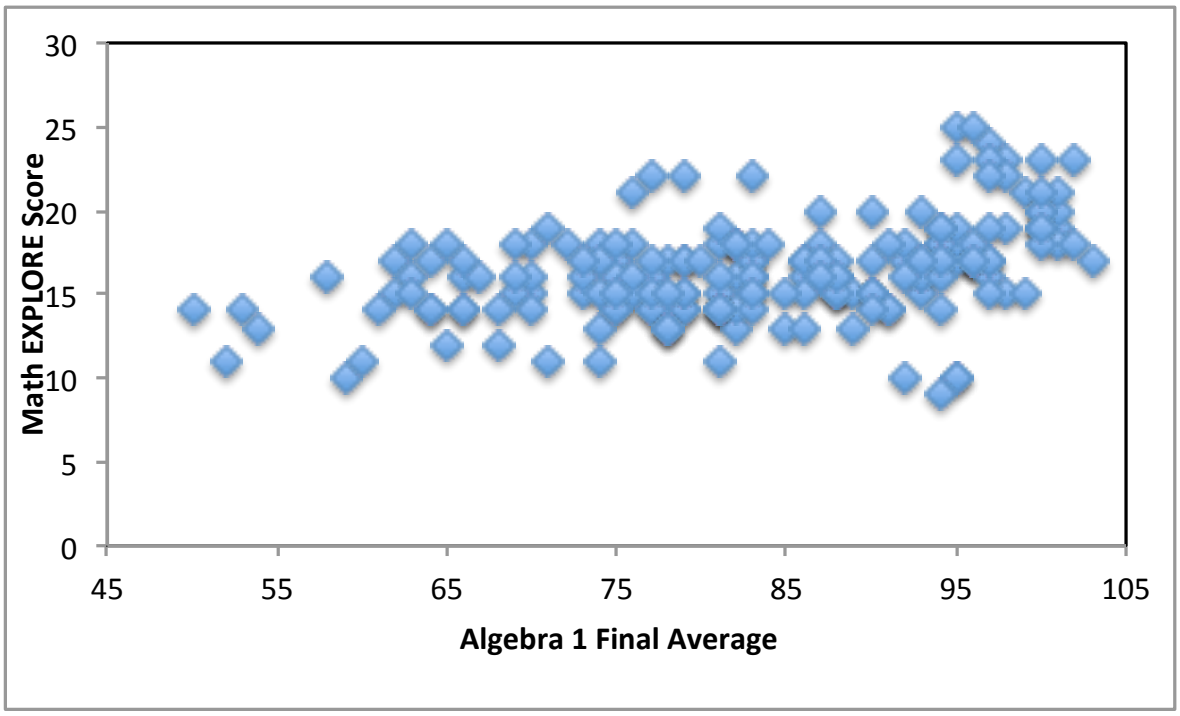

Figure 4. Scatterplot of EXPLORE score in math and the final average received in Algebra I

Research Question 5

Research Question 5: Is there a significant difference on eighth grade EXPLORE test in English when compared by gender?

$H_0$5: There is not a significant difference on eighth grade EXPLORE test in English when compared by gender.

An independent samples t test was conducted to evaluate whether the mean score on the EXPLORE test in English differs between female and male students. The score on the EXPLORE test in English was the test variable and the grouping variable was female or male. The test was significant, $t(251) = 2.512$, $p = .013$. Therefore, the null hypothesis was rejected. Female students ($M = 15.34$, $SD = 4.24$) tended to score higher on the EXPLORE test in English than male students ($M = 14.10$, $SD = 3.66$). The 95% confidence interval for the difference in means was 0.27 to 2.23. The η^2 index was .02, which indicated a small effect size. Female students tended to receive high scores on the EXPLORE English test than male students. Figure 5 shows the distribution for the two groups.

