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Weightlifting, Performing Arts Electives, and Academic Achievement: A Comparison in an East
Tennessee High School

A dissertation

presented to

the faculty of the Department of Educational Leadership and Policy Analysis

East Tennessee State University

In partial fulfillment of the

requirements for the degree

Doctor of Education in Educational Leadership

by

Lana M. Page

December 2014

Dr. Donald Good, Chair

Dr. John Boyd

Dr. Virginia Foley

Dr. Ryan Nivens

Keywords: academic achievement, performing arts, athletics, weightlifting, race, ethnicity

ABSTRACT

Weightlifting, Performing Arts Electives, and Academic Achievement: A Comparison in an East

Tennessee High School

by

Lana Page

The purpose of this study was to determine if there was a significant relationship between the academic achievement as measured by ACT English, math, and composite scores of students who took 6 or more credits of weightlifting, 6 or more credits of performing arts, or no elective focus in an East Tennessee high school serving grades 9-12 from the graduating classes of 2010 through 2014. The independent variables were the elective focus groups students took during high school and race and ethnicity. The dependent variables were ACT English, math, and composite scores. A series of one-way analyses of variances (ANOVAs) were performed to examine the differences in the mean ACT scores for the students taking 6 or more credits of weightlifting, 6 or more credits of performing arts, or no elective focus. Significant differences were found between the ACT English, math, and composite scores for students taking 6 or more credits of performing arts and no elective focus and students taking 6 or more credits of weightlifting and no elective focus. There was not a significant difference between the students taking 6 or more credits of weightlifting and 6 or more credits of performing arts. Based upon the findings of the study students taking 6 or more credits of performing arts had significantly higher ACT English, math, and composite scores than students with a weightlifting focus or no elective focus.

Two-way analyses of variance were also performed to study the relationships between the academic performance as measured by ACT English, math, and composite scores of White and non-White students. White students performed significantly higher than non-White students on ACT English, math, and composite scores. There was no significant interaction between race and ethnicity and elective focus groups; however, there were significant main effects in race and ethnicity and elective focus groups. There were significant differences in the ACT math and composite scores between the weightlifting and performing arts groups as well as performing arts and no elective focus area. There was not a significant difference between the weightlifting and no elective focus. There were significant differences between all pairs of groups for ACT English. The performing arts focus group scored significantly higher than the other groups on all 3 ACT subtests.

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DEDICATION

This work is dedicated to my husband and boys, Adam, Matthew, and Jacob, and my family who have supported my educational journey without reservation. Their sacrifices and encouragement have made it possible for me to accomplish this goal. My mom, Susie, and dad, Lanny, lived the example that hard work and perseverance are the keys to success, and I hope to live that example for my children. Adam, Matthew, Jacob, Mom, and Dad – I love you and thank you.

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CHAPTER 1

INTRODUCTION

The demands on Tennessee high school students are ever increasing with the implementation of the Tennessee Diploma Project of 2009 (Tennessee Department of Education, 2014). As our society embraces athletics more and more and as marching bands and choirs become more competitive, coaches and music leaders are pushing for their extracurricular activities to become classes inserted into the students' regular school day as elective credits in addition to after school practice. Parents are also pushing extracurricular classes be added to the regular school day. Athletic and music scholarships are becoming more and more competitive, and parents want to ensure their students have an edge over other applicants. Many high schools now offer weightlifting, band, and chorus as electives, and coaches and music leaders require students to be signed up for them. This leaves academic electives pushed to the side to accommodate this new view of sports and music programs being "cocurricular" instead of extracurricular.

What impact does this have on a student's academic achievement? Our school's ACT scores have declined over the past few years. The decline began shortly after the implementation of cocurricular classes in the schedule, and some educators in our system feel the lack of more "academic" preparatory electives has led to this. Studies have been done to investigate student participation in extracurricular activities and academic achievement (Barber & Eccles, 1999; Vitucci, 2010), but none have been found that explores the effect of replacing academic electives with "cocurricular" sports and music classes. Research to determine the impact of this replacement on academic achievement was necessary to decide what relationships, if any, there

are. The study was an investigation of the number of “cocurricular” elective classes taken during the high school tenure and the impact on academic achievement.

Statement of the Problem

As more rigorous standards are implemented in high schools and core requirements continue to increase, students are left with fewer electives; therefore, those electives must be chosen wisely. Greeneville (Tennessee) High School operates on a block schedule by which students can receive 32 credits in their 4 years of high school. In Tennessee all students are required to take 4 years of math and English, with the fourth year math being higher than Algebra II or Geometry, along with other science, social studies, foreign language, and wellness requirements (Tennessee Department of Education, 2014). Kurlaender and Howell (2012) explained that students who take at least one course beyond Algebra II, such as trigonometry or precalculus, at least double the probability that they will attain bachelors’ degrees. Analyses of first-year college students in Georgia also reveal a strong positive correlation between high academic rigor in high school and college success (Scafidi & Clark, 2012). Strauch (2001) found that freshmen taking elective band courses in high school have higher grade point averages (GPA), SAT math, and SAT verbal scores when compared to GPAs and SAT scores of the entire freshmen class. With the increase in required core classes and the push for taking high-level math and science electives, physical activity courses have been all but eliminated for many students. A review of the effects of physical activity on academic achievement by Howie and Pate (2012) revealed that findings are inconclusive and further research is needed to determine which type and duration of physical activity contributes the most to academic achievement. Additional studies are needed to determine which electives contribute to or hinder

the academic success of students in high school and college. Therefore, the purpose of this quantitative, nonexperimental comparative study was to determine if there was a relationship between participation in high school electives and academic achievement. The relationship of race and ethnicity with academic achievement was also examined.

Research Questions

1. Is there a significant difference between the academic achievement as measured by ACT English, math, and composite scores of students who took six or more credits of weightlifting, six or more credits of performing arts, and no elective focus during high school?
2. Is there a significant difference between the academic achievement as measured by ACT English, math, and composite scores of White and non-White students who took six or more credits of weightlifting or six or more credits of performing arts during high school?

Rationale

State and federal accountability for student academic achievement through No Child Left Behind and Race to the Top has led many districts to take a closer look at the coursework students take at the high school level. In order to increase academic achievement more rigorous, academic electives are encouraged. Tennessee passed an initiative in 2014, *Drive to 55*, that challenged state educators and students to have 55% of the state population equipped with a college degree or certificate by the year 2025 (Drive to 55 Alliance, 2014). Klepfer and Hull (2012) found that in order to increase a student's chance of completing a bachelor's degree,

efforts must begin in high school by taking more rigorous elective courses as early as the sophomore year. Further research is needed to determine whether a significant relationship exists between weightlifting and performing arts electives and academic achievement in order to properly guide students to select the proper courses to increase academic achievement as well as meet student needs.

Significance

The study was an analysis of the relationship between academic achievement and taking six or more electives in either weightlifting or six or more credits in performing arts. Several studies (e.g. Broh, 2002; Cathey, 2008; Hattie, 2009; Vitucci, 2010) examined the relationship between athletics and performing arts on academic achievement; however, the researcher was unable to find any research that investigated the relationship between academic achievement and taking an elective focus of weightlifting during the academic school day. The findings from this study adds to the knowledge administrators, high school counselors, coaches, and performing arts teachers have concerning the impact of electives and cocurricular programs of study taken during the school day on student academic achievement. The findings from this study may be used to help student athletes and students dedicated to performing arts better plan high school coursework in order to increase academic achievement for college admission and scholarship opportunities.

Definitions

For the purpose of this study, the following terms are defined:

1. Academic achievement: A student's English, math, and composite score on the ACT college readiness exam.
2. American College Testing (ACT): "A national college admissions examination that consists of subject area tests in: English, mathematics, reading and science." (The ACT website, 2014, p. 1).
3. Advanced Placement (AP): A program established by the College Board that offers college level curriculum and credit to high school students (College Board website, 2014).
4. Core academic courses: Classes such as English, mathematics, history, and science that are required by the state of Tennessee for graduation (Tennessee Department of Education, 2014).
5. Extra-curricular activities: Any school-authorized or education related athletic activity occurring during or outside of the regular instructional school day (Tennessee General Assembly, 2014).
6. Non-White: all ethnicities or races other than White, including Hispanic, Black, Asian, Pacific Highlander, or American Indian (National Center for Education Statistics, 1997).
7. Performing arts courses: Elective band or chorus courses taken in high school during the school day.
8. PowerSchool: A web-based student information system that allows teachers to maintain grades, students and parents to view grades, and school districts to archive educational records.

9. White: A person having origins in any of the original peoples of Europe, the Middle East, or North Africa (National Center for Education Statistics, 1997).

CHAPTER 2

REVIEW OF RELATED LITERATURE

In order to gain understanding of the factors affecting academic achievement, a review of the related literature was conducted. This chapter is a discussion of the following: academic rigor; academic achievement, academic achievement on ACT; factors affecting academic achievement; extracurricular activities and academic achievement; athletics, physical activity, and academic achievement; performing arts and academic achievement; and current literature as it relates to studies on extracurricular activities conducted within the past 7 years.

Academic Rigor

Academic rigor has become something of a buzz word in education in the 2000s. A Nation at Risk (1983) warned that the American economy was threatened by a “rising tide of mediocrity” in our nation’s schools (p. 9). American students’ test scores were no longer at the top. We were falling behind nations such as the Soviet Union. A push came from Washington for a new curriculum that could produce graduates who could compete globally and keep the United States as the world’s superpower (Spring, 2011). Since the 1980s standardized testing has become more prevalent, holding schools, districts, and teachers accountable for student learning. Year by year more control is taken from the local education agencies (LEAs) and given to state and federal governments. Each dollar accepted by LEAs (e.g. Title I, Race to the Top, National School Lunch Program) comes with expectations and stipulations from the state or federal government that certain criteria must be met, curricula implemented, testing occur, and evaluation processes implemented. In 2010 the National Governors Association Center for Best

Practices (NGA) and the Council of Chief State School Officers (CCSSO) released the Common Core State Standards (CCSS), which were developed by the NGA and CCSSO along with parents, administrators, state leaders, and other various experts (Council of Chief State School Officers, 2012). The CCSS are an attempt to ensure that American graduates are prepared to enroll in introductory coursework at a 2- or 4-year college or enter the workforce. Forty-three states have agreed to implement the CCSS, including Tennessee since obtaining Race to the Top funds (Common Core State Standards Initiative, 2014). The CCSS promise to bring rigor, as they are aligned with expectations of colleges, technical schools, and workforce training programs. Common Core developers expect graduates to be prepared for success in college, the workforce, and in life after completion of the high standards of the CCSS curriculum (Council of Chief State School Officers, 2012).

Academic rigor has many different layers of meaning. Rigor is not simply what is taught, but how it is taught, so that students can make sense of the meaning and apply it. Schmidt (as cited in Colvin & Jacobs, 2010) defined rigor as curriculum that is “focused, coherent, and appropriately challenging” (p. 3). Rigor is also defined by how the material is presented in the classroom. It is not a matter of more homework or longer tests but exposure to material that makes students think, analyze, problem-solve, explore, and reflect on what has been learned. It is making connections to previous learning and building on skill sets. The end result of rigor is to be able to use the information learned.

Willingham (1986) reported that Advanced Placement (AP) courses, in which the curriculum was developed by College Board specialists, and International Baccalaureate (IB) are the only two national subject based programs that offer college aligned, standardized programs and exit exams. He continued that AP and IB courses offer a level of rigor to students that

mirror introductory college coursework. Many universities and colleges across the nation accept AP credit from high schools when students receive a 3, 4, or 5 out of a possible 5 points on the AP exam. Willingham reported that College Board studies of students taking AP courses find that students who complete the rigorous AP courses, compared with non-AP students, have superior skills and academic records. Sadler (2007) and Vaughn (2010) reported that AP courses represented some of the most rigorous high school classes available to students.

Students may also take dual enrollment courses through a local college, university, or community college in which the student receives both high school and college credit. The course is taken on either the college campus, online, or on the high school campus, with the course being taught by a college instructor. Researchers found that students are more prepared and successful in college courses after taking AP, IB, or dual enrollment courses in high school (College Board, 2008; Sadler, 2007). Several studies have been conducted comparing the college readiness of AP versus non-AP students and found that AP students have higher averages as college freshmen, choose more difficult majors, and out-performed students in higher level courses who took the introductory course in college instead of AP (Morgan & Klaric, 2007; Scott, Tolson, & Lee, 2010). McCauley (2007) reported that successful completion of AP coursework was a significant predictor of college graduation from a 4-year institution. These findings suggested that completion of rigorous AP and dual enrollment courses led to higher academic achievement in high school as well as college.

Academic Achievement

As more rigorous standards are implemented in Tennessee high schools and core requirements continue to increase students are left with fewer electives; therefore, electives must

be chosen wisely (Beveridge, 2010; Tennessee Department of Education, 2014). In Tennessee all students are required to take 4 years of math and English, with the fourth year math being higher than Algebra II or Geometry (Tennessee Department of Education, 2014). Walberg (2010) stated that The Alliance for Excellent Education outlined that successful high schools offered rigorous instruction, held students to high standards, promoted AP and dual enrollment classes, offered tutoring and remediation when needed, made learning relevant, and involved parents and community groups. Further research reported positive correlations between the courses a student takes in certain subject areas and student achievement scores (Cavanagh, 2007).

Academic Achievement can be measured in multiple ways. Among these are grade point average (GPA) and standardized tests such as Tennessee Comprehensive Assessment Program (TCAP), ACT, SAT, Advanced Placement (AP), and International Baccalaureate (IB) scores. Sawyer (2010) stated grade point averages are not as accurate in cross comparisons of achievement due to the inconsistency of curriculum, instruction, and assessment. ACT, SAT, AP, and IB are nationally normed assessments that provide consistent measurement of a student's academic achievement and can be compared to other students taking the test in different schools, districts, or states (College Board, 2008; Sawyer, 2010).

Newton (2007) stated that standardized tests have become a natural part of the educational experience of students. He outlined three purposes for standardized testing: 1) to judge progress of students based on standards 2) to take an action, and 3) to check the assessment system. Since the publication of *A Nation at Risk* in 1983, standardized test scores are used to compare schools, districts, states, and even nations with each other; to rank the effectiveness of schools; and to impose sanctions on underperforming schools (Seltz, 2008; Spring, 2011).

Popham (2008) stated that accountability is not the fundamental purpose of assessments.

