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EFFECTS OF GENDER BY ATHLETIC AND MUSIC-BASED PERFORMING
ARTS PARTICIPATION ON ACADEMIC PERFORMANCE

by

Judy Winslett

Dissertation

Submitted to the Faculty of

Harding University

Cannon-Clary College of Education

in Partial Fulfillment of the Requirements for

the Degree of

Doctor of Education

in

Educational Leadership P-20


May 2018

EFFECTS OF GENDER BY ATHLETIC AND MUSIC-BASED PERFORMING
ARTS PARTICIPATION ON ACADEMIC PERFORMANCE

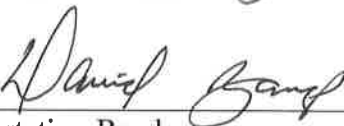
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ABSTRACT

by
Judy Winslett
Harding University
May 2018

Title: Effects of Gender by Athletic and Music-Based Performing Arts Participation on Academic Performance (Under the direction of Dr. Bruce Bryant)

The purpose of this study was to explore the possible academic effects of student participation in athletics and music-based performing arts. In pursuit of academic excellence, district school boards and administrators must carefully allocate the district's fiscal resources to maximize available funds. If student participation in athletics and music-based performing arts indicate a link to increased academic outcomes, then eliminating these programs to reduce budget concerns may not be the best choice. Five hypotheses were considered using data from four rural Arkansas high schools to determine if any effects by gender, of student participation in athletics or music-based performing arts on academic outcomes as measured by GPA and ACT composite scores existed. While results from this study found both higher mean GPA and ACT scores existed for students who participated in athletics and music than for nonparticipating students, there was no statistical interaction between the variables in each hypothesis; thus, insufficient evidence existed to reject the null for all hypotheses in the study. Next, the main effects were analyzed for each hypothesis. Again, no statistical significance for the main effects was found.

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CHAPTER I

INTRODUCTION

The concept of *accountability*, taught by parents attempting to raise responsible children, has become a familiar term and primary focus in the education community. Evident during the years of No Child Left Behind, Elementary and Secondary Education Act, and currently Every Student Succeeds Act, accountability, linked to academic standards and accompanied by targeted outcomes, was intended to drive the delivery of stronger academics. Because schools remain driven, by legislation, to meet defined targets and outcomes, superintendents, principals, and teachers must note potential consequences before implementing new educational programs or curricula. As student expectations continue to increase, research conducted in anticipation of identifying systems, programs, or activities associated with positive academic outcomes is beneficial. Is it possible that participation in athletics or music-based performing arts in high school affects the academic performance of students? If so, does the effect appear to be positive or negative? Finally, if an effect is determined to exist, is participation in athletics or music-based performing arts the influencing factor?

It will be necessary to identify commonly accepted, non-arbitrary definitions of degree of academic achievement and level of participation in athletics and music-based performing arts to conduct a study of this type. Beyond the consideration of participation in athletics or music-based performing arts and academic performance, the study sought

to identify which area of participation, athletics or music-based performing arts, produced the higher academic outcomes within the sample group. A final consideration in this study was analyzing the academic outcomes of students who participated in neither athletics nor music-based performing arts. Is it possible that students who choose not to participate in music-based performing arts and athletics in high school have different academic outcomes than those who are actively involved?

Statement of the Problem

The purposes of this study were five-fold. First, the purpose of this study was to determine by gender the effects of athletic participation versus no athletic participation on academic performance measured by GPA for students in Grade 12 in four rural Northwest Arkansas high schools. Second, the purpose of this study was to determine by gender the effects of athletic participation versus no athletic participation on academic performance measured by the ACT composite score for students in Grade 12 in four rural Northwest Arkansas high schools. Third, the purpose of this study was to determine by gender the effects of music-based performing arts versus no music-based performing arts participation on academic performance measured by GPA for students in Grade 12 in four rural Northwest Arkansas high schools. Fourth, the purpose of this study was to determine by gender the effects of music-based performing arts versus no music-based performing arts participation on academic performance measured by the ACT composite score for students in Grade 12 in four rural Northwest Arkansas high schools. Fifth, the purpose of this study was to determine by gender the effects of no participation in athletics or music-based performing arts versus students who did participate, on academic

performance measured by the ACT composite for students in Grade 12 in four rural Northwest Arkansas high schools.