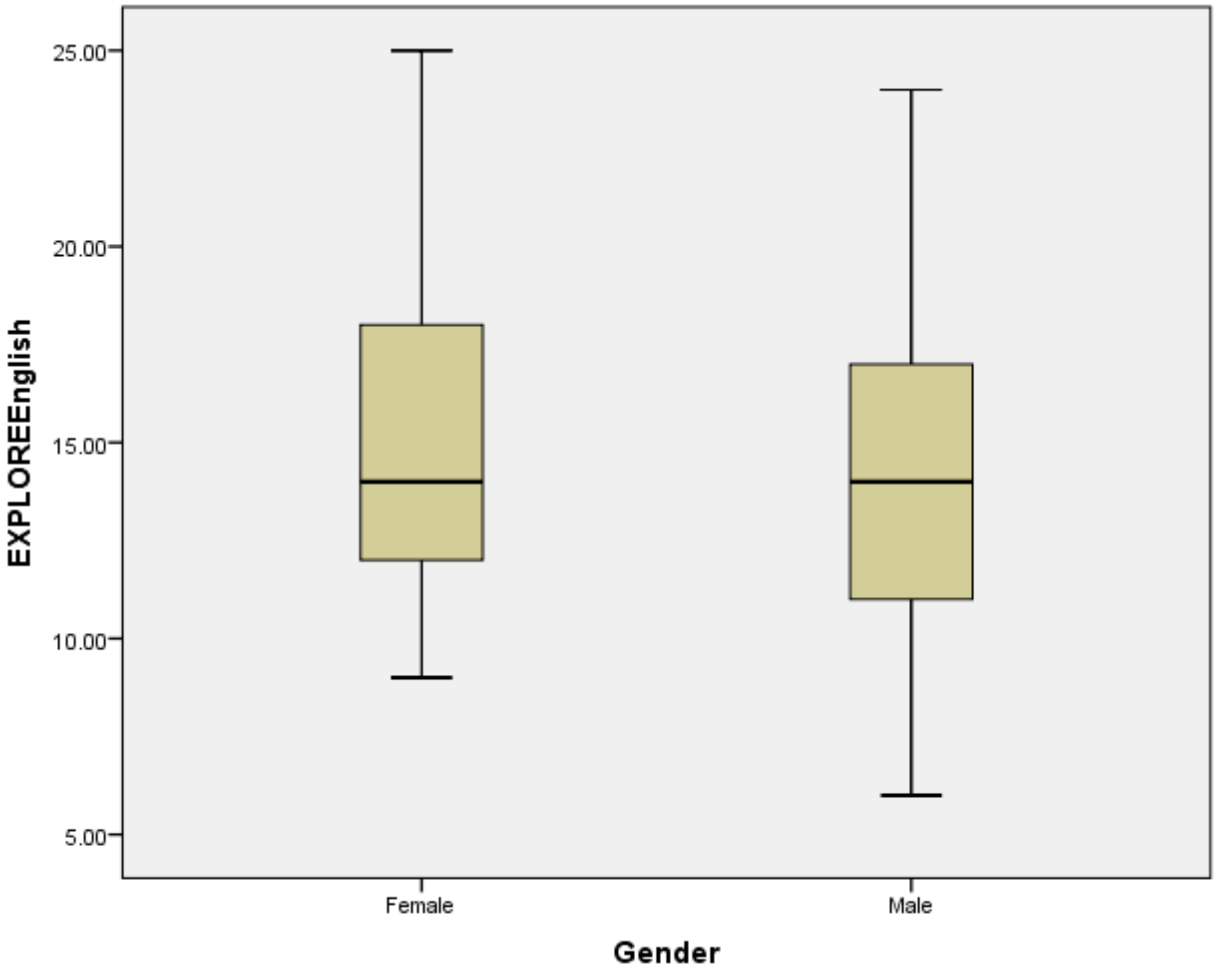

Figure 5. Boxplot of distribution of scores for female and male students on the EXPLORE test in English

Research Question 6

Research Question 6: Is there a significant difference on eighth grade EXPLORE test in math when compared by gender?

$H_0$6: There is not a significant difference on eighth grade EXPLORE score in math when compared by gender.

An independent samples t test was conducted to evaluate whether the mean score on the EXPLORE test in math differs between female and male students. The score on the EXPLORE test in math was the test variable and the grouping variable was female or male. The test was not significant, $t(251) = .246$, $p = .806$. Therefore, the null hypothesis was retained. The η^2 index was .0002, which indicated a small effect size. Female students ($M = 15.89$, $SD = 2.99$) tended to score about the same on the EXPLORE test in math as male students ($M = 15.80$, $SD = 2.96$). The 95% confidence interval for the difference in means was -.65 to .83. Figure 6 shows the distribution for the two groups.

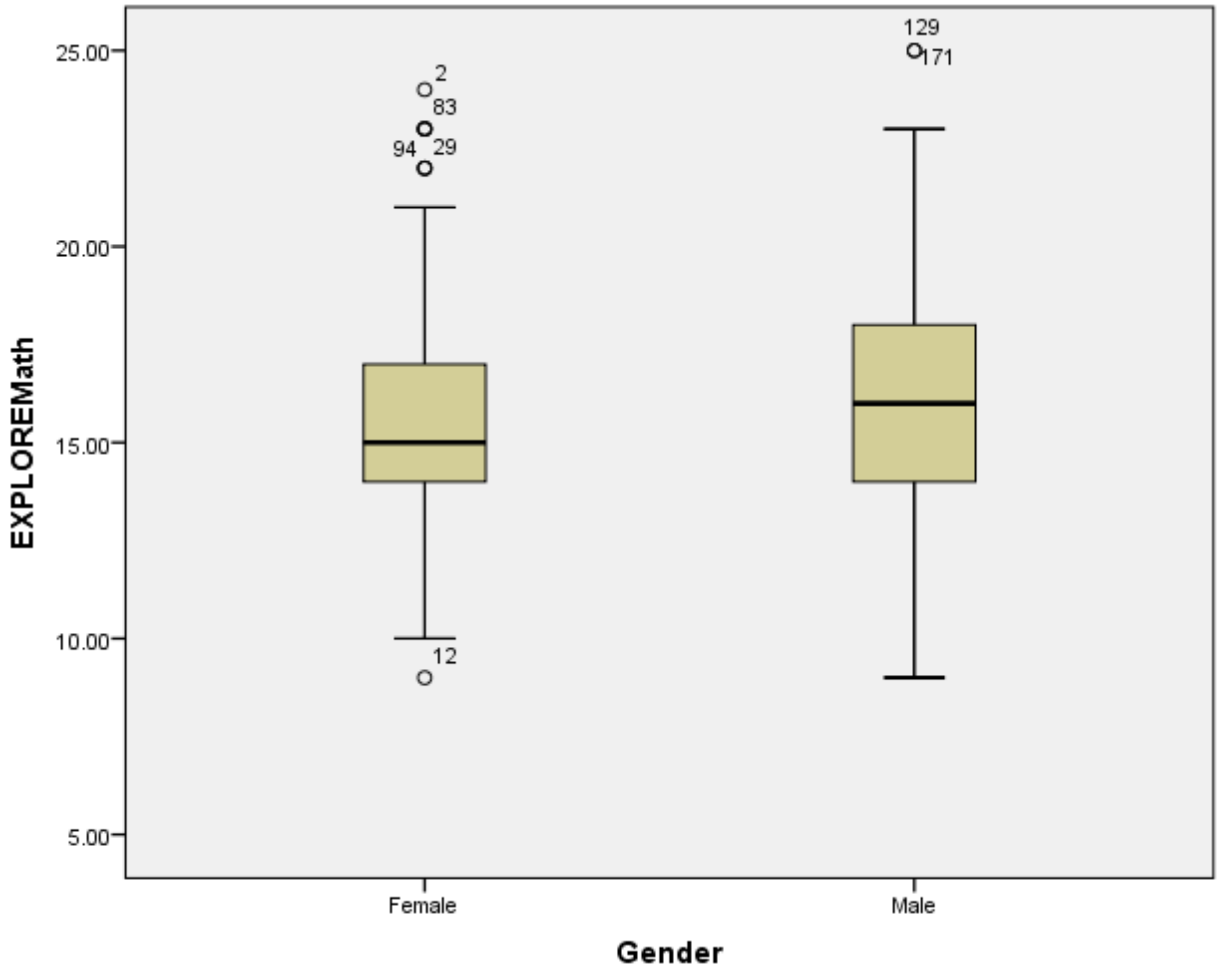

Figure 6. Boxplot of distribution of scores for female and male students on the EXPLORE test in math

Research Question 7

Research Question 7: Is there a significant difference in the final averages received in English 9 when compared by gender?