Assessments are administered in order to measure the knowledge and skills students possess and then use this information to guide instruction and make inferences about students' learning progress.

Academic Achievement and the ACT

Research has also been conducted to examine how involvement in cocurricular activities influences a student's performance on the ACT assessment. ACT performance is relevant to college acceptance, remedial courses to be taken, and scholarship money. ACT composite scores are also used as a means of accountability for schools to their state department (Tennessee Department of Education, 2014). Noble and Schnelker (2007) conducted an in-depth, multifactor study to investigate factors that relate to student performance on the ACT. Factors examined included students' backgrounds, high school academic achievement, activities, and self-perception. The study indicated that for both Black and White students high school academic achievement had a strong positive effect on ACT composite score. Academic achievement was defined as number of math courses taken, high school GPA, and honors and Advanced Placement (AP) courses taken.

Students who take higher level English, mathematics, and foreign language are less likely to need remediation in corresponding college courses than those who did not take these courses, regardless of race, gender or family income (College Success, 2008). This study also showed that students who took higher-level courses in high school were more likely to achieve a first year GPA of 2.0 or higher or 3.0 or higher than students who do not take higher-level courses in high school.

A report from ACT (ACT Research and Policy, 2013) defined college readiness as meeting the specified benchmarks on the English (18), mathematics (22), reading (22), and science (23) portions of the test. This report specified that students who met these benchmarks in all four subject areas are more likely to reenroll at the same institution, achieve a 2.5 or higher GPA, progress towards a college degree, and complete the degree than those who are not college ready. These results were also consistent across gender, race and ethnicity, and family income group.

Factors Affecting Academic Achievement

Numerous studies (e.g. Conley, 2012; Heider, 1958; Spoor, 2007) have been conducted throughout the years to measure what factors affect academic achievement. Among the factors identified in the research were self-discipline, gender, race and ethnicity, socioeconomic status, parental support, and participation in extracurricular activities.

Self-Discipline

Academic achievement is significantly influenced by an individual's self-discipline and motivation to achieve (Stipek & Weisz, 1981). Hiroto (1974) explained in his theory of internal-external locus of control that the amount of emphasis individuals place on outside forces contributes to their control of situational outcomes. Individuals with an internal locus of control tend to believe that achievement is based on their own behavior and set of internal values and characteristics. Conversely, those with an external locus of control tend to believe achievement is based on outside factors beyond their control (Hiroto, 1974). Stipek and Weisz (1981) elaborated on locus of control and stated that students who believe their behavior and motivation

directly influence their achievement attain higher levels of success on given tasks. The individual's belief that his or her actions control his or her success leads to increased self-discipline to achieve at higher levels.

Bandura (1977) stated that individuals are motivated according to the level of need to a task. When the individual has more to gain personally, the level of motivation is higher. An individual's self-efficacy, the belief in his or her own ability to control outcomes by his or her own actions, drives his or her motivation. The higher level of an individual's self-efficacy aligned with challenging goals leads to higher levels of motivation within an individual (Conley, 2012). Goals are influential in the creation of self-efficacy (van Horen, Pohlmann, Koeppen & Hannover, 2008). Daniels et al. (2009) concluded that specific challenging goals lead to higher academic achievement than unspecific goals or no goals. They stated that determining the factors that lead some students to achieve at high levels while driving other students away from the situation is challenging. Conley (2012) stated that recognizing the reactions of individuals to certain challenges and stimuli might help educators understand how certain strategies motivate individuals to achieve academically while steering others away from learning.

Schunk (1989) conducted a study on children with academic learning deficiencies in mathematics and language skills. Through self-directed learning the students moved through easily mastered lessons, and verbal modeling of cognitive strategies, appropriate goal setting, ability, and effort feedback, positive reinforcement, and self-verbalization strategies supplemented instruction. The outcomes of the study showed that these supplemental factors built students' beliefs in their intellectual capability. As their perceived self-efficacy increased, so did their cognitive capability and motivation to achieve at higher levels. As individuals' beliefs in their abilities increase and they are presented with more challenging goals, their

motivation increases that lead to increased self-efficacy and confidence to tackle goals that are more challenging. This becomes a cycle of individual growth and improvement, as shown in Figure 1 (Bandura, 1988).

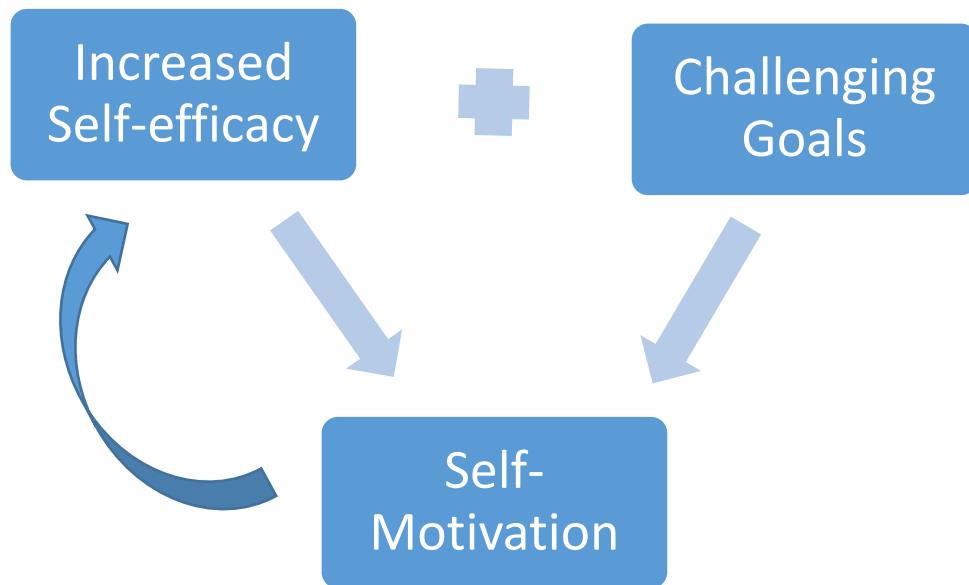


Figure 1. Cyclic Relationship Between Self-Efficacy, Challenging Goals, and Self-Motivation. “Adapted from Bandura, 1988.”

Ozgen and Bindaka (2011) stated that self-efficacy in mathematics has a more significant positive effect on problem-solving abilities in students than any prior mathematical instruction and experience. Karaarslan and Sungar (2011) reported similar findings in science, and Duijnhouwer, Prins, and Stokking (2012) found comparable results in writing performance. Zimmerman (2009) stated higher levels of self-efficacy play a noticeable role in students’ motivation and academic achievement.

In addition to self-efficacy students who attain high levels of academic achievement exhibit self-regulation. Self-regulated learners are conscious of their academic strengths and

weaknesses and use various strategies to accomplish the goals and challenges set before them (Zimmerman, 2009). Self-regulated learners assess their situations throughout the learning process and adapt learning strategies accordingly. These adaptations that lead to academic success build self-efficacy and motivation (Conley, 2012). Students who learn to self-regulate their learning often develop increased social and academic skills. Allowing students to work independently and develop strategies that help them accomplish given tasks reaffirm their self-efficacy and lead to greater responsibility for their own learning (Biggs, 2012).

Self-directed learning uses skills learned in the past, confidence from past success, and motivation to achieve challenging goals (Knowles, 1975). Three components of self-directed learning, self-management, self-monitoring, and motivation, correspond to the traits necessary for high academic achievement (Brigman, Webb, & Campbell, 2007). Self-management allows students to devise plans as to how they will accomplish a given goal. The learner can draw on his or her past successes or failed attempts and even effective strategies used by others (Brigman et al., 2007). Self-monitoring takes place when the learner evaluates the strategies he or she has employed and their effectiveness throughout the process. During this process of thought strategies may be modified or new ones created. Motivation contributes to the degree of effort put forth throughout the learning process. The usefulness of the information and task play a significant role in the achievement of the student (Brigman et al., 2007)

Self-direction, self-motivation, self-efficacy, and self-monitoring allow students to identify goals to be accomplished. Self-efficacy creates confidence within students to accomplish the challenge before them, which in turn motivates them to achieve at higher levels and gives them confidence. This cyclic process of challenge, motivation, strategy monitoring,

and confidence is the pillar of self-discipline that is a factor influencing the academic achievement of students (Conley, 2007).

Gender

Research has shown significant gender differences in reading and mathematics, with females scoring higher in reading scores and males higher in mathematics (Fan, 2011). Chudowsky and Chudowsky (2010) reported that in reading girls outperformed boys in 2008 at the elementary, middle, and high school levels. A greater percentage of girls scored at or above the proficient level on state reading tests at grade 4, grade 8, and high school; in some states, these gaps exceeded 10 percentage points. In math there was no consistent gender gap in 2008. The percentages of boys and girls reaching proficiency at elementary, middle, and high school were relatively equal. In addition, the percentages of boys and girls scoring proficient in math tended to be similar. Watkins (2007) confirmed these findings as boys outperformed girls on the North Carolina End of Course Algebra I exams, while girls outperformed boys in English I. National data show a gender gap in academic achievement has emerged among high school students indicating females perform higher academically than males (Institute of Education Sciences, 2012). Sax (2006) reported that there are biological, emotional, and physiological reasons that females outperform males. James (2007) reported that girls are cognitively more ready to enter school than the average boy of the same chronological age. A longitudinal study by the National Institutes of Health revealed that there are consistent differences in the speed of maturation between boys and girls (Lenroot et al., 2007). Boys' brains develop in a different order, time, and rate than girls. The areas involved with language and fine motor skills mature 6 years earlier in girls than in boys, but the areas associated in targeting and spatial memory

mature 4 years earlier in boys than in girls (Hanlon, Thatcher, & Cline, 1999). Sax (2006) identified several brain-based differences in boys and girls:

1. Girls have stronger verbal functioning and are better at sitting still, listening, tonality, and complexities of reading and writing, while boys have less serotonin and oxytocin, which makes them more impulsive and less likely to sit still and listen.
2. Girls' brains have better listening skills, memory storage, and discrimination of voice tone, while boys are less likely to listen as the teacher uses more words. Boys are more inclined to symbols, pictures, physical movement, and destruction. Boys in general learn math and physics better than girls do.

Perry (as cited in Gurian & Stevens, 2004) concluded that current American education creates an environment that places boys at a learning disadvantage. With the adoption of more accountability, higher standards, and literacy requirements in earlier grades, boys suffer a developmental disadvantage considering they develop language skills later than girls do. Unless instructional changes are made to accommodate boys' developmental needs, they will continue to fall behind and may never catch up (Whitmire, 2010). Tyre (2008) reported boys perform at lower levels in reading and writing, with gaps increasing as they progress to higher grades, thus widening the performance gap between boys and girls. Tyre explained that 33% of male high school students score below national standards in reading, and in 10 states, 40% of eighth grade boys are barely literate. The late development of boys contributes to difficulty reading in early grades, which in turn sets the stage for poorer performance in school.

Race and Ethnicity

According to the Institute of Educational Sciences (IES) National Center for Educational Statistics (U.S. Department of Education, 2013), the dropout rates in the United States is greatest for American Indian or Alaska Native, Black, and Hispanic students at 6.7%, 5.5% and 5.0 % respectively. Asian or Pacific Islander and White students had dropout rates of 1.9% and 2.3 % respectively. Jackson (2008) reported that 52% of Hispanic students and 56% of Black students would graduate from high school in 4 years compared to 76% of White students. Dillon (2009) suggested that the number of discipline referrals Black males have make them a higher risk for dropping out, which in turn puts them at greater risk of being incarcerated.

Race and ethnicity were identified as factors affecting student academic achievement (Jackson, 2008). A 2001 study by The National Center for Educational Statistics determined that mathematics and reading scores of Blacks were generally lower than corresponding scores of Whites with similar levels of achievement in earlier grades (Jacobson, Olsen, Ralph, & Rice, 2001). When considering race and ethnicity of students there is an obvious gap among the minorities in our schools. The dropout rates of Asian or Pacific Islander students are fewer than other minorities such as Blacks. Rector, Johnson, and Fagan (2001) reported that Black children, with a 33.1% likelihood, are more prone to live in poverty than White children, with a likelihood of 13.5%. Black children more likely than white children to come from single-parent homes and be welfare dependent. Data from the National Longitudinal Survey of Youth (NELS) and the National Assessment of Educational Progress (NAEP) revealed that the achievement gap between minority and nonminority students has closed, but the gap that remained was still significant (Grissmer, Kirby, Berends, & Williamson, 1994). Watkins (2007) found in her study of over 28,000 high school students in Wake County, North Carolina on the End-of-Course tests

in Algebra I and English I that disparity exists in the academic achievement of Asian, Black, American Indian, Hispanic, and White students.

Racial and ethnic minorities often live in low-income households. In 2011, 42% of working families in the United States had at least one minority parent, while 59% of low-income households had one or more minority parents. At least 25% had at least one parent with limited English proficiency (Roberts, Povich, & Mather, 2013). Arias, Harris-Murri, and Serna (2010) stated that 20% of children in the United States aged 5 to 17 have a foreign-born parent and may learn English as their second language. The National Center for Educational Statistics (2010) reported that 16% of students enrolled in high-poverty high schools were classified as limited-English proficient (LEP). Poorman (2008) stated that Black families living in poverty are too besieged by financial struggles to focus on education and school activities. A March 2012 report by ACT revealed that Hispanic and Black students achieved at substantially lower rates than did Asian and White students in meeting benchmarks in English, mathematics, reading, and science (ACT Issue Brief, 2012). The percentage of White students meeting ACT benchmarks (77%) was more than twice that of Black students (33%). The report states, “Asian and White students start with the highest scores and grow at the fastest pace; Black and Hispanic students start with the lowest scores and grow at the slowest pace. These trends are consistent across English, reading, mathematics, and science” (ACT Issue Brief, 2012, p. 2).

Socioeconomic Status and Parental Support

“Socioeconomic status is usually indicated by parent income, education, and occupation (Walberg, 2010, p. 33).” Many researchers (e.g. Jackson, 2008; McKinney & Frazier, 2008; Walberg, 2010; Wiggan, 2007) have studied the effects of socioeconomic status on academic

achievement. Jackson (2008) stated that low-income families have the lowest graduation rate (20%) and are six times more likely to drop out of high school than middle-income families. Some of these same researchers (e.g. Walberg, 2010; Wiggan, 2007) reported that school has little effect on student achievement, but home environment, class, and culture play a large role. Bodovski (2010) found that cultural differences in the home related to race, class, and particularly gender significantly affected achievement among young students.