Background

Athletic Programs Incorporated into Schools

Compulsory schooling, according to Friedman (2013), began in 1852 with the state of Massachusetts passing a law requiring students to attend school. Mississippi was the final state, in 1917, to pass a similar law. With these laws came not only a structured school day deemed *obligatory*, but also an identified *free time*, posing the question of what to do with this leisure time. The New York City's Public School Athletic League for Boys, established in 1903, began organizing formal contests to encourage attendance in school. In 1914, the Elementary Games Committee of the Public School Athletic League for Boys began athletic-interschool competitions in track and field, basketball, and baseball, providing a model that other cities would quickly duplicate. Working in collaboration with school leagues, clubs for boys continued to increase in number until the Depression brought nationwide financial difficulties causing many of these athletic leagues to close. In response to the closing of these leagues, organized groups supporting *pay to play* programs began to evolve. In those financially difficult times, many families could not afford to pay for their children to participate in organized athletic programs. Meanwhile, physical education professionals withdrew support for competitive sports for young children based on concerns that only the best athletes were allowed to play. The culmination of these events led to the removal of organized sports from the lower grades in public schools. While school systems discontinued competitive sports in the lower grades, youth athletic programs, such as Little League, were organized in 1939

(Friedman, 2013) and are still operational today. Concerns still exist regarding the degree of competitiveness found within organized youth sporting programs.

Athletics and Extracurricular Activities Enhances Academic Outcomes

Currently, secondary school systems provide opportunities for not only academic enrichment but also athletic participation. However, with this addition comes scrutiny. On the one hand, some would argue that athletic participation within the education arena detracts from the educational experience. However, the National Federation of State High School Associations (2014) supports the integration of athletics and suggests that involvement in athletics enhances academic achievement for students. Further, they noted that by being given opportunities to participate in extracurricular activities, students were permitted to try differing activities in which they have an interest, subsequently, promoting student engagement.

Few would argue against the idea that involvement in enjoyable activities enhances other facets of one's life. George (2012) addressed this issue in a study that indicated increased opportunities to participate in athletic and extracurricular activities allowed students to obtain "better academic outcomes in terms of performing at grade level and staying in school" (p. 19). In his comparison study of athletes and nonathletes in North Carolina high schools, Whitley (1999) also noted that results indicated that nonathletes had an absentee rate twice that of athletes and were referred for discipline at a rate that is 9.8% higher. Whitley also reported that those students involved in athletics were more likely to graduate than those who were not involved. McCarthy (2000), through a study of 19 Colorado high schools comprised of 19,543 students, ascertained that higher GPAs, as well as lower absenteeism rates, existed with students who

participated in activities compared to nonparticipants. In addition to analyzing data related to GPA and attendance of students who participated in activities, McCarthy expanded the study to include gender, ethnicity, and socioeconomic status. While McCarthy found some differences in GPA and absenteeism between gender, ethnicity, and socioeconomic levels, students who participated in activities had significantly higher GPAs and lower absenteeism rates. Mean absences were calculated comparing male and female, participation and nonparticipation. These studies support positive academic outcomes associated with participation in athletics and activities, yet controversy still abounds concerning the existence or continuation of athletics in public schools.

Allegations suggesting that some athletes receive special academic consideration to maintain eligibility status are not uncommon. Historically, successful athletes fall victim to a stereotyping of being less than intelligent and often labeled as *dumb jocks* (Santucci, 2012). Whitley (1999) provided data supporting just the opposite, however, and stated, "those 'dumb jocks' were and still are doing better than the nonathletes" (p. 223). A comparison study conducted by Lumpkin and Favor (2012) used a sampling of 2008-2009 students in Grades 9-12 who attended Kansas schools. Considered in this study were GPA, graduation rates, ACT scores, dropout rates, gender, ethnicity, and grade comparisons of students participating and not participating in athletics. As with many studies, a positive analysis resulted on several variables; however, the ACT results appeared mixed. Athletes outperformed nonathletes in mathematics, and nonathletes outperformed athletes in reading. Ongoing research and discussions exist as educators attempt to understand why athletes outperform nonathletes. Included in the article written by Whitley (1999), several reasons warrant careful consideration:

- There may be an increased interest in school, including academics, generated through participation in sports.
- Athletes are motivated to perform at higher academic levels to remain eligible.
- Athletic success may lead to a heightened sense of self-worth that spills over into academic performance.
- Coaches, teachers, and parents take an interest in athletes, including their classroom performance.
- Athletic participation may lead to membership in elite peer groups and to an orientation toward academic success.