$H_0$7: There is not a significant difference in the final averages received in English 9 when compared by gender.

An independent samples t test was conducted to evaluate whether the mean score in English 9 for final averages differs between female and male students. The final averages in English 9 was the test variable and the grouping variable was female or male. The test was significant, $t(216) = 2.838$, $p = .005$. Therefore, the null hypothesis was rejected. Female students ($M = 87.58$, $SD = 8.57$) tended to have a higher final averages in English 9 than male students ($M = 83.73$, $SD = 11.0$). The 95% confidence interval for the difference in means was 1.18 to 6.54. The η^2 index was .04, which indicated a small to medium effect size. Female students tended to receive higher final averages in English 9 than male students. Figure 7 shows the distribution for the two groups.

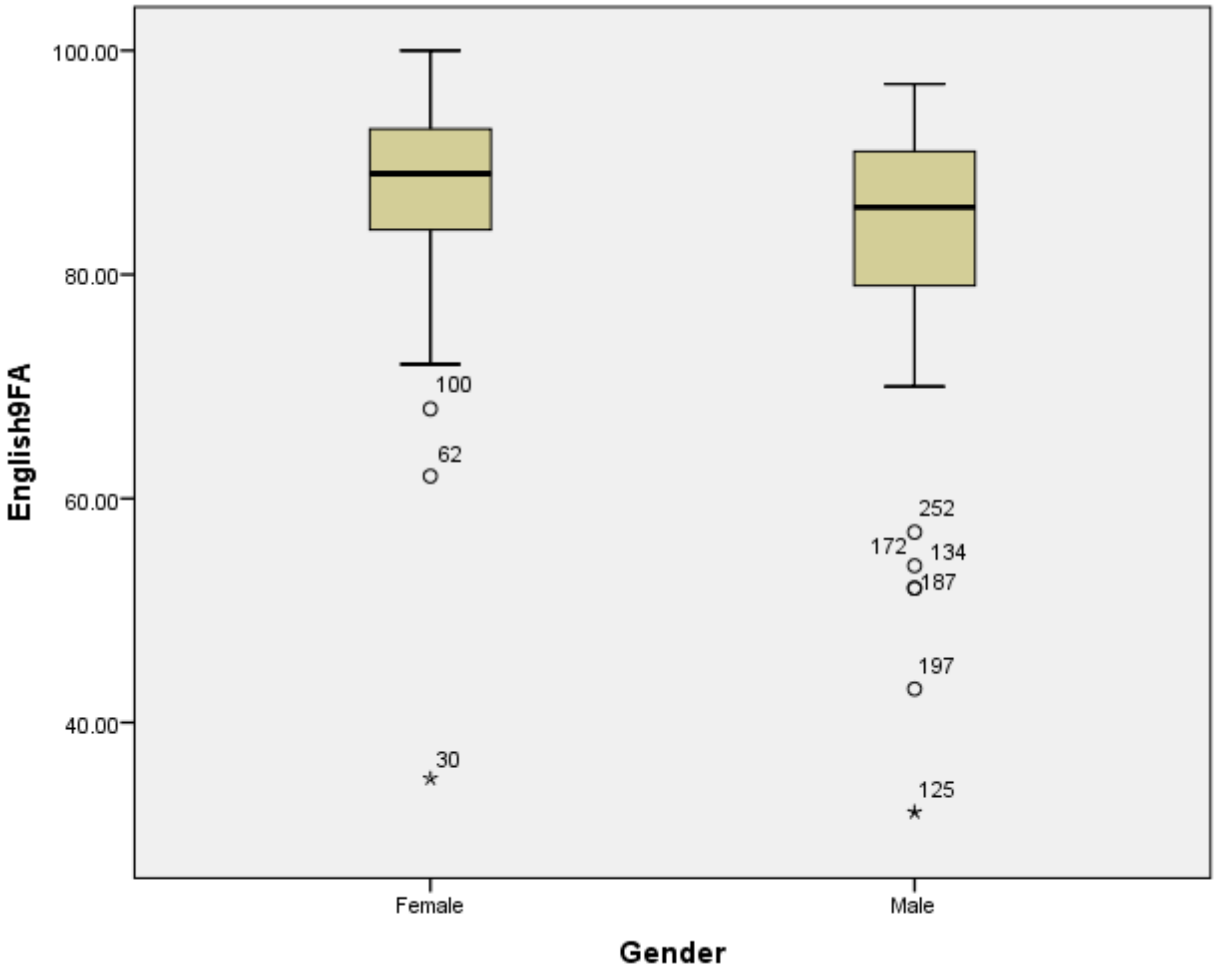

Figure 7. Boxplot of distribution of final averages for female and male students in English 9

Research Question 8

Research Question 8: Is there a significant difference in the English 9 EOC scores as compared by gender?

$H_0$8: There is not a significant difference in the English 9 EOC scores when compared by gender.

An independent samples t test was conducted to evaluate whether the mean score in English 9 for EOC differs between female and male students. The EOC in English 9 was the test variable and the grouping variable was female or male. The test was significant, $t(216) = 2.01$, $p = .05$. Therefore, the null hypothesis was rejected. Female students ($M = 87.26$, $SD = 7.52$) tended to have a higher EOC scores in English 9 than male students ($M = 84.96$, $SD = 9.0$). The 95% confidence interval for the difference in means was .04 to 4.55. The η^2 index was .02, which indicated a small effect size. Female students tended to receive higher EOC scores in English 9 than male students. Figure 8 shows the distribution for the two groups.