Researchers such as Bourdieu and Passeron (1977) stated that children of poverty exhibit different beliefs than middle class students that cause differences in achievement goals. Students who come from poverty have a different set of cultural and life experiences than middle class students. Wiggan (2007) reported that the absence of resources and experiences of the middle class cause poor children to fall behind. He further concluded students in low-income households experience class barriers because they were not exposed to the cultural experiences and rich vocabulary found in middle class families, consequently affecting academic achievement. When the educational level of the parent is higher a stronger emphasis is placed on academic achievement and educational goals. Lewis, Simon, Uzzell, Horwitz, and Casserly (2010) reported that students who have been exposed to more cultural and educational experiences have more knowledge and skills to attach new learning and develop a complete educational background.

In addition, more minority students live in poverty as compared to White students, thus contributing to a cycle of educational struggle and low academic achievement (Shin, Daly, & Vera, 2007). Bodovski (2010) reported that Black females had higher educational expectations from their parents than did Black males. McKinney et al. (2008) offered supporting findings that socioeconomic status contributed to differences in mathematics scores. Chall (1996) concluded

from analysis of the National Assessment of Educational Progress (NAEP) reading results and the Scholastic Aptitude Test (SAT) that there are large differences in achievement between high and low socioeconomic status students. Additionally, the differences increased as students went from low grades to high school. The U. S. Department of Education found in The Longitudinal Evaluation of School Change and Performance (LESCP) in Title I Schools (2001) that poverty had a clear, negative effect on student academic achievement. In her 2007 study Watkins found that students who live in wealthier neighborhoods scored higher than students living in poorer neighborhoods on the North Carolina Algebra I and English I End of Course exams.

Many low socioeconomic homes are made up of adolescent or single parents. The U.S. Census Bureau reported 13.7 million single-parent families in 2009 (Grall, 2009). In these single-parent homes 84% were headed by single mothers and 16% by single fathers. These single-parent homes were responsible for raising 21.8 million children. Of these homes headed by mothers, 45% of the mothers were divorced, 34.2% were never married, and 1.7% were widowed. Walberg (2010) stated that children living in these homes were at a disadvantage educationally because they often received little positive reinforcement and interacted less with parents. Due to the emotional, financial, and physical stress of being a single-parent, parents find less time to become involved with their children's school.

Glaze and Maraschak (2008) stated that parental support and modeling is a necessary component of increased academic achievement in students, but many students are unable to look to their parents as role models or find educational support. They reported that approximately 744,200 fathers and 65,600 mothers were incarcerated in federal and state correctional facilities in 2007. These fathers and mothers reported having 1,706,600 minor children left at home in single families, living with a relative, or in state custody where educational support may be

minimal. Davidson (2006) stated that children in single-parent homes often had lower levels of academic achievement and more conflict with parents, were twice as likely to drop out of school or go to jail, become teen parents or truants, abuse drugs and alcohol, and exhibit high-risk sexual behavior. These children were four times more likely to need emotional and behavioral counseling, participate in a violent crime, or commit suicide.

Walberg (2010) stated that parental influence had a much greater effect on student academic achievement than socioeconomic status. Many students are at risk of poor academic achievement due to the lack of parental foresight to place value on education and set high expectations. Children are becoming parents at younger ages and parents are faced with distractions to parenting such as cellular phones, internet, and computer devices (Abril, 2008). Reimer and Smink (2007) reported that over 50% of parents in the United States are between 19 and 22. Many of these young parents have not received an education themselves, as the rate of students not graduating or receiving a General Educational Development (GED) is increasing. Due to the younger age of parents, many parents are still trying to realize their own academic goals, putting the importance placed on their children's academics on the backburner (Abril, 2008). Parental awareness is a key component to student academic achievement and success. This awareness leads parents to help students see the value of education and set high expectations of achievement for their children.

Extracurricular Activities and Academic Achievement

Studies have examined the relationship between extracurricular activities and academic achievement (e.g., NFHS, 2009; Hartman, 2008). Extracurricular activities have been a part of education since the days of Plato (Burnett, 2001). Plato taught that the talent and skills of

cobblers, carpenters, musicians, and athletes defined another realm of intelligence. In today's schools students have extracurricular opportunities such as athletics, band, chorus, ROTC, science clubs, special interest clubs, and community service clubs. John Dewey (1913) stated that extracurricular activities allowed students to develop leadership. He stressed that when extracurricular activities are embedded as part of a regular school program the whole person is engaged, and the disjoint between life and school is reduced. Dewey taught that education is a process of living and not mere preparation for the future, recognizing that disposal of healthy recreation in education may inevitably result in repressed emotion finding prohibited outlets.

Extracurricular activities were a basic part of American education by the mid-1800s (Burnett, 2001). In the 1920s athletic teams began competing against other schools, and athletics grew more visible. The prevailing view of this time was that participating in school activities led students to connect to the community and become better citizens. As athletics became increasingly popular, opposition to athletics grew to support a more academic curriculum. Rugg (1936) reported that two separate paths emerged – one focusing on academic subjects such as reading, writing, mathematics, and history and the other composed of “extracurricular” activities such as athletics and music.

At that time academics were connected to extracurricular participation. Texas passed the House Bill 72 “no pass-no play” law that stated in order for students to participate in sports or other extracurricular activities, they must pass all classes with grade of at least 70% (Shannon, 1987). Tennessee Secondary Schools Athletic Association (TSSAA) requires that students earn five to six credits the previous school year to be eligible to participate in sports (2014-15 TSSAA handbook, 2014). There is not a state rule in Tennessee that governs eligibility to participate in other extracurricular activities; these rules are the responsibility of the school and vary.

Many students are searching for a niche that leads to personal fulfillment, a sense of pride and accomplishment, recognition, power, and a sense of belonging Maslow (1943). Maslow outlined a hierarchy of needs that can be linked with why students participate in extracurricular activities. His hierarchy consists of five levels of needs, with the most basic being physiological needs such as food, water, sleeping, and breathing. The second level, safety, contains such basic needs as shelter and protection. The third, fourth, and fifth levels of psychological needs of love and belonging, self-esteem, and self-actualization can only be pursued and met when the first two levels of basic needs are met (Hoy & Miskel, 2013). The basic needs of food, sleep, water, and shelter should be met at home by parents or guardians and during the school day at school. Having these basic needs met allows the student to pursue avenues of interest that lead to belonging, self-esteem, and self-actualization. It is human nature for everyone to want to belong to someone or something (Maslow, 1943). Extracurricular activities provide a place for students to associate with like-minded peers and belong to a group or purpose. As the student works to attain success in the activity, he or she can develop leadership skills and gain power he or she might not find elsewhere. As success is achieved students begin to develop self-esteem. As discussed earlier, self-esteem leads to self-efficacy, which is confidence in completing a task. As students become more confident in extracurricular activities, they become more willing and motivated to try more challenging activities, which often includes classroom academics. This cycle strengthens student confidence and higher levels of achievement result (Bandura, 1988).

Studies found that participation in extracurricular activities connects students to their schools and promotes a sense of belonging (NFHS, 2009; Mahoney, 2001). Frederick and Eccles (2006) reported that students who participated in extracurricular activities displayed increased self-confidence, school engagement, and higher educational goals. These students also

led healthier lives as adults through community involvement and volunteerism. The National Federation of State High School Associations (2009) reported that extracurricular activities help students develop community pride, teamwork, and self-discipline as well as facilitate emotional and physical growth. The report also stated that extracurricular activities promoted higher grade point averages, better attendance, higher graduation rates, and fewer discipline problems.

Corbett (2007) reported a significant relationship between participation in extracurricular activities and success in high school, college, and careers. Everson and Millsaps (2004) supported these findings and added that students participating in extracurricular activities performed better on standardized tests than those who did not participate. Videon (2002) also reported that participation in extracurricular activities led to increased GPA and test scores and increased individual traits to contribute to higher levels of academic achievement. Hartmann (2008) reported that participating in extracurricular activities had a positive impact on academic achievement as well as a positive effect on students' social and cognitive functions.

Mahoney (2001) found that extracurricular activities had great effects on low socioeconomic and at-risk students. A significant decrease of dropping out was observed in students who participated in extracurricular activities as compared to low socioeconomic and at-risk students who did not participate in extracurricular activities. Hartmann (2008) reported that, when comparing the extent of increased achievement and benefits of students participating in extracurricular activities, students participating in academic extracurricular activities saw greater benefits than those participating in nonacademic extracurricular activities. Hattie (2009) concluded that extracurricular activities had the greatest positive effect on academic achievement, a medium effect on student engagement, and medium effect on reducing at-risk behaviors.

Trudeau and Shephard (2008) found that students who were members of sports teams, band, or chorus tended to avoid at-risk behaviors by participating in these activities. They investigated why extracurricular activities had a positive effect on student academic achievement and found that these activities may provide students an outlet for aggressive or disruptive behavior. Furthermore, having this outlet allowed them to get rid of distractions to learning and focus on academics. They also found that participation in extracurricular activities allowed at-risk students to spend more time with adults who value education and serve as positive role models to set high academic expectations that these students may not be receiving at home. Hattie (2009) confirmed the same that highly engaged students perform better academically and are at a decreased risk of being a dropout. Extracurricular activities that meet on a regular basis, have a positive role model, and are highly structured are the most effective in decreasing disruptive behavior and increasing academic achievement and student morale (Hattie, 2009).

Kennedy (2008) reported that across the nation 83% of students participate in some type of extracurricular activity. Shurluf (2010) conducted a meta-analysis of 29 of the most recent studies of the relationship of extracurricular activities and academic achievement. He found a positive correlation between extracurricular activities and academic achievement. However, no causal relationship was indicated or implied. Corbett (2007) conducted a multiple regression study that included 12,000 middle and high school students across the nation using the NELS 1988 data. The finding of the study established a curvilinear relationship between academic achievement and extracurricular activities that included athletics. He further reported that low and moderate levels of participation in extracurricular activities had a positive impact on academic achievement, but high participation seemed to have a less favorable impact. Everson and Millsaps (2004) provided indication from the SAT college entrance exam that participation

in extracurricular activities equips students from all backgrounds, including minorities, socioeconomically disadvantaged, and low academically performing, with measurable improvements in their overall scores on the exam. They reported that “participating in extracurricular activities in high school appeared to be one of the few interventions that may have benefited disadvantaged students, those less well served by traditional educational programs as much or more than their advantaged peers” (pp. 170-171).

Overall, the studies presented have indicated that participation in extracurricular activities had a positive effect on academic achievement, although a causal relationship cannot be identified. The two major extracurricular activities identified in the studies were athletics and performing arts.

Athletics, Physical Activity, and Academic Achievement

Society has embraced athletics throughout history. Artifacts have been found suggesting that gymnastics were celebrated as sport as early as 4000 BC in China (Sports in History, 2005). Sports such as fishing, wrestling, high jump, javelin throwing, and swimming were found in the artifacts of the monuments of Egyptian Pharaohs. Formal competitive sports originated in Greece with the Ancient Olympics held in 776 BC through 393 AD. Often athletics and fine arts were integrated, such as in the Panathenaia in Athens, where there were athletic competitions, as well as music and poetry competitions. Football was developed in England and Ireland during the middle ages; cricket, horse racing, and boxing in England during the 1600s; baseball in North America in the 1840s; and basketball in 1891 by James Naismith (Sports in History, 2005).

Today the culture of the United States and many other countries of the world places a great emphasis on sports. Televisions are regularly tuned in to athletic events and chatrooms or

message boards are used for sports discussion. From the time children can walk, parents have them signed up for t-ball, soccer, basketball, gymnastics, or some other sport. Throughout elementary and middle school, children are taken to athletic trainers for coaching instruction to gain an advantage over the other athletes. All this is done in the name of preparing children for high school sports and college scholarships (Bishop, 2008). He stated that America's passion for sports has exploded and created unattainable and unrealistic goals for children and their parents. Bishop found trends of parents putting pressure on students to obtain Division I scholarships, lack of enjoyment in sports by students, and skewed focus on one sport. Many high schools now train for any given sport year-round, whether it be conditioning, practicing, or playing the sport. Given all these years of practice and preparation, the talent and skill level has increased, thus making it more competitive to get an athletic scholarship to college (Bishop, 2008).

Another result of the years of preparation was more competitive high school teams. Some high schools are built on the tradition of winning athletic programs (Beem, 2006). With athletes who are more skilled and competitive teams, coaches and school districts have looked for creative ways to build their programs to continue to win. Options have included increasing high school coaches' salaries (Fish, 2000). Fish revealed that in at least one state high school football coaches' salaries were 55% higher than the average teacher was, and in some cases, coaches' salaries were higher than the school principal's. Overall, the overemphasis on sports negatively affects the educational environment of the student (Beem, 2006).

The Tennessee Secondary Schools Athletic Association (TSSAA) published the following purpose statement:

The purpose of the Association is to stimulate and regulate the athletic relations of the secondary schools in Tennessee. Recognizing that the primary objective of all secondary

schools is to educate youth, the TSSAA aims to coordinate the athletic and scholastic programs.

The athletic field and gymnasium are classrooms in which teaching is foremost in the development of character, integrity, sportsmanship, and teamwork. Although the athletic program is associated primarily with physical education and the scholastic program with mental education, one complements the other (2014-15 TSSAA handbook, 2014, para. 13-14).

The governing body of Tennessee secondary athletics emphasized the fact that the primary focus of high school is to educate students. Many studies show that athletic participation can enhance academic achievement (e.g. Jackson, 2008; Mahoney, 2001; Yancey, 2007). Yancey stated that athletic participation tends to improve the high school experience for students. Studies reported that participation in high school athletics complemented academic achievement, increased self-discipline, improved confidence and educational aspirations, and decreased drop outs, absenteeism, and substance abuse (Reid, 2005).

The National Federation of State High School Associations (NFHS) (2009) stated that participation in sports results in an increased number student athlete role models with higher grade point averages and better attendance. NFHS and its membership support that sports promote citizenship, sportsmanship, lifelong lessons, teamwork, self-discipline, and facilitates the physical and emotional development of the nation's youth. Mahoney (2001) revealed that athletic participation established a student-school connection and reduced the probability of dropping out of school by 40%. Yancey (2007) supported these findings concluding that athletic participation reduced absences and promoted a positive school culture through better relationships with teachers.