Whether participation in athletics contributes to the academic success of students, these studies indicated that students participating in athletics are performing better than those who did not participate in athletics.

A Deeper Look at Academic Outcomes

Broh (2002) used the National Educational Longitudinal Study of 1988, a nationally representative study sponsored by the National Center for Education Statistics, for data to conduct a study to examine the effect of participation in high school extracurricular activities on academic achievement. Data comprised from student survey questionnaires addressing schoolwork, relationships, family, attitudes, and behaviors during their 8th-, 10th-, and 12th-grade year in school indicated that participation in some activities improved achievement, and participation in other activities reflected lessened educational outcomes. Broh acknowledged the benefits of longitudinal studies in the following statement, “longitudinal studies are more powerful than cross-sectional studies for limiting the effects of selection bias and establishing a better case for causal order

between independent and dependent variables” (p. 70). Broh noted that while small benefits associated with participation in athletics during the 10th and 12th grades existed, those benefits were consistent and attributed to higher-performing students participating in athletics. Broh extended the notion of higher-performing students participating in athletics, thought by some as a form of selection bias. Additionally, she contended that not all types of extracurricular activities or participation in all types of sports teams produced similar benefits. Other studies conducted by Fejgin (1994) and Quiroz, Gonzalez, and Frank (1996) supported the concept of “larger selection bias of higher achieving, ‘good’ students into participation in extracurricular activities, including sports” (as cited by Broh, 2002, p. 70). Fejgin (1994) submitted that while data supported increased academic outcomes, the utilization of a longitudinal approach permitted a “cautious causal interpretation” (p. 218) when considering academic outcomes associated with athletic participation. Fredricks and Eccles (2006) conducted a 2-year longitudinal study and found positive academic outcomes associated with the number of activities in which students participated. However, the results of this study, according to the authors, indicate identifying a benefit to involvement in extracurricular activities in and of themselves, to be an overstated claim. Suggestions of *selection bias* warrant consideration as restrictions on student participation in athletics and extracurricular activities based on GPAs exist.

Many states have adopted policies governing academic eligibility by defining grades or levels of proficiency in academic subjects prior to participation in athletics or extracurricular activities. In Arkansas, to satisfy eligibility rules established by the Arkansas Activities Association, students must pass four academic courses and possess a

minimum 2.0 GPA from the previous semester to participate in activities sanctioned by the Arkansas Activities Association (2014). This rule, however, has the potential for both positive and negative consequences. Some might view the intent of this rule as motivation for students to perform well academically, encouraging students to invest additional energy and effort to make the required passing grade. Conversely, it could mean students wanting to participate in extracurricular activities but who have difficulty achieving academically may select less challenging courses thus limiting educational attainment. Of greater concern are eligibility constraints possibly resulting in students becoming discouraged, losing interest, and even dropping out of school prior to graduation.

Participation Beyond Athletics

Participation in extracurricular activities is, of course, not limited to sports. Not all students are interested or possess the athletic ability to be successful in high school sports programs. For these students, most schools offer additional opportunities to participate in music-based performing arts such as band and choir. Data obtained from the Arkansas Department of Education (2016b) for the 2014-2015 school year, delineating enrollment by course code, identified enrollment in instrumental (band) and vocal music (choir) to be 34,791. Students enrolled in band and choir may choose to compete in Arkansas Activities Association sanctioned competitions. However, these students must adhere to the same eligibility requirements as competing student athletes. On occasion, students may participate in both athletics and music-based performing arts as school scheduling permits. Miller, Melnick, Barnes, Farrell, and Sabo (2005) and Kelepolo (2011) viewed these programs as an extension of the educational program, not a

distraction. They argued that activities support positive benefits in students' educational outcomes through increased attendance, lower discipline referrals, greater school spirit, and a desire to seek a college degree. Eccles and Barber (1999) studied various extracurricular activities and not only found increased GPAs for students participating in performing arts such as band but also discovered a greater likelihood of high school students participating in performing arts attending college. It is for these students seeking college entrance that the ACT score can prove to be financially beneficial. Awarded based on the applicant's ACT composite score, freshman academic scholarships in many instances cover college tuition for multiple years, provided the student maintains a specific GPA in college coursework.