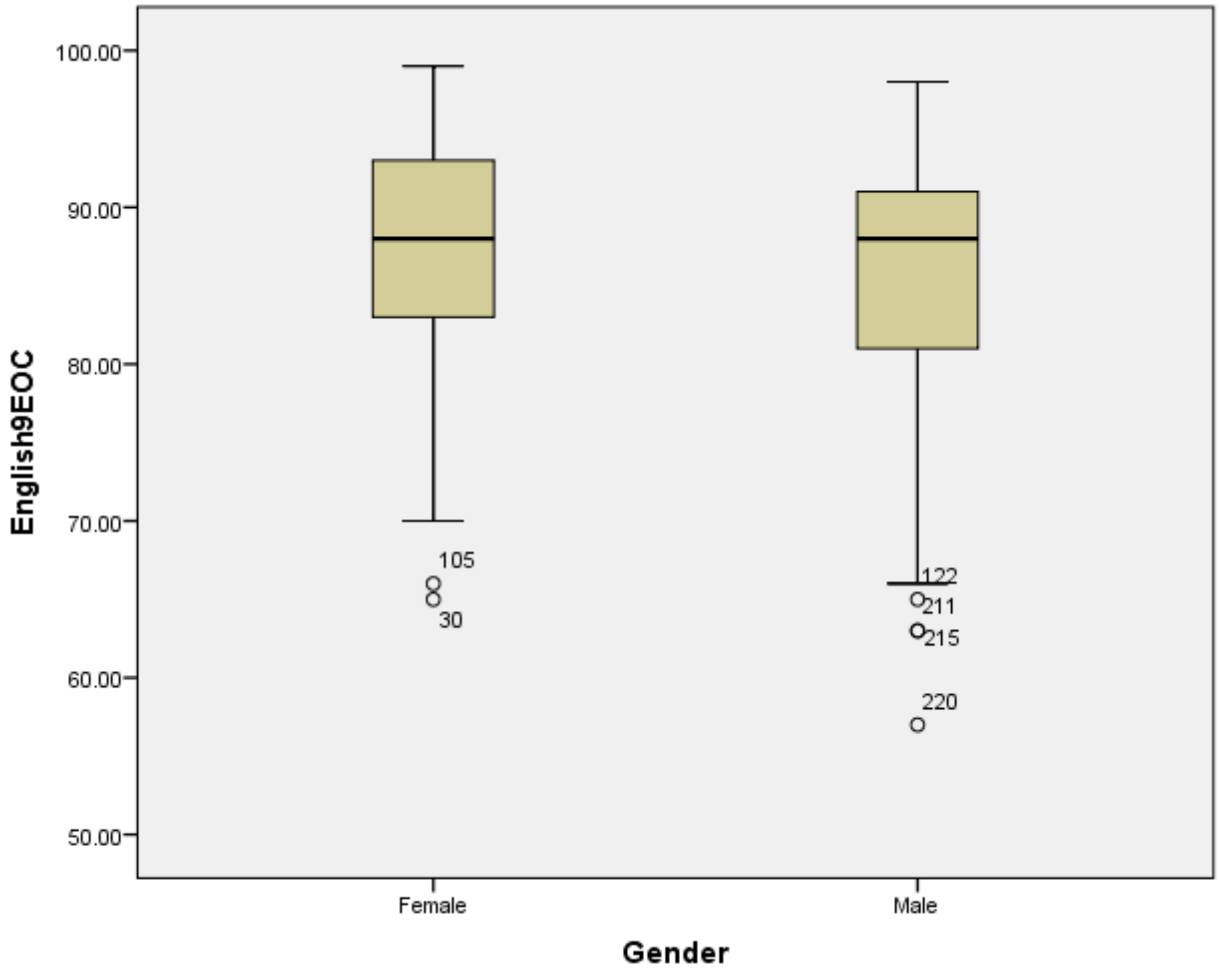

Figure 8. Boxplot of distribution of EOC scores for female and male students in English 9

Research Question 9

Research Question 9: Is there a significant difference in the final averages received in Algebra I when compared by gender?

$H_0$9: There is not a significant difference in the final averages received in Algebra I when compared by gender.

An independent samples t test was conducted to evaluate whether the final averages in Algebra I differs between female and male students. The final averages in Algebra I was the test variable and the grouping variable was female or male. The test was significant, $t(190) = 2.285$, $p = .023$. Therefore, the null hypothesis was rejected. Female students ($M = 85.29$, $SD = 11.93$) tended to have a higher final averages in Algebra I than male students ($M = 81.34$, $SD = 12.01$). The 95% confidence interval for the difference in means was .54 to 7.36. The η^2 index was .04, which indicated a small to medium effect size. Female students tended to receive higher final averages in Algebra I than male students. Figure 9 shows the distribution for the two groups.