As discussed earlier, studies have shown that factors such as gender, low socioeconomic status, and race and ethnicity leave students more at-risk for lower academic achievement (e.g. Jackson, 2008; Shin et al., 2007; Watkins, 2007; Wiggan, 2007). Fredricks and Eccles (2006) evaluated differences in academic achievement between White and Black student athletes. Their study showed that 67% of Black and 33% of White student athletes had increased academic achievement. Harrison (2007) reported that many Black males desire to become professional athletes in order to earn respect.

Corbett (2007) stated that participation in sports offered better prediction of student success than socioeconomic status or gender. A study by Peckham (2008) focused on gender effects on college graduation and found that female athletes had higher graduation rates after 6 years than female nonathletes. Brooks (2007) found that female athletes revealed higher levels of happiness, satisfaction, intellect, and school status than did female nonathletes.

Studies have also been conducted to investigate academic performance of athletes when they are in-season versus out-of-season (e.g. Spoor, 2007; White, 2010). White (2010) found in her study of high school athletes that male and female GPAs were higher in-season than their out-of-season GPAs. Athletes also had fewer discipline referrals and better attendance during their athletic season than out-of-season. Further study also revealed that female athletes had higher GPAs than did male athletes. Spoor supported these findings in his ex-post facto study of 77 high school wrestlers' GPAs, attendance, and discipline referrals. He found that there was not a significant difference between in-season and out-of-season GPAs, but the participants' in-season GPAs were higher. There was also no significant difference in the number of discipline referrals when comparing in-season and out-of-season. However, there was a significant difference in attendance, as the wrestlers were in school more days during the season compared

to out-of-season (Spoor, 2007). This could be because attendance is required by most schools to participate in an athletic event.

Several studies have supported the claim that participation in athletics promotes increased academic achievement (e.g. Hartmann, 2008; Rosewater, 2009; Tucker, 2010). Hartmann explained that students who play sports academically outperform students who do not. Stephens and Schaben (2002) compared the mean GPAs of student athletes versus nonathletes and found that male and female athletes had significantly higher GPAs than nonathletes did. Rosewater stated that “High quality organized sports are a gateway to academic achievement, better grades, improved chances of attending college, and success in the labor market – and these benefits are especially important for low-income youth” (p. 50).

The positive aspects of athletic participation go beyond academic achievement. Lumpkin and Stokowski (2011) reported:

Interscholastic athletes earn the privilege to play school-sponsored sports by achieving academically, displaying good sportsmanship, and respecting opposing players, officials, coaches, and teammates. Through fair play guided by moral values, athletes learn and develop character... When coaches help athletes prioritize their academic work, learn interpersonal and social skills, and develop and display their physical abilities to their potential, these athletes are more likely to keep winning in perspective and prepare themselves to become productive members of society. (p. 128)

Trudeau and Shepherd (2008) stated that physical activity had a positive effect on memory, concentration, and classroom behavior. Being physically active gives students opportunities to release excess energy outside of the classroom. Tucker (2010) concluded that athletics had a positive impact in areas other than academic achievement such as socialization

skills, leadership, and healthy competitiveness. White (2010) further supported that athletics foster behaviors such as self-esteem, leadership, communication, and self-discipline to get to class, study, and act appropriately that have a positive effect on student achievement.

Cathey (2008) found in a study of 1,200 Tennessee eighth grade students that students involved in athletics had higher scores on the Tennessee Comprehensive Assessment Program (TCAP) than those who did not participate in any sport. She reported a statistically positive correlation between participation in sports and achievement on the TCAP in math, science, and reading. Her study did not reveal a significant difference between the academic achievement of male and female student athletes. Rees and Sabia (2010) conducted a study in which they controlled variables such as family, background, race and ethnicity, and socioeconomic status and concluded that athletes had higher academic achievement than nonathletes did, particularly in math and English. A meta-analysis by Hattie (2009) supported these findings of a positive relationship between athletic participation and academic achievement. Hartmann (2008) reported a strong positive correlation between athletic participation and student self-esteem, mental health, and self-image.

Samuelson (2011) reported in his study of middle school students that students involved in interscholastic sports missed fewer days of school than students who were not involved in school sports. He found that in his study of two different middle schools that student athletes scored significantly higher than nonathletes in end of grade math and reading grades.

Broh (2002) examined the grades, school involvement, communication, and standardized test scores of 24,599 eighth graders as they moved through high school. Students who participated in sports saw significant academic gains in English and math course grades as well as increased standardized test scores in math. Broh analyzed several factors and found that

participation in student council, drama club, and yearbook had minimal effects on academics. Interestingly, intramural sports had an adverse effect on student achievement. He stated, “students who participate in intramural sports actually lose academic ground to their nonparticipating peers” (p. 13).

Whitley (1995) conducted a study of 126,700 high school students from 133 schools comparing the academic achievement of athletes versus nonathletes. He examined the GPA, graduation rate, attendance, and discipline referrals for eight subgroups made up of Black male, Black female, White male, and White female groups of athlete and nonathlete groups for each racial and gender category. His results supported the claim that athletes outperform nonathletes in 20 out of 21 of the comparisons made for the variables compared (Whitley, 1995).

Josephson (2007) reported the positive impact coaches have on players’ lives by instilling skills and values for lifelong success. In this study Josephson found that 90% of student athletes believed their coaches to be positive role models. Gould, Collins, Lauer, and Chung (2007) found in their study of veteran coaches with successful records that the effective coach modeled the behavior expected of the team. In turn, players understood the importance of respect and accountability and developed relationships of trust, respect, and empathy. They also stated that expectations should be set early for the team, modeled by coaches, and adhered to by all. Such expectations were promptness for practice and events, observance of team rules and policies, open communication with parents and other coaches through various modes such as meetings, development of team strategies including goal setting and motivation incentives, and the inclusion of mentors to encourage and ensure future educational goal setting and success. Effective coaches build student athletes not only for success on the playing field but also in the classroom and community (Gould et al., 2007).

Hoch (1998) stressed the importance of the school's athletic program in steering the overall school culture. He stated that cooperation and communication between the athletic department and school administrators is vital to the positive balance between academics and athletics that promotes a positive school culture. School administrators play a vital role in this balance by defining for coaches what winning is holistically, setting expectations for athletic expenses, being mindful of coaching needs when hiring teachers, being a part of the hiring and dismissal of coaches, and understanding the impact their decisions make on the athletic program (Hoch, 1998).

Research also reported the negative effects of sports (e.g., Beem, 2006; Davis, 2009; National Association of State Boards of Education, 2004). The National Association of State Boards of Education (NASBE) stated that an overemphasis on sports can destroy the academic goals of a high school, and the negative influences of athletic participation on academic achievement can be attributed to the community members, parents, school systems, and state athletic associations. Davis explained:

The goals of today's athletic programs are vastly different from the original intentions of the administrators who established the first interscholastic athletic teams. For athletics to be anything more than a drain on school and taxpayer resources, these programs must undergo serious changes. (p. 122)

Pressure for coaches to have winning seasons, administrators to hire winning coaches, and parents to make sure their children have the proper lessons to competitively seek a scholarship have pushed the emphasis on athletics from being secondary to academics to the main priority (Davis, 2009).

Roberts (2007) reported that extracurricular activities were intended to be held after school, as not to interrupt the school day. He concluded that as more emphasis is placed on extracurricular, the more time is lost focusing on academics, and educational goals for students are compromised. The NASBE (2004) further supported this as their report stated that the academic achievement of students is placed at risk when schools hire coaches who have minimum or insufficient teaching credentials and may not be the best person for the job. The report went on to question the practice of many schools that pay coaches full time teaching salaries without being assigned teaching responsibilities. Sailer (2007) examined the practice occurring at many schools building high dollar stadiums and athletic field houses while the physical conditions in classrooms are unacceptable. This unequal spending incorrectly places the importance of athletics above that of academics and sends a powerful message to the community, teachers, parents, and students (Sailer, 2007).

Coaches feel an incredible amount of pressure to produce winning seasons that will draw in fans and revenue (Davis, 2009). Hudson (2008) reported that revenue accumulated from football games at some high schools funds nearly three fourths of the other sports at the school. Davis stated that the reality of many high school sports programs is to win and produce results as the first priority. Many coaches are driven to win championships, even if it means forgoing the teaching of lifelong values through participation in sports. Beem (2006) reported compromises in academics, professionalism, and character to win. He reported some coaches frequently fielding ineligible players and asking teachers to change students' grades and attendance to make them eligible.

Some parents are willing to go to great lengths to ensure their child is prepared to excel athletically (Stanmyer, 2013). He reported that many students repeated school grades in order to

gain an athletic edge. Many parents pay large sums of money to hire private coaches in hopes it will help their child receive a college scholarship or professional contract. Frantz (2008) concluded that parents put an extraordinary amount of pressure on their children to excel athletically, often leading to acts by student athletes, such as lying, cheating, and steroids to placate their parents' expectations.

King (2008) also reported that because of traveling sports and heavy participation in athletics, students may have unrealistic expectations of going to college on an athletic scholarship or being drafted by a professional team. The National College Athletic Association (NCAA) reported that 1 in 30 (3.3%) high school senior boys playing interscholastic basketball play college basketball, 3 in 100 (3.7%) high school senior girls playing interscholastic basketball play at the college level, and 1 in 16 (6.5%) high school senior boys playing interscholastic football play at the college level (National Collegiate Athletic Association, 2013). Of these NCAA senior athletes, 1 in 75 (1.2%) NCAA male senior basketball players get drafted by the National Basketball Association (NBA), fewer than 1 in 100 (0.9%) NCAA female senior basketball players get drafted by the Women's National Basketball Association (WNBA), and fewer than 2 in 100 (1.6%) NCAA senior football players get drafted by the National Football League (NFL). The report stated that 3 in 10,000 (0.03%) male high school seniors eventually get drafted by the NBA, 1 in 4,000 (0.03%) female high school seniors eventually get drafted by the WNBA, and fewer than 8 in 10,000 (0.08%) of male high school seniors eventually get drafted by the NFL. Statistics are slightly better for baseball, as about 5 in 75 (6.8%) male high school seniors playing interscholastic baseball play at the college level, about 9 in 100 (9.4%) NCAA male seniors get drafted by a Major League Baseball (MLB) team, and 1 in 200 (0.5%) of male high school senior baseball players eventually get drafted by a MLB team.

Howie and Pate (2012) conducted a review of the effects of physical activity on academic achievement. Their study of 125 published articles, including both observational and experimental studies, examined current findings as to whether there was a significant relationship between physical activity and academic achievement. Their analysis revealed that the majority of the studies reported positive associations between physical activity and academic achievement, while a few reported a negative relationship. The findings were inconclusive due to inconsistencies in exposure and outcomes; therefore, further research is needed to determine which type and duration of physical activity contributes the most to academic achievement.

Beem (2006) found in his study that there was no correlation between academic achievement and participation in athletics. He further stated that expectations of parents for their children to excel athletically in hopes of a scholarship or notoriety have contributed to a negative effect on student academic achievement. He attributed high parental expectations to the money and time spent by parents traveling the country to play games and having their son or daughter better prepared for the possibility of a professional career.

Stencel (2005) conducted a study of 507 high school students to determine if there was a significant correlation between athletic participation and academic achievement. The study involved 255 athletes and 257 nonathletes who attended 10 Tennessee high schools, grades 9-12. The study was an investigation of the effects of athletic participation on attendance, GPA, and ACT scores for athletes and nonathletes. There was no statistically significant correlation between academic achievement and athletic participation. Although the results were not significant, overall the athletes had a lower GPA (2.83) than the nonathletes (3.03). There was, however, a significant difference between the GPAs of female and male athletes. The female athletes' GPA was 3.10 compared to male athletes' GPA of 2.75. ACT composite scores were

also compared between the groups, and again there was no significant correlation between ACT score and athletic participation. As with GPA, the nonathletes had an overall higher ACT composite score (22.77) compared to the athletes (21.6).

Performing Arts and Academic Achievement

Henry Wadsworth Longfellow stated that music is the universal language of humankind. Underwood (2000) described music in this way:

Music is an academic discipline, which involves a challenge to the mind like science, foreign language, computer science, and mathematics. However, it appears to touch students at a more basic level, requires less of a prerequisite skill-set, and offers a broader opportunity for enrichment. The beauty of music is that, while it can challenge and enrich the capabilities of outstanding students, less-capable students can enjoy these same benefits as well. (p. 3)

Many schools across the country offer music in the form of marching band, symphony band, jazz band, vocal music, and choir as an extracurricular activity to students. As discussed earlier, many studies found that participation in extracurricular activities connect students to their school and promote a sense of belonging (e.g., NFHS, 2009; Mahoney, 2001). Other studies reported a positive correlation of participation in extracurricular activities and higher academic achievement (e.g., Hartmann, 2008; Hattie, 2009; Mahoney, 2001; Trudeau & Shephard, 2008).

Some studies isolated music participation and academic achievement specifically (e.g., Fredericks & Eccles, 2006; Vitucci, 2010). According to Vitucci (2010) students who participated in instrumental music have higher GPAs, attend school more regularly, and score

higher on standardized tests than students not participating in band. Fredericks and Eccles asserted that involvement in these extracurricular activities was linked to higher GPAs.

Strauch (2001) found that freshmen who took elective band courses in high school had higher GPAs, SAT math, and SAT verbal scores when compared to GPAs and SAT scores of the entire freshmen class. Schiender and Klotz (2000) performed a study comparing the academic achievement of band members to athletes, nonathletes, and nonmusicians. The study not only revealed that band members achieved higher mean scores on standardized tests than nonmusicians and nonathletes but also indicated higher scores than those of athletes.

Participation in music education is associated with higher grades, higher standardized test scores, greater mathematic skills, more proficient language, and lower dropout rates (Rarus, 2000).

Broh (2002) supported these findings in a study containing 24,599 eighth grade students who were tracked through their high school years. He investigated the relationship between academic achievement and extracurricular activity and concluded that participation in music programs contributed to better performance on standardized test scores in math and reading.

The Broad Foundation (2011) stated that 73% of top executives of Fortune 1000 companies recognize involvement in high school music as a major key to their own children's success. Student musicians use a variety of skills including forethought, performance, and reflection to gain higher levels of musical performance achievement (Creech & Hallam, 2011). Having used these skills in music, students can then also use these skills when they are challenged in other academic subjects. Johnson and Memmott (2006) reported that students who participate in music have higher academic achievement, and schools with music programs have higher graduation rates (90.2%) than schools without music programs (72.9%).