Implications for Athletics and Extracurricular Activity in Schools

As the face of education changes with the increased opening of private and charter schools, budget constraints persist in the public school arena. As superintendents and school boards attempt to be fiscally responsible, annual reviews evaluate non-essential expenditures, according to George (2012). These reviews address the question: Does the educational benefit provided by athletics and music-based performing arts programs outweigh the monetary expense incurred by the district? Eliminating extracurricular programs, especially athletics, is a decision that requires thoughtful consideration as some communities assign great value to competitive sports. Whitley (1999) went so far as to suggest that schools wanting to improve academic performance should expand their offerings of extracurricular activities because this might be the cheapest means of improving academic performance. He reported that data provided by the National Federation of State High School Associations indicated that at least one-half

of students, in an average American high school, are involved in at least one extracurricular activity, a price tag that equates to 1-3% of the school's budget. Whitley concluded that when considering the results of the North Carolina study confirming the higher academic performance of athletes compared to nonathletes, school districts striving to increase academic performance with limited funding might want to increase extracurricular opportunities (Whitley, 1999). If participation in extracurricular activities increased academic performance, the school could experience increased enrollment, ultimately leading to an increase in state aid.

Opposing Views of Academic Benefits of Athletic and Extracurricular Participation

Writing in a brief for the *National Center for Educational Statistics*, O'Brien and Rollefson (1995) stated, "About four of every five seniors said they participated in at least one extracurricular activity in 1992" (p. 2). O'Brien and Rollefson also noted that students identified as low socioeconomic status were less likely, compared to students of higher economic status, to participate in extracurricular activities. Potential reasons for reduced participation by students of lower socioeconomic status could include lack of transportation for activities outside the school day, insufficient funds to purchase needed apparel or equipment, or complications with eligibility requirements. Some students may prefer to seek after-school employment, preventing them from participating in practice or competitive events. Smith (2015), using data from private schools in the southern region of the United States, sought to determine whether participation in athletics affected ACT scores. Smith found that students not participating in athletics had similar academic performance to student athletes.

In addition to Smith (2015), Klein (2011) asserted another opposing view to participation increasing academic performance. His study of students from a small Midwestern Christian school uncovered a negative relationship between a student's athletic participation as it relates to their academic performance. The negative relationship was suggested when the number of extracurricular activities increased and the level of academic performance decreased. After-school practice and games require a significant time commitment from students, presenting a plausible argument that the larger the time commitment required by involvement in multiple sports, the less time available to commit to academic preparation.

Hypotheses

Based on the literature, the researcher composed the following hypotheses.

1. No significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in athletics versus students with no athletic participation on academic performance as measured by GPA.
2. No significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in athletics versus students with no athletic participation on academic performance as measured by the ACT composite score.
3. No significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in music-based performing arts versus students with no music-based performing arts participation on academic performance as measured by GPA.

4. No significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in music-based performing arts versus students with no music-based performing arts participation on academic performance as measured by the ACT composite score.
5. No significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who did not participate in either athletics or music-based performing arts versus students who did participate in academic performance as measured by ACT composite score.

Description of Terms

ACT Composite Score. The ACT is a nationally recognized exam that assesses four academic areas including English, mathematics, reading, and science for college readiness. The composite score is an average of four sub-scores with 36 representing a perfect score (ACT, 2014).

Athletics. For this study, athletics is interscholastic team events sanctioned by the Arkansas Activities Association (2014) and includes football, basketball, baseball, cheerleading, soccer, and softball.

Credit. A credit is a value assigned to 120 hours of instruction, when successfully completed, that counts toward the total number needed for high school graduation (Credit, n.d.).

Extracurricular Activity. An extracurricular activity is an activity not falling within the scope of a core academic curriculum (Extracurricular activity, n.d.).

GPA. GPA is the average acquired by dividing the total number of quality points earned by the total number of credits attempted (Grade point average, n.d.).