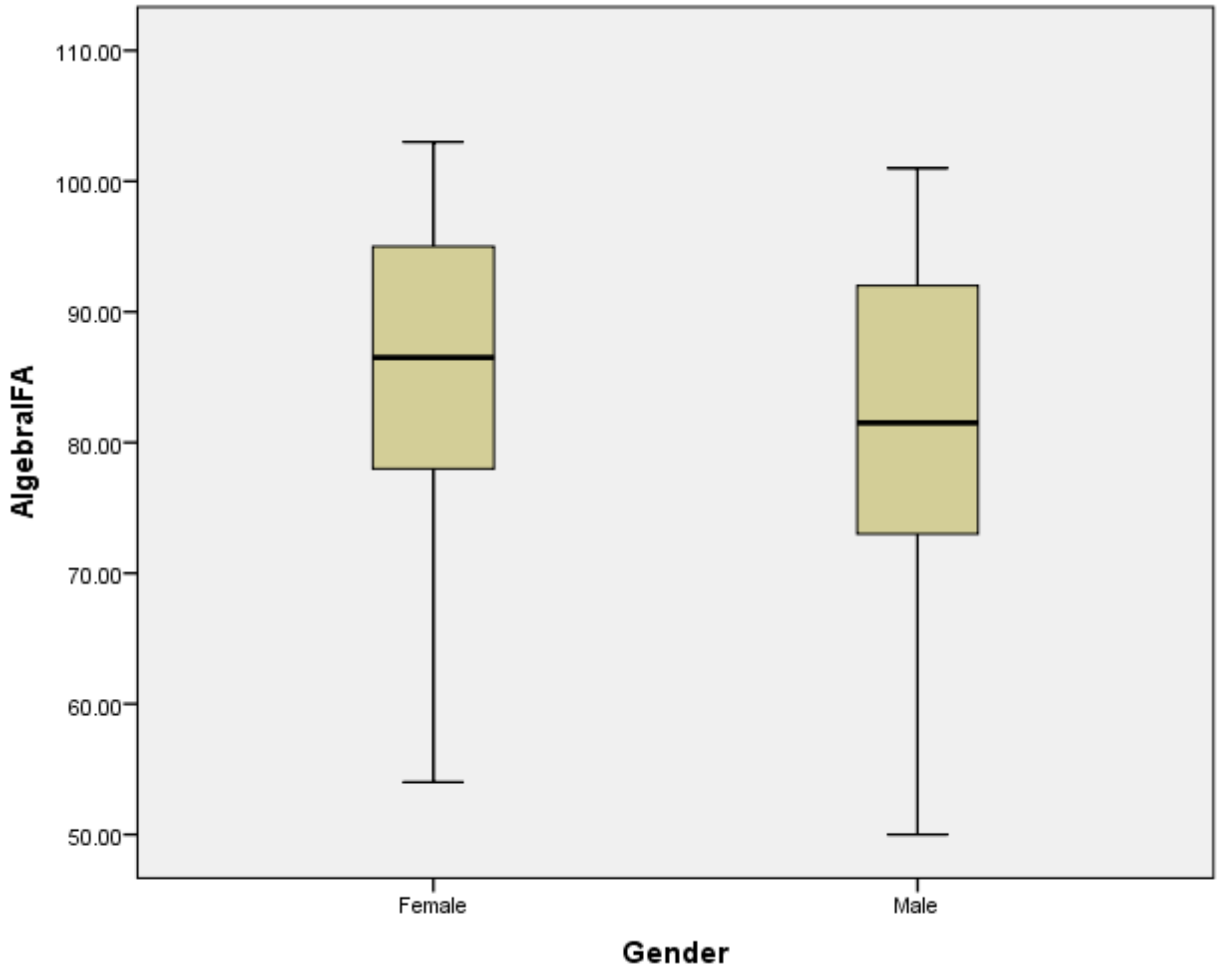

Figure 9. Boxplot of distribution of final averages for female and male students in Algebra I

Research Question 10

Research Question 10: Is there a significant difference in the Algebra I EOC scores when compared by gender?

$H_0$10: There is not a significant difference in the Algebra I EOC scores when compared by gender.

An independent samples t test was conducted to evaluate whether the EOC score in Algebra I differs between female and male students. The EOC score on the Algebra I test was the test variable and the grouping variable was female or male. The test was not significant, $t(190) = -.575$, $p = .566$. Therefore, the null hypothesis was retained. The η^2 index was .002, which indicated a small effect size. Female students ($M = 86.86$, $SD = 7.76$) tended to score about the same on the EOC exam in Algebra I as male students ($M = 87.52$, $SD = 8.11$). The 95% confidence interval for the difference in means was -2.92 to 1.60. Figure 10 shows the distribution for the two groups.

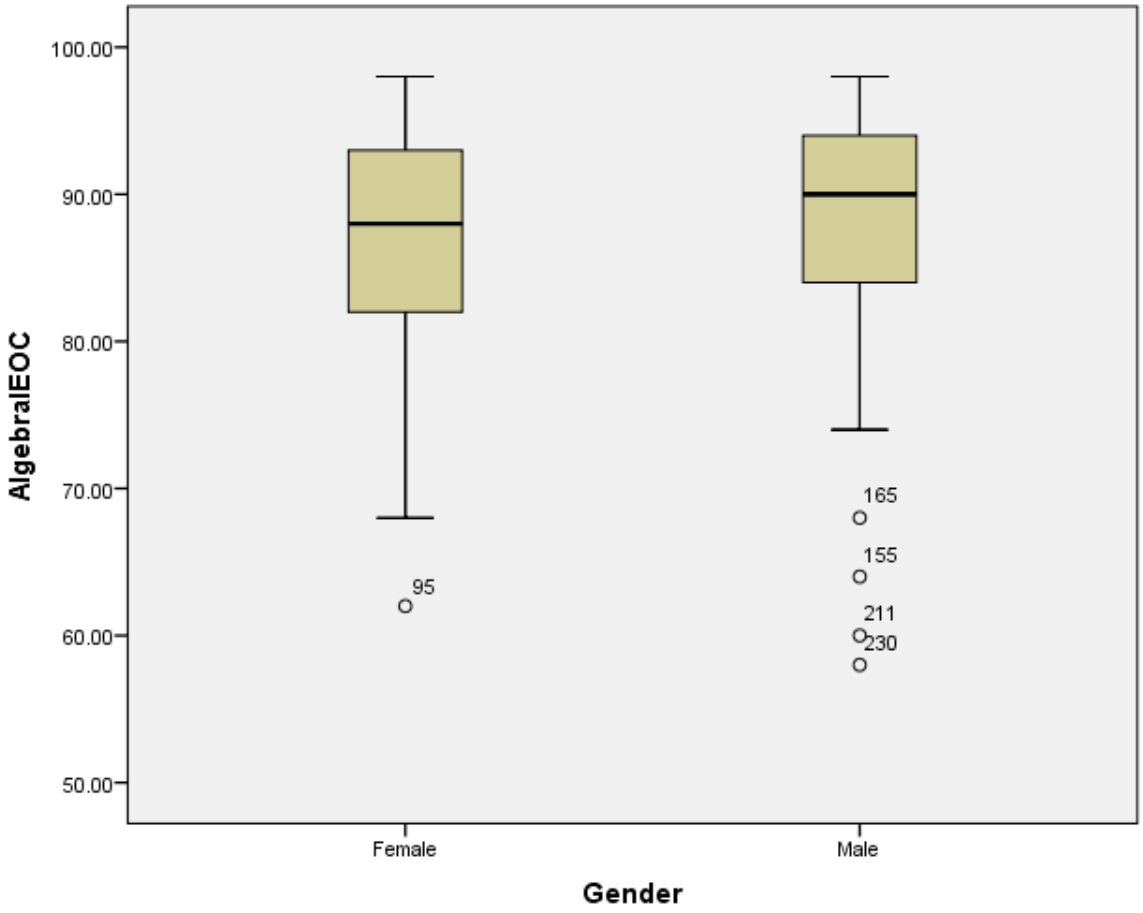

Figure 10. Boxplot of distribution of EOC scores in Algebra I for female and male students

Table 1

Means and standard deviations of eighth grade EXPLORE scores in English and math during the 2012 – 2013 school year, final averages in English 9 and Algebra I, and EOC scores in English 9 and Algebra I during the 2013 – 2014 school year for female and male students.