Cobb (1997) conducted an analysis of 17,077 ACT test takers and compared students who had taken two or more music classes to those who had taken none. The findings indicate that students who had taken at least two music courses had significantly higher ACT scores on all subtests. Miranda (2001) conducted another study that focused on ACT and SAT scores and music participation. The study compared all students in a private school in Texas who participated in either music programs or athletics. The findings of the study indicate that students who participated in music programs had higher ACT and SAT scores than athletes and significantly higher GPAs.

In a 10-year study Catterall, Chapleau, and Iwanga (1999) followed 25,000 students and found that regardless of socioeconomic status high school students who participated in music programs had significantly higher standardized test scores than students who did not participate, specifically in math. Gouzouasis, Guhn, and Kishor (2007) reported a statistically significant positive relationship between participation in music, academic achievement, and academic achievement in “core” subjects. They also found that 11th grade students who participated in music programs had higher levels of academic achievement than those 11th grade students who did not participate in music. Another outcome was that the relationship between music participation, mathematics, and biology was greater than the relationship of music participation with English.

Fitzpatrick (2006) examined the relationship between the academic achievement of students who participate in a music program of band, orchestra, or jazz ensemble and those who do not participate in any music program. There were 14,516 students involved in the study in grades 9 through 12 in an Ohio public school system. The results of the Ohio Proficiency Test of Performance (OPTP) were used to compare the two groups of students. The findings of the

research yielded that students participating in music programs scored higher on the OPTP than students who did not participate in music programs. Based upon the research discussed so far, students who are musicians performed better academically as well as on standardized tests when compared with students who are nonmusicians (e.g., Catterall et al., 1999; Fitzpatrick, 2006; Gouzouasis et al., 2007).

Other research focused on other effects participation in music programs can have on students in addition to academic achievement (e.g., Rauscher & Catterall, 2008; Trainor, 2008). Winter and Hetland (2008) revealed that students who learn to play a musical instrument increase their spatial-temporal reasoning. White (2010) stated that learning to play a musical instrument reveals the level of self-efficacy in many students. As discussed earlier, Bandura (1977) defined self-efficacy as the belief of an individual in his or her own ability to control outcomes by their own actions. Learning to play a musical instrument does not always come easy to students, and some students may not accomplish their goals as quickly as they thought they would. Their determination to play the instrument can lead them to struggle with the difficulties they are having, thus leading to increased resiliency in the student (Zimmerman, 2009). This resiliency may lead to the eventual mastery of the instrument.

Failure at any task leads students to reflect and be creative as to alternate ways of accomplishing the task at hand (Agrell, 2007). In addition, as students learn that perseverance through the difficult tasks can eventually bring success, they can apply this to other academic areas. Winter and Hetland (2008) stated that students with high levels of efficacy advance in musical performance ability, which will in turn lead to increased academic achievement. Gardner (2009) concluded that music students who grapple with difficulties and apply critical thinking skills tend to apply these same skills in academic areas.

Summary

A large body of research was identified involving academic achievement and its relationships with rigorous curriculum, self-discipline, gender, race and ethnicity, socioeconomic status, parental support, extracurricular activities, music participation, and athletics (e.g., Broh, 2002; Cathey; 2008; Fan, 2011; Hattie, 2009; Jackson, 2008). These studies revealed that more rigorous and challenging coursework increases academic performance. McCauley (2007) reported that successful completion of AP coursework was a significant predictor of college graduation from a 4-year institution. These findings suggested that enrolling in rigorous AP and dual enrollment courses led to higher academic achievement in high school as well as college. The literature reviewed also suggested that involvement in extracurricular activities, music programs, and athletics had positive effects on academic achievement (Broh, 2002; Hartmann, 2008). Hattie (2009) stated that extracurricular activities meeting on a regular basis, having a positive role model, and being highly structured are the most effective in decreasing disruptive behavior and increasing academic achievement and student morale.

Gender, race and ethnicity, and socioeconomic status also contributed to the academic achievement of students (e.g. Fan, 2011; Jackson, 2008; Wiggin, 2007). Research studies have investigated the role gender plays in academic achievement and for academic achievement in male and female student athletes and musicians. Research consistently shows that females score higher in reading, while males score higher in mathematics and science (Fan, 2011). Sax (2006) attributed many of the differences in male and female achievement to developmental patterns of boys and girls. When considering race and ethnicity of students, there was an obvious gap among the minorities in our schools (Walberg, 2010). Much of the research identified the risks associated with poor academic achievement including dropouts by and incarceration of Black

students, specifically males (Jackson, 2008). Researchers also identified socioeconomic status and parental involvement as factors affecting academic achievement (Wiggin, 2007). Jackson (2008) stated that low-income families have the lowest graduation rate (20%) and are six times more likely not to graduate from high school than middle-income families. Bodovski (2010) found that cultural differences in the home related to race, class, and particularly gender significantly affected achievement among young students.

Studies comparing academic achievement and participation in music or sports were plentiful (e.g. Broh, 2002; Cathey, 2008; Vitucci, 2010). Tucker (2010) concluded that athletics has a positive impact in areas in addition to academic achievement such as socialization skills, leadership, and healthy competitiveness. White (2010) further supported that athletics foster behaviors that have a positive effect on student achievement, such as self-esteem, leadership, communication, and self-discipline to get to class, study, and act appropriately. Music education is associated with higher grades, higher standardized test scores, greater mathematic skills, more proficient language, and lower dropout rates (Rarus, 2000).

CHAPTER 3

METHODOLOGY

Several studies (e.g., Cathey, 2008; Fredricks & Eccles, 2006; Stephens & Schaben, 2002; Vitucci, 2010) have examined the relationship between participation in music programs and academic achievement as well as the relationship between physical activity and academic achievement. Multiple research studies have determined that music has a positive effect on academic achievement (e.g. Broh, 2002; Johnson & Memmott, 2006). Studies relating the effects of physical activity on academic have been mixed (e.g. Lumpkin & Stowkowski, 2011; Trudeau & Shephard, 2008), therefore constituting the need for further research.

As high school music and athletic programs grow and scholarships opportunities increase, students are taking music and athletic preparatory electives such as weightlifting, during the school day. This study was focused on the effects these electives have on academic achievement. A quantitative, nonexperimental, comparative analysis determined if there was a significant difference between the academic achievements of students taking performing arts or weightlifting as electives.

Research Questions

Two research questions and associated null hypotheses were formulated and guided the research for this study. The questions focused on the difference between the academic achievement of students based upon their choice of electives and their demographics.

1. Is there a significant difference between the academic achievement as measured by ACT English, math, and composite scores of students who took six or more credits of weightlifting, six or more credits of performing arts, and no elective focus during high school?

H_{01_1} : There is not a significant difference between the academic achievement as measured by ACT English scores of students who took six or more credits of weightlifting, six or more credits of performing arts, and no elective focus during high school.

H_{01_2} : There is not a significant difference between the academic achievement as measured by ACT math scores of students who took six or more credits of weightlifting, six or more credits of performing arts, and no elective focus during high school.

H_{01_3} : There is not a significant difference between the academic achievement as measured by ACT composite scores of students who took six or more credits of weightlifting, six or more credits of performing arts, and no elective focus during high school.

2. Is there a significant difference between the academic achievement as measured by ACT English, math, and composite scores of White and non-White students who took six or more credits of weightlifting or six or more credits of performing arts during high school?

H_{02_1} : There is not a significant difference between the academic achievement as measured by ACT English scores of White and non-White students who took six or

more credits of weightlifting or six or more credits of performing arts during high school.

H₀₂: There is not a significant difference between the academic achievement as measured by ACT math scores of White and non-White students who took six or more credits of weightlifting or six or more credits of performing arts during high school.

H₀₃: There is not a significant difference between the academic achievement as measured by ACT composite scores of White and non-White students who took six or more credits of weightlifting or six or more credits of performing arts during high school.

Sample

Greeneville High School is a public high school located Greeneville, Tennessee. In the 2013-2014 school year 864 students were enrolled. The racial make-up of the students in 2013-2014 was 85.3% white, 8.8% Black, and fewer than 6% of other racial and ethnic origins. Approximately 37.5% of the students are economically disadvantaged and 17.2% of students have a disability. The 1,068 student population was chosen by examining data obtained from electronic transcript information of the population of graduates from 2010 through 2014. In a quantitative, nonprobability sampling method, the sample was selected by obtaining the transcripts of each graduate from PowerSchool archives. There were 151 students who did not receive a diploma or take the ACT and were removed from the sample. The sample for this study contained 917 students.

Instrumentation

The instrument used to measure academic achievement in this study was the ACT college readiness examination. Everett Franklin Lindquist, a professor at the University of Iowa, developed the ACT in 1959. A standardized, timed, multiple-choice test consists of 215 questions in the accumulated knowledge in the subject areas of English, mathematics, reading, and science. The exam takes approximately 3 hours and 30 minutes to complete, including a short break between the second and third tests. The ACT website (2014) reported that ACT results are accepted by most colleges and universities in the United States but are most commonly accepted in the Midwest and South. Each section of the ACT and the composite scores ranges from 1 to 36. Allen, Robbins, Casillas, and Oh (2008) found that standardized test scores such as the ACT have higher reliability than high school grade point average. Sawyer (2010) found that the ACT composite scores are less predictive for first year college grade point average than high school grade point average for student with high ACT composite scores (23-31) and more predictive for students with low ACT composite scores (12-19). The median correlations show that ACT composite has an “incremental predictive validity” (p. 25).

Students’ individual high school transcripts were used to gather data including the number of credits received in weightlifting or performing arts; ACT English, math, and composite scores; and ethnicity and race. The transcripts also provide information such as attendance, gender, cumulative grade point average (GPA), and grades for each of 4 quarters for each class taken, but this information was not used in this study.

Data Collection

Permission to collect the data was obtained from the director of Greeneville City Schools. The proposed study was then submitted to the East Tennessee State University Institutional Review Board (IRB) for approval. The data were then collected by the Greeneville City Schools PowerSchool administrator via electronic data accessed from PowerSchool archives to obtain the transcripts; ACT English, math, and composite scores; and ethnicity and race for each graduate who took the ACT from 2010 through 2014. Data were loaded into an EXCEL spreadsheet, sorted by the number of like electives such as weightlifting, performing arts, and other electives students took, and the number of electives taken was counted. The system PowerSchool administrator protected privacy of the graduates by coding the three sample groups and stripping the names and identifying information from the data before releasing the information to the researcher. The data gathered were confidential and the use of coding ensured data cannot be linked to specific names.

Data Analysis

The data were sorted into the three subgroups: six or more weightlifting classes, six or more performing arts classes, or “other” for students not meeting the previous two criteria. The data were coded for each subgroup. Each individual piece of data was given a specific number. For example, the first subject in group one was numbered 1001, the second subject in group one was numbered 1002, with the first number denoting the group and the remaining the number in the sample group. Each subgroup was coded in the same manner (McMillan & Schumacher, 2010, p. 222). The independent variables in the study were the weightlifting, performing arts,

and no elective focus groups; and ethnicity and race. The dependent variable was the composite ACT score.

Once the data collection stage was completed, data were analyzed using Statistical Program for Social Sciences (SPSS) software. Data analysis procedures were guided by the research questions. The data were filtered by subject to show how many credits students received in weightlifting and performing arts. The frequency of credits for each student was then counted, and data were placed in the appropriate subgroup as follows: weightlifting: group one; performing arts: group two; and other electives if students did not take six or more credits in weightlifting or six or more credits in performing arts: group three.

Research question 1 directed the researcher to analyze the data to determine if there were significant differences between the academic achievement of students who focused in weightlifting, performing arts, and no elective focus. Specifically, null hypothesis 1 compared the academic achievement of students as measured by ACT English scores. Null hypothesis 2 compared the academic achievement of students as measured by ACT math scores. Null hypothesis 3 compared the academic achievement of students as measured by ACT composite scores. To determine if there were significant differences, a one-way analysis of variance (ANOVA) was conducted for each hypothesis.

Research question 2 directed the researcher to analyze the data to determine if there were significant difference between the academic achievement of White and non-White students who took six or more credits of weightlifting or six or more credits of performing arts. Specifically, null hypothesis 2₁ compared the academic achievement of White and non-White students as measured by ACT English scores. Null hypothesis 2₂ compared the academic achievement of White and non-White students as measured by ACT math scores. Null hypothesis 2₃ compared

the academic achievement of White and non-White students as measured by ACT composite scores. To determine if there were significant interaction between the two independent variables, elective focus group and race and ethnicity, a two-way analysis of variance (ANOVA) was conducted. All data were analyzed at the .05 level of significance.

CHAPTER 4

FINDINGS

The purpose of this study was to determine if students who received six or more credits in weightlifting or six or more credits of performing arts were more academically successful than those who did not in an East Tennessee High School as evidenced by ACT composite scores from the graduating classes of 2010 through 2014. The high school selected in this study serves a student body of about 900 students and is located in a county with a population of about 69,000. No data were included for students who did not graduate or take the ACT exam.

In this chapter data were presented and analyzed to answer two research questions and four null hypotheses. Data were collected for each graduate who took the ACT exam the years of 2010 through 2014 that included ACT composite score, race and ethnicity, and how many elective credits students earned in weightlifting and performing arts. Data were retrieved from PowerSchool, the system student data management system, by the school district's system data administrator.

Research Question 1

Is there a significant difference between the academic achievement as measured by ACT English, math, and composite scores of students who took six or more credits of weightlifting, six or more credits of performing arts, and no elective focus during high school?

H_{01} : There is not a significant difference between the academic achievement as measured by ACT English scores of students who took six or more credits of weightlifting, six or more credits of performing arts, and no elective focus during high school.

A one-way analysis of variance was conducted to evaluate the relationship between academic achievement as measured by ACT English scores and the area of focus a student chose to take in high school. The independent variable, the area of focus group, included three levels: six or more credits in weightlifting, six or more credits in performing arts, and no elective focus. The dependent variable was the academic achievement as measured by ACT English scores. The ANOVA was significant, $F(2, 914) = 32.53, p < .001, \text{partial } \eta^2 = .066$. Therefore, the null hypothesis was rejected. The strength of relationship between the focus area group and the academic achievement was medium with the focus areas group accounting for 6.7% of the variance of the independent variable.