	Female Scores (Male Scores)		
Variable	*N*	*M*	*SD*
EXPLORE English	119 (134)	15.34 (14.10)	4.24 (3.66)
EXPLORE Math	119 (134)	15.89 (15.80)	2.99 (2.96)
Final Averages English 9	98 (120)	87.58 (83.73)	8.57 (11.00)
Final Averages Algebra I	94 (98)	85.29 (81.34)	11.93 (12.01)
EOC Score English 9	98 (118)	87.26 (84.96)	7.52 (9.00)
EOC Score Algebra I	94 (98)	86.86 (87.52)	7.76 (8.11)

Chapter Summary

In this chapter data obtained over 2 years were presented and analyzed. There were 10 research questions and 10 corresponding null hypotheses. All data were collected from PowerSchool (school system student management system), the building level testing coordinator, and the Director of Testing and Accountability. The purpose of the EXPLORE test was to prepare students for high school level work and prepare them for the ACT. The EXPLORE scores in English were shown to have significant positive correlations with English 9 End-of-Course exams and final averages in English 9. The EXPLORE scores in math were shown to have significant positive correlations with Algebra I End-of-Course exams and final averages in Algebra I. Female students tended to have higher scores on the eighth grade EXPLORE test in English, final averages in English 9, EOC scores in English 9, and final averages in Algebra I. On the other hand there was not statistical difference between females and males in scores on the eighth grade EXPLORE test in math and EOC scores in Algebra I.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter contains a summary of the findings, conclusion, and recommendations for future practice and recommendations for future research. The purpose of this quantitative research study was to determine whether there was a significant relationship between scores received on the EXPLORE test in math and English during the eighth grade year and scores received in English 9 and Algebra I during the ninth grade year on both the end-of-course test and the final averages in those classes. Another purpose of this study was to determine if there was a difference based on gender in EXPLORE scores in math and English, end-of-course scores in English 9 and Algebra I, and final averages in English 9 and Algebra I. The high school was located in eastern Tennessee; it served grades 9 – 12 and was in a rural area of the state. The results from this study can be potentially beneficial to administrators as they seek to find ways to successfully transition eighth grade students to ninth grade. Additionally, administrators might use these data in providing eighth grade students with the class selections that would be most appropriate for their given academic level. Existing student data collected over 2 years were used to conduct this study. The data retrieved for the ninth grade students in this study were EXPLORE scores in English and math from the 2012-2013 school year, End-of-course scores in English 9 and Algebra I from the 2013-2014 school year, and final averages in English 9 and Algebra I from the 2013-2014 school year. All data were collected from PowerSchool (student information management system), the building level testing coordinator, and the Director of Testing and Accountability.

Summary of Findings

The statistical analysis reported in this study was based on 10 research questions presented in Chapters 1 and 3. In Chapter 3 each research question had one null hypothesis that related to the dependent variables of EXPLORE scores in English and Math, English 9 End-of-Course score, English 9 final averages, Algebra I End-of-Course score, Algebra I final averages, and gender. Data were analyzed using a series of Pearson correlations to determine the direction and strength of the relationship between eighth grade EXPLORE scores in English and math and End-of-Course scores in English 9 and Algebra I and final averages in English 9 and Algebra I. Data were also analyzed using independent samples t tests to determine if there was a difference based on gender and EXPLORE scores in English and Math, End-of-Course scores in English 9 and Algebra I, and final averages in English 9 and Algebra I. Each Pearson correlation and t test were evaluated with the alpha of .05 to determine the level of significance.

Research Question 1

Is there a significant correlation between eighth grade EXPLORE scores in English and the scores received on the English 9 End-of Course (EOC) exam?

A Pearson correlation coefficient was computed to test the relationship between eighth grade EXPLORE scores in English and the scores received on the English 9 End-of Course (EOC) exam. The null hypothesis was rejected. The results showed that there is a significant relationship between eighth grade EXPLORE score in English and the score received on the English 9 End-of Course (EOC) exam. Students who have high

EXPLORE scores in English tend to have high English 9 EOC scores.

Research Question 2

Is there a significant correlation between eighth grade EXPLORE scores in English and the final averages received in English 9?

A Pearson correlation coefficient was computed to test the relationship between eighth grade EXPLORE score in English and the final averages received in English 9. The null hypothesis was rejected. The results showed that there is a significant relationship between eighth grade EXPLORE scores in English and the final averages received in English 9. Students who have high EXPLORE scores in English tend to have high English 9 final averages.

Research Question 3

Is there a significant correlation between eighth grade EXPLORE scores in math and the score received on the Algebra I EOC exam?

A Pearson correlation coefficient was computed to test the relationship between eighth grade EXPLORE scores in math and the scores received on the Algebra I EOC exam. The null hypothesis was rejected. The results showed that there is a significant relationship between eighth grade EXPLORE scores in math and the score received on the Algebra I EOC exam. Students who have high EXPLORE scores in math tend to have high Algebra I EOC scores.

Research Question 4

Is there a significant correlation between eighth grade EXPLORE score in math and the final averages received in Algebra I?

A Pearson correlation coefficient was computed to test the relationship between eighth grade EXPLORE score in math and the final averages received in Algebra I. The null hypothesis was rejected. The results showed that there is a significant relationship between eighth grade EXPLORE score in math and the final averages received in Algebra I. Students who have high EXPLORE scores in math tend to have high Algebra I final averages.

Research Question 5

Is there a significant difference on eighth grade EXPLORE test in English when compared by gender?