Because the overall F test was significant, post hoc multiple comparisons were conducted to evaluate pairwise difference among the means of the three groups. The Tukey HSD procedure was selected for the multiple comparisons because equal variances were assumed. There was a significant difference in the means between the performing arts group and those who focused in weightlifting, $p < .001$ and those with no elective focus, $p < .001$, but no significant difference was found between the weightlifting and no elective focus groups, $p = .054$. The mean ACT English score for the performing arts group was significantly higher than the other two groups as shown in Figure 2. The 95% confidence intervals for the pairwise differences, as well as the means and standard deviations for the weightlifting, performing arts, and no elective focus groups are reported in Table 1.

Table 1
95% Confidence Intervals of Pairwise Differences in Mean ACT English Scores

Elective Group	M	SD	No Elective Focus	Weightlifting
No Elective Focus	20.64	6.02		
Weightlifting	19.06	5.10	-.021 to 3.18	
Performing Arts	24.10	5.99	2.34 to 4.59	3.25 to 6.83

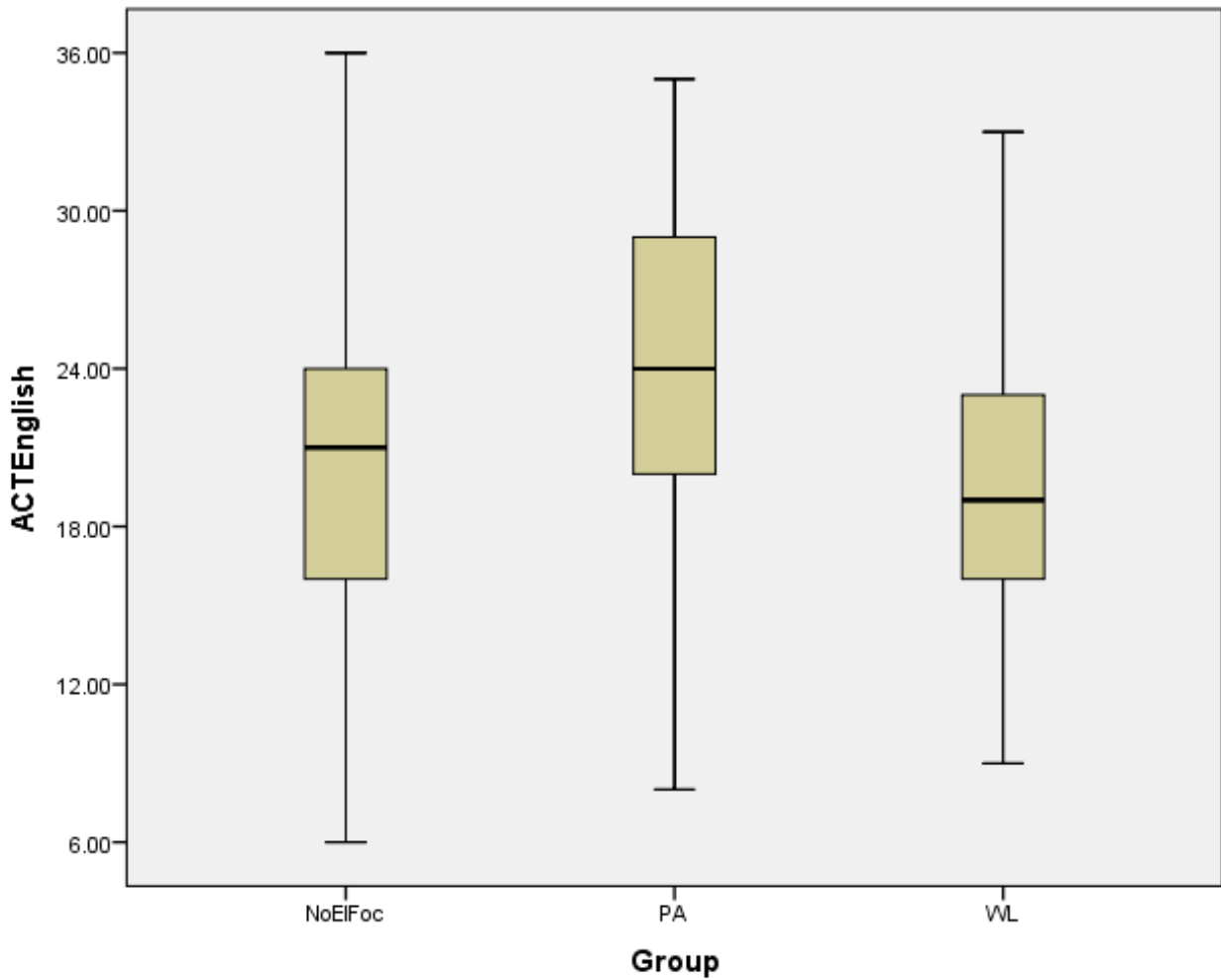


Figure 2. Distribution of Means for ACT English Scores

H₀₁₂: There is not a significant difference between the academic achievement as measured by ACT math scores of students who took six or more credits of weightlifting, six or more credits of performing arts, and no elective focus during high school.

A one-way analysis of variance was conducted to evaluate the relationship between academic achievement as measured by ACT math scores and the area of focus a student chose to take in high school. The independent variable, the area of focus group, included three levels: six or more credits in weightlifting, six or more credits in performing arts, and no elective focus. The dependent variable was the academic achievement as measured by ACT math scores. The ANOVA was significant, $F(2, 914) = 13.63, p < .001, \text{partial } \eta^2 = .029$. Therefore, the null hypothesis was rejected. The strength of relationship between the focus area group and the academic achievement was small to medium with the focus areas group accounting for 2.3% of the variance of the independent variable.

Because the overall F test was significant, post hoc multiple comparisons were conducted to evaluate pairwise difference among the means of the three groups. The Tukey HSD procedure was selected for the multiple comparisons because equal variances were assumed. There was a significant difference in the means between the performing arts group and those who focused in weightlifting, $p = .001$ and those with no elective focus, $p < .001$, but no significant difference was found between the weightlifting and no elective focus groups, $p = .828$. The mean ACT math score for the performing arts group was significantly higher than the weightlifting and no elective focus groups as shown in Figure 3. The 95% confidence intervals for the pairwise differences, as well as the means and standard deviations for the three focus area groups are reported in Table 2.

Table 2
 95% Confidence Intervals of Pairwise Differences in Mean ACT Math Scores

Elective Group	M	SD	No Elective Focus	Weightlifting
No Elective Focus	20.92	5.09		
Weightlifting	20.59	3.97	-.99 to 1.65	
Performing Arts	22.91	4.62	1.05 to 2.91	.83 to 3.79

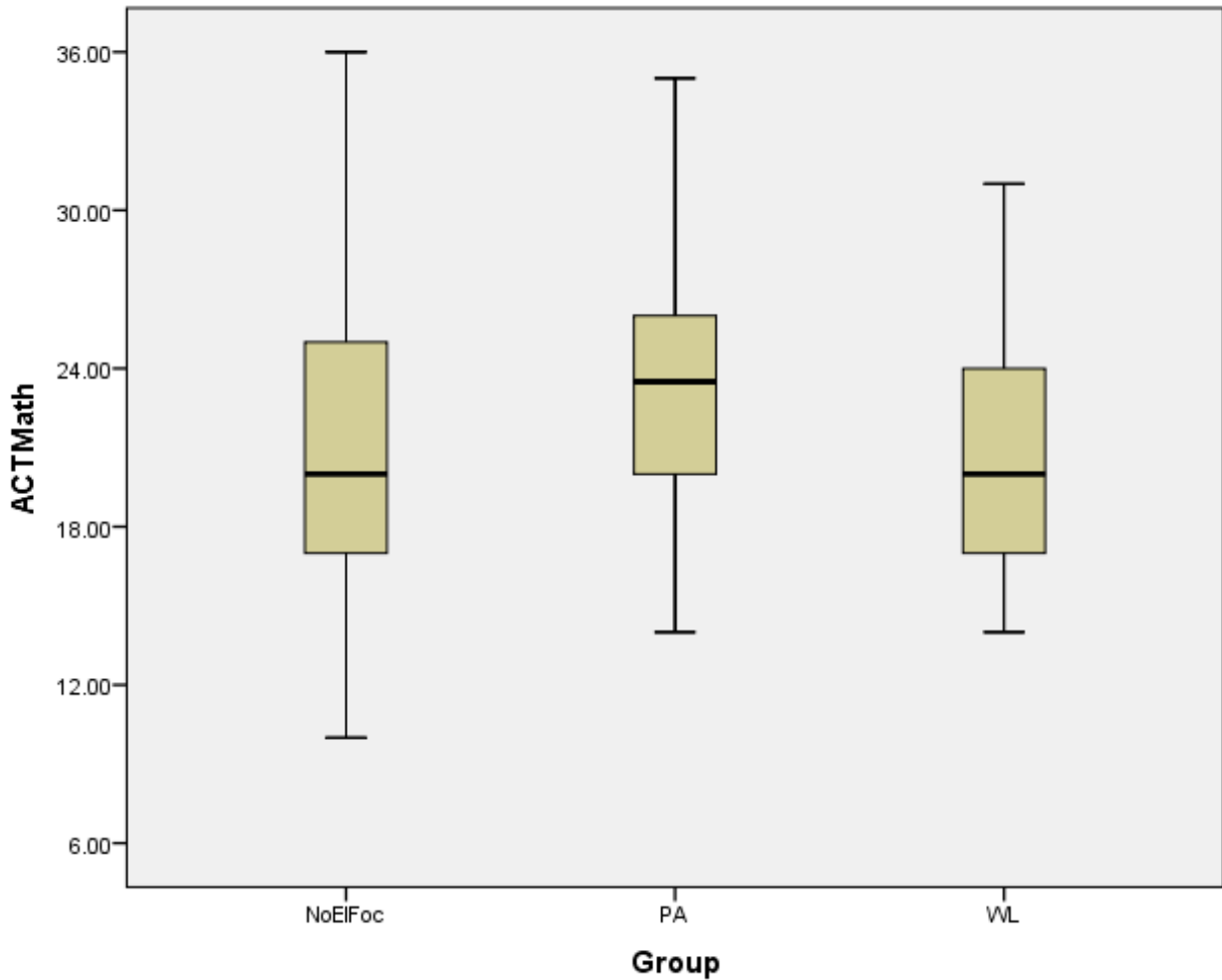


Figure 3. Distribution of Means for ACT Math Scores

H₀₁₃: There is not a significant difference between the academic achievement as measured by ACT composite scores of students who took six or more credits of weightlifting, six or more credits of performing arts, and no elective focus during high school.

A one-way analysis of variance was conducted to evaluate the relationship between academic achievement as measured by ACT composite scores and the area of focus a student chose to take in high school. The independent variable, the area of focus group, included three levels: six or more credits in weightlifting, six or more credits in performing arts, and no elective focus. The dependent variable was the academic achievement as measured by ACT composite scores. The ANOVA was significant, $F(2, 914) = 24.55, p < .001, \text{partial } \eta^2 = .051$. Therefore, the null hypothesis was rejected. The strength of relationship between the focus area group and the academic achievement was small to medium with the focus areas group accounting for 5.1% of the variance of the independent variable.

Because the overall F test was significant, post hoc multiple comparisons were conducted to evaluate pairwise difference among the means of the three groups. The Tukey HSD procedure was selected for the multiple comparisons because equal variances were assumed. There was a significant difference in the means between the performing arts group and those who focused in weightlifting, $p < .001$ and those with no elective focus, $p < .001$, but no significant difference was found between the weightlifting and no elective focus groups, $p = .448$. The mean ACT composite score for the performing arts group was significantly higher than the other two groups as shown in Figure 4. The 95% confidence intervals for the pairwise differences, as well as the means and standard deviations for the three focus area groups are reported in Table 3.

Table 3

95% Confidence Intervals of Pairwise Differences in Mean ACT Composite Scores

Elective Group	M	SD	No Elective Focus	Weightlifting
No Elective Focus	21.39	5.05		
Weightlifting	20.71	4.15	-2.0 to .64	
Performing Arts	24.00	4.70	1.68 to 3.54	1.18 to 4.77

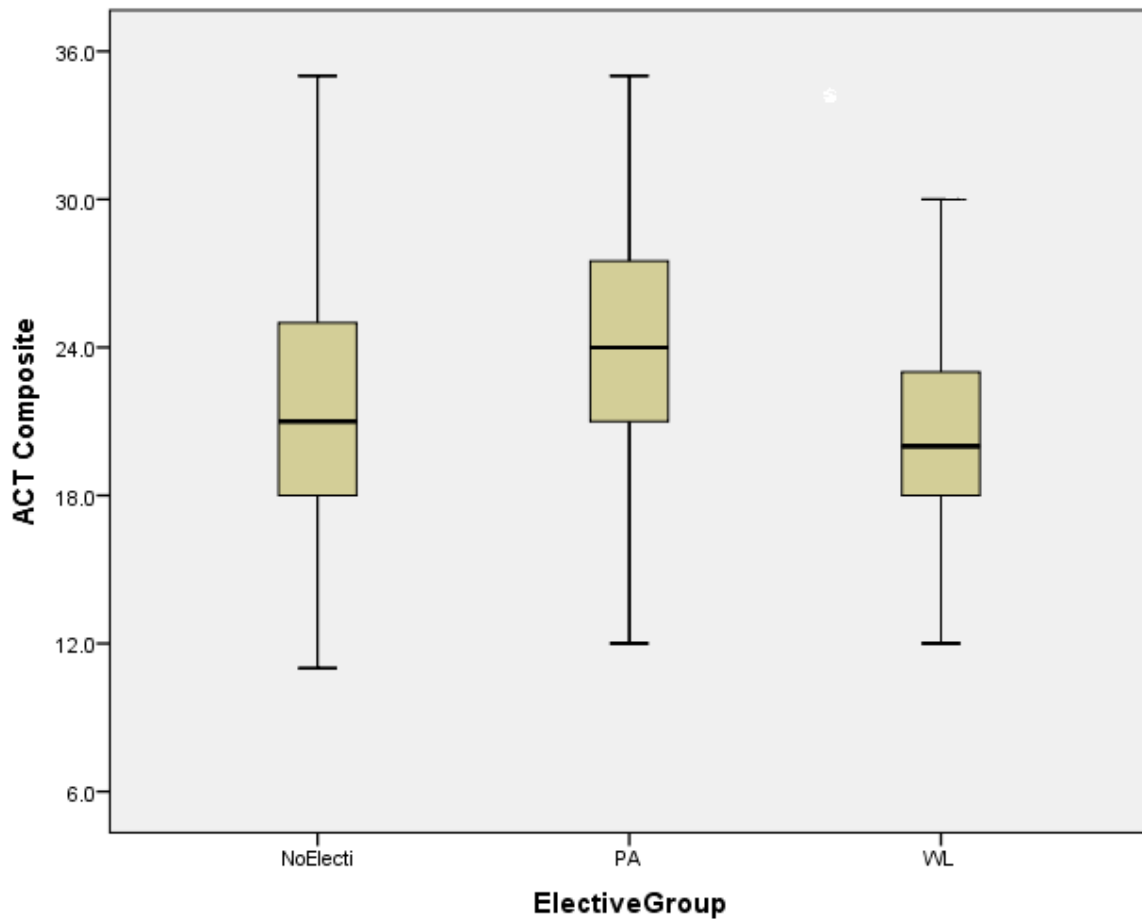


Figure 4. Distribution of Means for ACT Composite Scores

Research Question 2

Is there a significant difference between the academic achievement as measured by ACT English, math, and composite scores of White and non-White students who took six or more credits of weightlifting or six or more credits of performing arts during high school?

H₀₂₁: There is not a significant difference between the academic achievement as measured by ACT English scores of White and non-White students who took six or more credits of weightlifting or six or more credits of performing arts during high school.

A 2 x 3 ANOVA was conducted to evaluate the associations between race and ethnicity and academic achievement as measured by ACT English scores. An analysis of the main effects revealed there was a significant main effect for the elective groups, $F(2,911) = 17.59, p < .001$. Partial η^2 (.037) indicated a small-to-medium effect size. There was also a significant main effect for race and ethnicity, $F(1,911) = 18.53, p < .001$. Partial η^2 (.020) indicated a small effect size. Therefore, the null hypothesis was rejected. However, there was no significant interaction between the elective group and race and ethnicity, $F(2,911) = 1.60, p = .203$, partial $\eta^2 = .003$. The means and standard deviations for ACT English as a function of the two factors are presented in Table 4. The race and ethnicity main effect indicated that White students tended to have higher ACT English scores than non-White students across all three elective groups as shown in Figure 5.

The primary focus of this study was to determine which elective focus group has the most influence on ACT English scores. Follow-up analyses to the main effect for elective focus examined this issue. The follow-up tests consisted of all pairwise comparisons among the three types of focus areas. The Tukey HSD procedure was used to control for Type I errors across the pairwise comparisons. The results of this analysis indicate that students in the performing arts

focus group had significantly higher ACT English scores than both the weightlifting and no elective focus groups. There were significant differences between all three focus groups: performing arts and no elective focus, $p < .001$, performing arts and weightlifting, $p < .001$, and weightlifting and no elective focus, $p = .048$.

Table 4
Means and Standard Deviations for ACT English Scores

Elective Group	Race and Ethnicity	Mean	SD
No Elective Focus	White	21.08	5.79
	Non-White	16.51	6.51
Performing Arts	White	24.22	5.88
	Non-White	22.69	7.22
Weightlifting	White	19.77	5.12
	Non-White	15.67	3.48

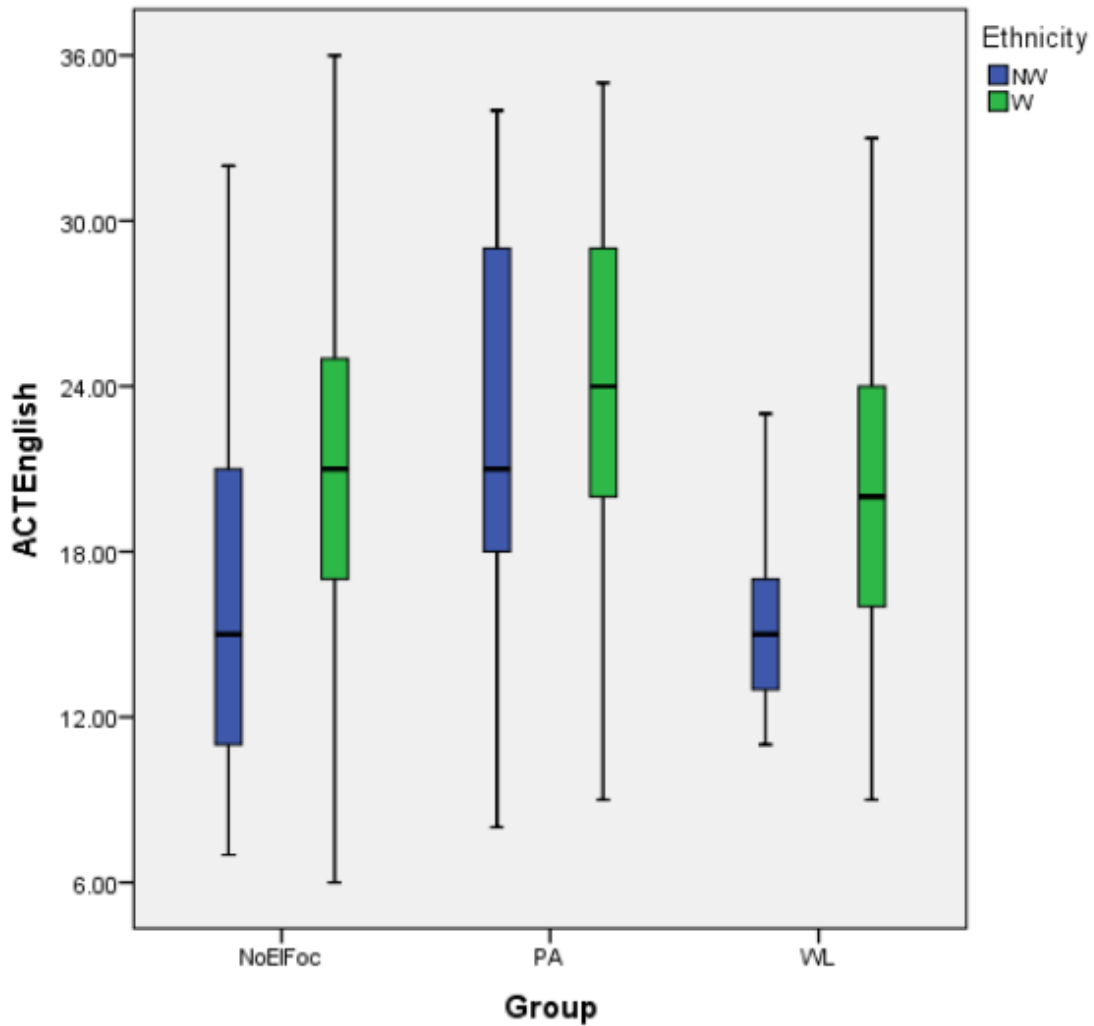


Figure 5: Distributions of ACT English Scores by Elective Focus for White and Non-White Students

H_{02} : There is not a significant difference between the academic achievement as measured by ACT math scores of White and non-White students who took six or more credits of weightlifting or six or more credits of performing arts during high school.

A 2 x 3 ANOVA was conducted to evaluate the associations between race and ethnicity and academic achievement as measured by ACT math scores. An analysis of the main effects revealed there was a significant main effect for the elective groups, $F(2,911) = 5.89, p = .003$. Partial η^2 (.013) indicated a small effect size. There was also a significant main effect for race and ethnicity, $F(1,911) = 19.52, p < .001$. Partial η^2 (.021) indicated a small effect size. Therefore, the null hypothesis was rejected. However, there was no significant interaction between the elective group and race and ethnicity, $F(2,911) = .392, p = .672, \text{partial } \eta^2 = .001$. The means and standard deviations for ACT math as a function of the two factors are presented in Table 5. The race and ethnicity main effect indicated that White students tended to have higher ACT math scores than non-White students across all three elective groups as shown in Figure 6.

The primary focus of this study was to determine which elective focus group has the most influence on ACT math scores. Follow-up analyses to the main effect for elective focus examined this issue. The follow-up tests consisted of all pairwise comparisons among the three types of focus areas. The Tukey HSD procedure was used to control for Type I errors across the pairwise comparisons. The results of this analysis indicate that students in the performing arts focus group had higher ACT math scores than both the weightlifting and no elective focus groups. There were significant differences between the performing arts group and the weightlifting, $p = .001$ and no elective focus groups, $p < .001$; however, there was not a significant difference between the weightlifting and no elective focus group, $p = .824$.

Table 5
Means and Standard Deviations for ACT Math Scores

Elective Group	Race and Ethnicity	Mean	SD
No Elective Focus	White	21.21	5.01
	Non-White	18.23	5.07
Performing Arts	White	23.07	4.48
	Non-White	21.00	5.97
Weightlifting	White	21.23	3.95
	Non-White	17.53	2.32

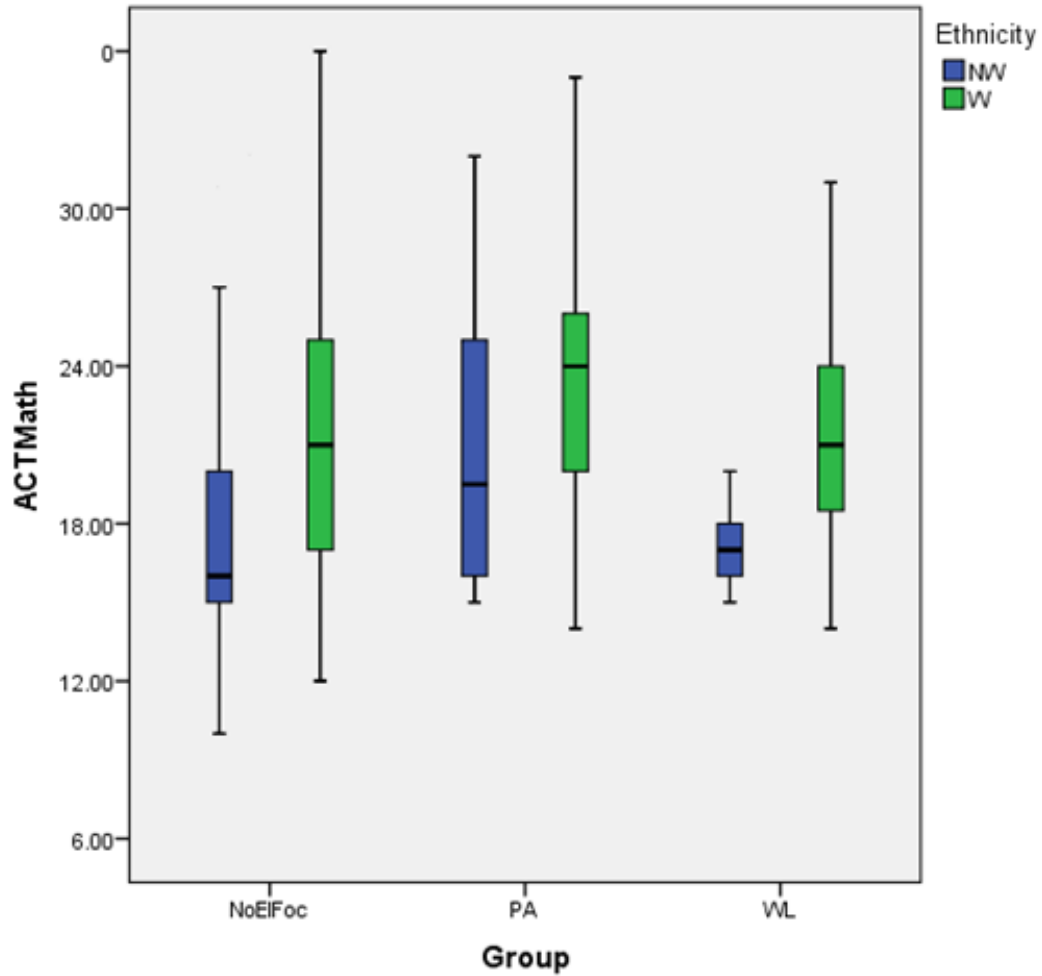


Figure 6: Distributions of ACT Math Scores by Elective Focus for White and Non-White Students

H₀₂₃: There is not a significant difference between the academic achievement as measured by ACT composite scores of White and non-White students who took six or more credits of weightlifting or six or more credits of performing arts during high school.

A 2 x 3 ANOVA was conducted to evaluate the associations between race and ethnicity and academic achievement as measured by ACT composite scores. An analysis of the main effects revealed there was a significant main effect for the elective groups, $F(2,911) = 10.92, p <$

.001. Partial η^2 (.023) indicated a small effect size. There was also a significant main effect for race and ethnicity, $F(1,911) = 18.53, p < .001$. Partial η^2 (.020) indicated a small effect size. Therefore, the null hypothesis was rejected. However, there was no significant interaction between the elective group and race and ethnicity, $F(2,911) = .497, p = .608$, partial $\eta^2 = .001$. The means and standard deviations for ACT math as a function of the two factors are presented in Table 6. The race and ethnicity main effect indicated that White students tended to have significantly higher ACT composite scores than non-White students across all three elective groups as shown in Figure 7.

The primary focus of this study was to determine which elective focus group has the most influence on ACT composite scores. Follow-up analyses to the main effect for elective focus examined this issue. The follow-up tests consisted of all pairwise comparisons among the three types of focus areas. The Tukey HSD procedure was used to control for Type I errors across the pairwise comparisons. The results of this analysis indicate that students in the performing arts focus group had significantly higher ACT composite scores than both the weightlifting and no elective focus groups. There were significant differences between the performing arts group and the weightlifting, $p < .001$ and no elective focus groups, $p < .001$; however, there was not a significant difference between the weightlifting and no elective focus group, $p = .436$.