An independent samples t test was conducted to evaluate whether the mean score on the EXPLORE test in English differs between female and male students. The test was significant, $t(251) = 2.512$, $p = .013$. Therefore, the null hypothesis was rejected. Female students ($M = 15.34$, $SD = 4.24$) tended to score higher on the EXPLORE test in English than male students ($M = 14.09$, $SD = 3.66$). The 95% confidence interval for the difference in means was 0.27 to 2.23. The η^2 index was .02, which indicated a small effect size. Female students tended to receive high scores on the EXPLORE English test than male students.

Research Question 6

Is there a significant difference on eighth grade EXPLORE test in math when compared by gender?

An independent samples t test was conducted to evaluate whether the mean score on the EXPLORE test in math differs between female and male students. The test was not significant, $t(251) = .246$, $p = .806$. Therefore, the null hypothesis was retained. The η^2 index was .0002, which indicated a small effect size. Female students ($M = 15.89$, $SD = 2.99$) tended to score about the same on the EXPLORE test in English as male students ($M = 15.80$, $SD = 2.96$). The 95% confidence interval for the difference in means was -.65 to .83.

Research Question 7

Is there a significant difference in the final averages received in English 9 when compared by gender?

An independent samples t test was conducted to evaluate whether the mean score in English 9 for final averages differs between female and male students. The test was significant, $t(216) = 2.838$, $p = .005$. Therefore, the null hypothesis was rejected. Female students ($M = 87.58$, $SD = 8.57$) tended to have a higher final averages in English 9 than male students ($M = 83.72$, $SD = 11.0$). The 95% confidence interval for the difference in means was 1.18 to 6.54. The η^2 index was .04, which indicated a small to medium effect size. Female students tended to receive higher final averages in English 9 than male students.

Research Question 8

Is there a significant difference in the English 9 EOC scores when compared by gender?

An independent samples t test was conducted to evaluate whether the mean score in English 9 for EOC differs between female and male students. The test was significant, $t(216) = 2.01$, $p = .05$. Therefore, the null hypothesis was rejected. Female students ($M = 87.26$, $SD = 7.52$) tended to have a higher EOC scores in English 9 than male students ($M = 84.96$, $SD = 9.0$). The 95% confidence interval for the difference in means was .04 to 4.55. The η^2 index was .02, which indicated a small effect size. Female students tended to receive higher EOC scores in English 9 than male students.

Research Question 9

Is there a significant difference in the final averages received in Algebra I when compared by gender?

An independent samples t test was conducted to evaluate whether the final averages in Algebra I differs between female and male students. The test was significant, $t(190) = 2.285$, $p = .023$. Therefore, the null hypothesis was rejected. Female students ($M = 85.29$, $SD = 11.93$) tended to have a higher final averages in Algebra I than male students ($M = 81.34$, $SD = 12.01$). The 95% confidence interval for the difference in means was .54 to 7.36. The η^2 index was .04, which indicated a small to medium effect size. Female students tended to receive higher final averages in Algebra I than male students.

Research Question 10

Is there a significant difference in the Algebra I EOC scores when compared by gender?

An independent samples t test was conducted to evaluate whether the EOC score in Algebra I differs between female and male students. The test was not significant, $t(190) = -.575$, $p = .566$. Therefore, the null hypothesis was retained. The η^2 index was .002, which indicated a small effect size. Female students ($M = 86.86$, $SD = 7.76$) tended to score about the same on the EOC exam in Algebra I as male students ($M = 87.52$, $SD = 8.11$). The 95% confidence interval for the difference in means was -2.92 to 1.60.

Conclusions

The purpose of this study was to determine if there was a significant relationship between eighth grade EXPLORE scores in English and math and End-of-Course scores and final averages in English 9 and Algebra I. Additionally, this study also determined whether there was a significant difference between EXPLORE scores in English and math, End-of-Course scores and final averages in English 9 and Algebra I when compared by gender. Students' scores on the EXPLORE test were from the 2012-2013 school year and End-of-Course and final averages in English 9 and Algebra I were from the same cohort of students from the 2013-2014 school year. The following conclusions were based upon the findings from the data of this study.

EXPLORE English and English 9

There was a significant relationship between students' scores on the EXPLORE test in English given during the 2012-2013 school year and both End-of-Course exam and final averages in English 9 during the 2013-2014 school year. *According to Maitre (2014) high school grades are vitally important, more important than ACT or SAT scores. Hiss and Franks (2014) also found that high school GPA closely mirrored college GPA and that standardized test scores were not as accurate a predictor of college GPA and subsequent college graduation. However, the data analyzed in this study did find that eighth grade EXPLORE scores in English were a strong predictor of how the same cohort of students scored on both the English 9 End-of-Course exam and also the final averages in English 9. Conversely, Cooney and Bottoms (2002) found that students needed to be taught at grade-level standards, be an active participant in the classroom, and show that they can apply what they have learned in middle school to make a successful transition to high school level coursework. Higher expectations from teachers and more homework makes the first year of high school difficult for ninth graders regardless of standardized test scores (Styron & Peasant, 2010).

EXPLORE Math and Algebra I

There was a significant relationship between students' scores on the EXPLORE test in math given during the 2012-2013 school year and both the End-of-Course exam and final averages in Algebra I during the 2013-2014 school year. Murdock, Anderman, and Hodge (2000) reported that peer influence could either encourage or deter academic

success when students enter high school. Grade point average (GPA) has historically been one indicator of academic success in high school (Caskie et al., 2014; Roybal et al., 2014). According to Rice (2001) the rising high school graduation requirements and the emphasis on higher standards in the classroom are better predictors of success for students as they transition to high school than are standardized test scores. Additionally, the findings of this study support Cushman's (2006) recommendation that high school course work builds on the knowledge that students gained during middle school.

English 9 Final Averages, English 9 End-of-Course, Algebra I Final Averages, EXPLORE English and Gender

There was a significant difference between students' English 9 final averages, English 9 EOC score, Algebra I Final Averages and EXPLORE English when compared by gender. These results support the research of Aniodoh and Egbo (2013) who found similar results with chemistry students. They concluded that female chemistry students had higher academic achievement than their male counter parts. These results support the research of Serbin et al. (2013) who concluded that gender made a difference in academic achievement and that boys' performance in reading and science was below that of girls' by the eighth grade.

Algebra I End of Course, EXPLORE Math and Gender

There was not a significant difference between students' scores on the EXPLORE test in math and Algebra I EOC when compared by gender. This result supports the work

of Chee et al. (2005) that concluded students were academically successful regardless of their gender. Additionally Voyer and Voyer (2014) found that standardized tests only assess basic academic abilities at that one particular point in time.

Recommendations for Practice

The findings and conclusions from this study have enabled the researchers to identify the following recommendations for practice for high schools using EXPLORE scores for incoming ninth grade students:

1. Administrators and assistant principals responsible for the placement of ninth grade student should examine EXPLORE scores for the most appropriate class placement.
2. Middle school principals should examine EXPLORE scores from previous years to determine if there are areas of weakness and areas of strength within their buildings. This will make the middle school curriculum more rigorous and relevant to students and better prepare them for the level of work expected at the high school level.
3. Incoming ninth grade students should work with high school counselors and administrators when they are choosing their class schedules for the upcoming school year.
4. Middle school counselors and teachers need to educate students on the importance of the EXPLORE test prior to the eighth grade year.
5. High school counselors and administrators should examine EXPLORE

scores to identify students who will need additional remediation during the ninth grade or prior to beginning of the ninth grade.

6. Examine EOC scores and final averages to identify patterns of students failing courses and passing EOC exams by teacher.
7. Videotape teacher lessons and have the teacher review the lesson using a rubric to determine differences in questioning based upon gender.

Recommendations for Future Research

This study was focused on eighth grade EXPLORE scores in a rural East Tennessee High School. The following are recommendations for future study:

1. An identical study could be completed using different middle schools and high schools in the area.
2. A qualitative study could be performed to investigate student perceptions of what to expect when the enter high school and how those expectations compare once they begin high school.
3. A study could be completed using a remediation model for students who receive a particular score on the EXPLORE test and compare those students to students who do not receive remediation.
4. A similar study could be conducted to compare students' EXPLORE, PLAN, and ACT scores.
5. An additional study could be completed that compares EXPLORE scores to on-time graduation for a specific cohort of students.

6. A comparable study could be completed that also compares EXPLORE scores in science to Biology I End-of-Course and final averages.
7. An analogous study could be completed at a high school that is not a Title I high school.
8. Examine correlation between EOC scores and final averages in courses.

Chapter Summary

In this chapter a summary of the findings was provided for each of the 10 research questions. Conclusions about the research questions were drawn and recommendations were made for practice and future research. This study involved an examination of the EXPLORE scores from a cohort of students during the 2012-2013 school year and compared those students English 9 and Algebra I End-of-Course scores and final averages from the 2013-2014 school year. The high school was located in a rural area of East Tennessee and data were collected over a period of 2 years.

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APPENDICES

APPENDIX A: APPROVAL TO CONDUCT RESEARCH

ENA Mail **charles.corwin@sullivank12.net**

Re: Dissertation

From : Jubal Yennie <jubal.yennie@sullivank12.net> Thu, Dec 04, 2014 09:21 PM
Subject : Re: Dissertation
To : Charles Corwin <charles.corwin@sullivank12.net>

Charles,

This looks good. Please proceed with completing your IRB.

Jubal

Jubal C. Yennie, Ed.D.
Director of Schools
Sullivan County Department of Education
154 Blountville Bypass
Blountville, TN 37617
(423) 354-1001

When you expect more, students achieve more!

> On Dec 1, 2014, at 11:52 PM, Charles Corwin <charles.corwin@sullivank12.net> wrote:
>
> Dr. Yennie –
>
> I am writing in regard to my research for my dissertation: if there is a correlation between 8th grade EXPLORE scores and 9th grade EOC scores in Algebra I and English 9 at [redacted]. I will also run a correlation between EXPLORE scores and final averages in Algebra I and English 9. All of the information will be de-identified.
>
> Prior to beginning my research project, I need your permission for IRB approval. I would be more than willing to meet with you this week if you would like to discuss my research further. Thank you in advance for your continued support.
>
> Charles
>
> Charles D. Corwin
> Principal
> [redacted]

APPENDIX B: IRB EXEMPTION LETTER

East Tennessee State University
Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707
Phone: (423) 439-6053 Fax: (423) 439-6060

December 18, 2014

Charles Corwin
Zcdc33@goldmail.etsu.edu

Dear Charles,

Thank you for recently submitting information regarding your proposed project "Correlation between 8th grade EXPLORE scores and End-of-Course exams in English 9 and Algebra 1 and final average in English 9 and Algebra 1."

I have reviewed the information, which includes a completed Form 129.

The determination is that this proposed activity as described meets neither the FDA nor the DHHS definition of research involving human subjects. Therefore, it does not fall under the purview of the ETSU IRB.

IRB review and approval by East Tennessee State University is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are human subject research in which the organization is engaged, please submit a new request to the IRB for a determination.

Thank you for your commitment to excellence.

Sincerely,
Stacey Williams, Ph.D.
Chair, ETSU IRB

Accredited Since December 2005

VITA

CHARLES DUDLEY CORWIN IV

Education:

East Tennessee State University, Johnson City, TN
History, B.S.
1994

East Tennessee State University, Johnson City, TN
Elementary Education, M.A.T.
1996

Lincoln Memorial University, Harrogate, TN
Administration and Supervision, Ed.S.
2007

East Tennessee State University, Johnson City, TN
Educational Leadership, Ed.D.
2015

Professional Experience:

Middle School Teacher
St. Joseph School, Knoxville, TN
1996 – 1997

Middle School Teacher
West View School, Limestone, TN
1997 – 2007

5th Grade Teacher
Fall Branch School, Fall Branch, TN
2007 – 2008

Assistant Principal
Sulphur Springs School, Jonesborough, TN
2008 – 2011

Assistant Principal
Sullivan East High School, Bluff City, TN
2011 – 2014

Principal
Sullivan East High School, Bluff City, TN
2014 - present