Table 6
Means and Standard Deviations for ACT Composite Scores

Elective Group	Race and Ethnicity	Mean	SD
No Elective Focus	White	21.71	4.92
	Non-White	18.42	5.26
Performing Arts	White	24.15	4.55
	Non-White	22.25	6.02
Weightlifting	White	21.28	4.23
	Non-White	18.00	2.39

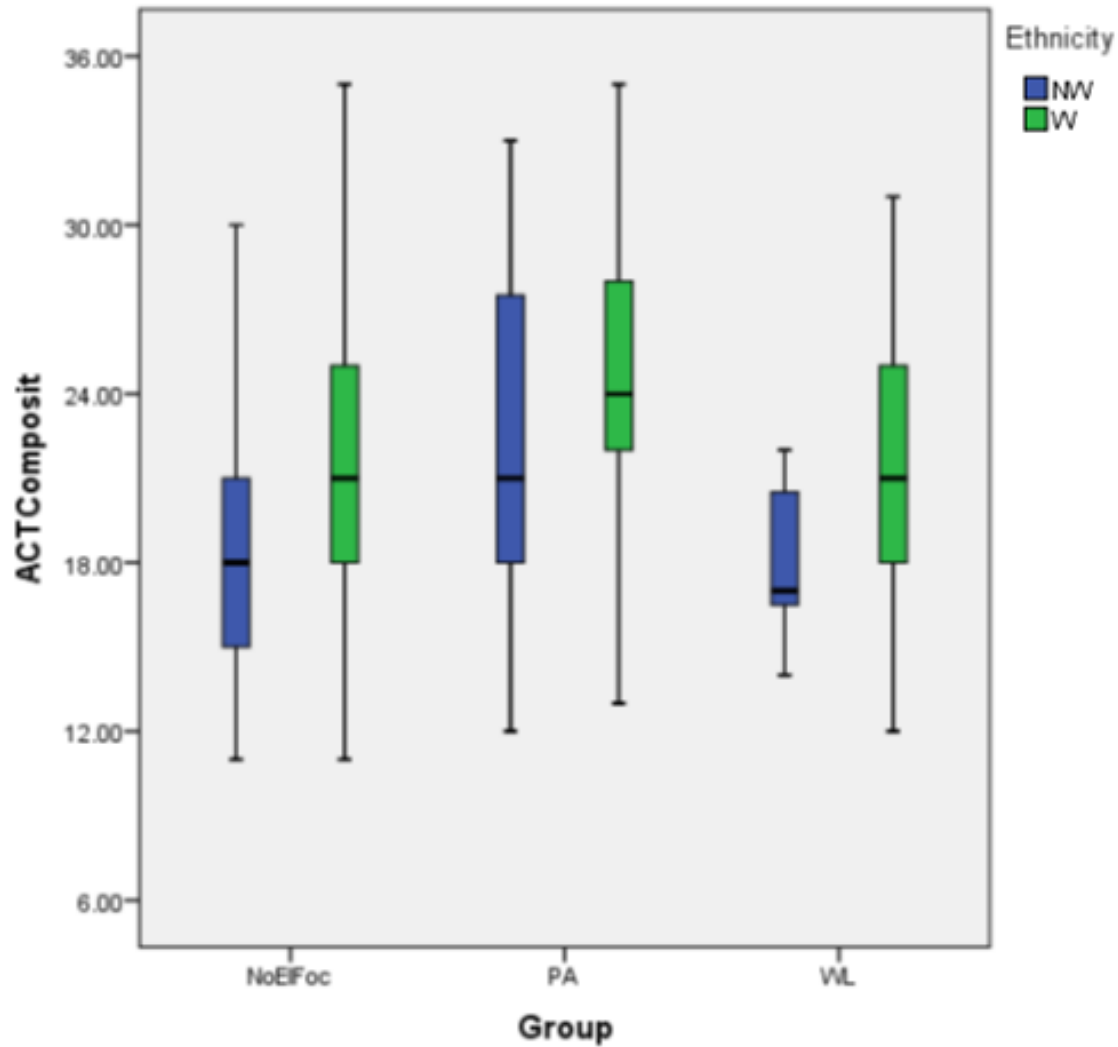


Figure 7: Distributions of ACT Composite Scores by Elective Focus for White and Non-White Students

Chapter Summary

Analysis of the data collected from the graduating classes of 2010 through 2014 led the researcher to observe that among the three groups, six or more credits of weightlifting, six or

more credits of performing arts, and no elective focus, the performing arts group had significantly higher ACT English, math, and composite scores. The weightlifting group had the lowest ACT English, math, and composite scores, although the differences between that elective group and the group with no elective focus were not significant. White students consistently outperformed non-White minority students on the ACT English, math, and composite measures. However, it is important to note that no causal relationship can be established between race and ethnicity and the elective focus groups.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Extracurricular activities have been a part of education since the days of Plato (Burnett, 2001). Plato believed the talent and skills of cobblers, carpenters, musicians, and athletes defined another realm of intelligence. In today's schools students have extracurricular opportunities such as athletics, band, chorus, ROTC, science clubs, special interest clubs, and community service clubs. Previous researchers such as Hattie (2009) stated that extracurricular activities meeting on a regular basis, having a positive role model, and being highly structured are the most effective in decreasing disruptive behavior and increasing academic achievement and student morale. Tucker (2010) concluded that athletics has a positive impact in areas in addition to academic achievement such as socialization skills, leadership, and healthy competitiveness. White (2010) further supported that athletics foster behaviors that have a positive effect on student attributes such as self-esteem, leadership, communication, and self-discipline to get to class, study and act appropriately. Broh (2002) showed a positive correlation between students' academic performance and participation in athletics; however, Beem (2006) found in his study that there was no correlation between academic achievement and participation in athletics. Howie and Pate (2012) conducted a review of the effects of physical activity on academic achievement. Their analysis revealed that the majority of the studies reported positive associations between physical activity and academic achievement, while a few reported a negative relationship. The findings were inconclusive due to inconsistencies in exposure and outcomes; therefore, further research is needed to determine which type and duration of physical activity contributes the most to academic achievement.

Rarus (2000) showed that music education is associated with higher grades, higher standardized test scores, greater mathematic skills, more proficient language, and lower dropout rates. Several researchers have found that students who are musicians performed better academically as well as on standardized tests when compared with students who are nonmusicians (e.g. Catterall et al., 1999; Fitzpatrick, 2006; Gouzouasis et al., 2007). Gouzouasis et al. reported a statistically significant positive relationship between participation in music, academic achievement, and academic achievement in “core” subjects. To add support to the significance of performing arts on academic achievement, Fitzpatrick (2006) reported that students who participated in music programs academically outperformed students who did not participate in music programs on end of year standardized tests. This chapter contains findings, conclusions, and recommendations for readers interested in the relationship between taking cocurricular courses in weightlifting and performing arts during the regular school day and academic achievement.

Summary of Results

This study has been conducted to determine if there was a significant difference between the academic achievement of students based upon their participation or nonparticipation in six or more weightlifting or six or more performing arts electives. The ACT English, math, and composite scores; number of weightlifting and performing arts electives taken; as well as race and ethnicity of graduates from 2010 through 2014 in an East Tennessee high school were collected by the district student data base administrator via electronic data accessed from transcript archives in order to observe potential trends. The data analyses reported were based upon six hypotheses that were tested at a .05 level of significance. The independent variables in

the study were the weightlifting, performing arts, and no elective focus groups and race and ethnicity. The dependent variables were the ACT English, math, and composite scores. The sample for this research was 917 graduates from the same East Tennessee High School who took the ACT test. The data were collected for the school years 2010 through 2014. The statistical analyses were guided by the research questions in Chapter 1 and expanded on in Chapter 3.

Research Question 1

Is there a significant difference between the academic achievement as measured by ACT English, math, and composite scores of students who took six or more credits of weightlifting, six or more credits of performing arts, and no elective focus during high school?

ACT English. A one-way analysis of variance was performed to compare the mean ACT English scores of students who took six or more credits of weightlifting, six or more credits of performing arts, and no elective focus during high school. There was a significant difference in the means between the performing arts group and those who focused in weightlifting and those with no elective focus, but no significant difference was found between the weightlifting and no elective focus groups. Students who take six or more credits in performing arts have significantly higher ACT English scores than students who chose to take six or more credits in weightlifting or no elective focus.

ACT Math. A one-way analysis of variance was performed to compare the mean ACT math scores of students who took six or more credits of weightlifting, six or more credits of performing arts, and no elective focus during high school. There was a significant difference in the means between the performing arts group and those who focused in weightlifting and those with no elective focus, but no significant difference was found between the weightlifting and no

elective focus groups. Students who take six or more credits in performing arts have significantly higher ACT math scores than students who chose to take six or more credits in weightlifting or no elective focus.

ACT Composite. A one-way analysis of variance was performed to compare the mean ACT composite scores of students who took six or more credits of weightlifting, six or more credits of performing arts, and no elective focus during high school. There was a significant difference in the means between the performing arts group and those who focused in weightlifting and those with no elective focus, but no significant difference was found between the weightlifting and no elective focus groups. Students who take six or more credits in performing arts have significantly higher ACT composite scores than students who chose to take six or more credits in weightlifting or no elective focus.

Analysis of the data revealed significant differences between the ACT English, math, and composite scores for students who focused in weightlifting, who focused in performing arts, and those who did not have any elective focus. The weightlifting group had the lowest mean scores for all three ACT measures: English, math, and composite scores.

Research Question 2

Is there a significant difference between the academic achievement as measured by ACT English, math, and composite scores of White and non-White students who took six or more credits of weightlifting or six or more credits of performing arts during high school?

ACT English. A 2 x 3 ANOVA was performed to examine elective focus groups and race and ethnicity and their relationship to academic achievement as measured by ACT English scores. The results of this analysis indicated that students in the performing arts focus

group had significantly higher ACT English scores than both the weightlifting and no elective focus groups. There were significant differences between all elective focus groups: weightlifting, performing arts, and no elective focus.

ACT Math. A 2 x 3 ANOVA was performed to examine elective focus groups and race and ethnicity and their relationship to academic achievement as measured by ACT math scores. The results of this analysis indicated that students in the performing arts focus group had significantly higher ACT math scores than both the weightlifting and no elective focus groups. There were significant differences between the performing arts group and the weightlifting and no elective focus groups, but there was no significant difference between the weightlifting and no elective focus groups.

ACT Composite. A 2 x 3 ANOVA was performed to examine elective focus groups and race and ethnicity and their relationship to academic achievement as measured by ACT composite scores. The results of this analysis indicated that students in the performing arts focus group had significantly higher ACT composite scores than both the weightlifting and no elective focus groups. There were significant differences between the performing arts group and the weightlifting and no elective focus groups, but there was no significant difference between the weightlifting and no elective focus groups.

Analysis of the data revealed significant main effects for elective focus group and race and ethnicity, however there was not a significant interaction among elective focus group and race and ethnicity. White students had significantly higher mean ACT English, math, and composite scores than non-White students.

Recommendations for Practice

High school electives allow students the opportunity to explore interests that may lead to a career choice or college major. The findings of this study can provide counselors, administrators, teachers, students, and parents with information to select courses that will promote increased performance on the ACT. The following recommendations should guide counselors and school leaders as they make educational decisions.

1. Administrators, teachers, coaches, and guidance counselors should consider the specific academic needs of students as they register for electives.
2. Administrators should consider limiting the number of cocurricular electives a student may take.
3. Administrators, counselors, and teachers should encourage participation in extracurricular activities.
4. Administrators should consider the needs of students when building the master schedule as to the placement of cocurricular courses.

Recommendations for Future Research

The purpose of this study was to determine if students who received six or more credits in weightlifting or six or more credits of performing arts were more academically successful than those who did not as evidenced by ACT English, math, and composite scores. The findings of this study indicated that students who completed six or more credits in performing arts had significantly higher ACT English, math, and composite scores when compared with students who completed six or more weightlifting credits or no elective focus. The study also indicated that White students significantly outperformed non-White students on ACT English, math, and

composite scores. The following recommendations are identified for future research for those interested in the relationship between athletics, performing arts, and academic achievement, as well as the relationship between cocurricular weightlifting, performing arts, and academic achievement.

1. Conduct follow-up research in 3 to 5 years after limits are placed on weightlifting electives to determine if ACT English, math, and composite scores have increased.
2. Use qualitative research to investigate the attitudes of athletes, performing arts students, teachers, coaches, and administrator towards cocurricular electives.
3. Conduct research to examine the academic achievement and completion rates of graduates taking six or more semesters of weightlifting or performing arts as they progress through college or technical school.
4. Conduct research on a larger, more demographically diverse population.
5. Conduct qualitative research to examine the satisfaction of parents, students, coaches, teachers, and administrators of the academic achievement of students participating cocurricular weightlifting and performing arts electives.
6. Conduct further research within the school to compare the academic achievement of all athletes and performing arts members to all graduates.
7. Conduct research to determine which group of ethnic students have the lowest academic achievement and explore solutions to promote success for these students.

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APPENDICES

Appendix A

Letter of Approval from ETSU Institutional Review Board



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

October 10, 2014

Lana Page
zimp11@goldmail.etsu.edu

Dear Lana,

Thank you for recently submitting information regarding your proposed project "Weightlifting, Performing Arts Electives, and Academic Achievement: A Comparison in an East Tennessee High School."

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

Appendix B

Letter of Approval for Data

October 7, 2014

Dr. Linda Stroud, Director
Greeneville City Schools
129 W Depot Street
Greeneville, TN 37743

Dear Dr. Stroud,

As a doctoral candidate at East Tennessee State University in the Educational Leadership and Policy Analysis program, I am currently working to complete my dissertation. I would like to examine the relationship between the types of electives students take and their academic achievement on the ACT test. To complete this research, I will need data obtained from PowerSchool archives from the graduating classes of Greeneville High School between the years of 2010 – 2014.

Please consider this an official request to receive data from the Greeneville City Schools PowerSchool System Administrator containing the ACT composite score, gender, and race for each graduate who took the ACT and graduated from Greeneville High School. Please separate the data into three groups:

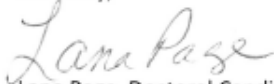
Group 1 – graduates who obtained six or more credits in weightlifting

Group 2 – graduates who obtained six or more credits in performing arts

Group 3 – graduates who did not obtain six or more credits in neither of the above.

I appreciate your willingness to assist with my research and data collection, as it pertains to my dissertation topic. Upon completion, I will be glad to share the results of my study with the staff and administration of Greeneville High School and the district leadership. If you have questions or need additional information, you may reach me at page1@gcschools.net.

Sincerely,



Lana Page, Doctoral Candidate
Educational Policy and Leadership Analysis

Approved by:



Director, Greeneville City Schools

VITA

LANA M. PAGE

Education: East Tennessee State University: Johnson City, TN
Educational Leadership, Ed.D.
2014

Lincoln Memorial University: Harrogate, KY
Supervision and Administration, Ed.S.
2008

Milligan College: Milligan, TN
Curriculum and Instruction, M.Ed.
2001

University of Florida: Gainesville, FL
Chemistry, BS
1998

Professional Experience Assistant Principal, Greeneville High School: Greeneville,
TN
2012 – Present

Assistant Principal, North Greene High School:
Greeneville, TN
2011 – 2012

Teacher, North Greene High School: Greeneville, TN
2001 - 2011