Music-Based Performing Arts. For this study, enrollment in band or choir constitutes performing arts.

Participation. Participation is operationally defined for this study as enrollment and a transcribed credit for athletics, band, or choir for more than one school year.

Quality points. Quality points are values assigned to letter grades and then used in mathematical calculations to arrive at a GPA (A = 4 points, B = 3 points, C = 2 points, D = 1 point, and F = 0 points) (Quality points, n.d.).

Weighted GPA. Weighted GPAs require a process of calculating student averages that allow for consideration of the difficulty of the class, as well as each student's grade in the assignment of course grades (A = 5 points, B = 4 points, C = 3 points, D = 2 points, and F = 0 points) (Weighted GPA, n.d.).

Significance

Research Gaps

Although much research conducted involved student participation in athletics, researchers investigating participation in music-based performing arts are not as prominent. Small sample sizes, similar student demographics, and the failure to control for intelligence capacity limited many studies reviewed (Schlesser, 2004). As this study examined participation in athletics and music-based performing arts, also included is a consideration for academic outcomes of students who chose not to participate in athletics or music-based performing arts.

Possible Implications for Practice

The effects of participation in athletics and music-based performing arts on high school students' academic performance could prove to be of importance to both the academic and business community. To the academic community, gains in academic performance connected to participation in athletics and music-based performing arts could potentially alter the academic classification of schools with possible financial implications, or even course requirements for graduation. Conversely, should the effects of participation in athletics and music-based performing arts indicate an academic decline, the continuation of these activities may warrant further consideration.

As the business community relies on schools to produce graduates academically prepared for the workforce, the research findings could suggest either the requirement or elimination of student participation in athletics or music-based performing arts. The reduction of entry-level training expenses, resulting from enhanced student preparation for the workforce, would benefit business and industry. Kelepolo (2011) suggested that increased academic achievement at the high school level leads to greater likelihood of post-secondary education, hence producing a more educated workforce. As the United States collectively, and states individually, compete in the global market for qualified employees, education is paramount. Methods thought to improve academic performance for students could lead to further advancements within the academic community. Without an educated workforce, businesses and industries will be forced to outsource jobs to other states or countries.

On a much smaller plane, school districts are operating on limited budgets and experiencing fewer monetary increases from state and federal agencies. As school

superintendents and financial officers explore avenues to use existing allocations efficiently, the viability of continued offering and funding of athletics and music-based performing arts comes into question. Studies akin to this will provide data for consideration in the decision-making process.

Process to Accomplish

Design

A quantitative, causal-comparative strategy was used for this study. The researcher used a 2 x 2 factorial between-groups design to analyze each hypothesis. For Hypotheses 1 and 2, the independent variables were gender and participation in athletics (participation versus nonparticipation). For Hypotheses 3 and 4, the independent variables were gender and participation versus no participation in music-based performing arts (defined as band and choir). The dependent variable for Hypotheses 1 and 3 was GPA, and the dependent variable for Hypotheses 2 and 4 was ACT composite score. For Hypothesis 5, the independent variables were gender and no participation in either athletics or music-based performing arts (defined as band and choir). The dependent variable for Hypothesis 5 was ACT composite score.

Sample

Because the study used a causal-comparative strategy, the researcher selected a sample from the four accessible database populations of each participating school (For example, accessible populations for Hypothesis 1 includes the following: athletic participating males, athletic participating females, athletic nonparticipating males, and athletic nonparticipating females). Scores of students in Grade 12 of four rural Northwest Arkansas high schools were included. The researcher chose schools based on their similar

student demographics of ethnicity, socioeconomic status, and grade configuration.

Additionally, the selected schools all held a 4-A classification, assigned by the Arkansas Activities Association, and competed against each other in athletic events. Grade level enrollment ranged from 75-120 students per grade. A convenience sample of scores from the students was drawn using a stratified random selection process.

Instrumentation

Student transcripts for 2016 graduating students were collected, grouped, and analyzed by gender based on enrollment or participation in athletics and extracurricular activities, specifically band and choir. The focus of the analysis included gender, overall student GPA, and ACT composite scores, if available. A rounded averaging of the four subtests, English, mathematics, reading, and science, producing a score from 1-36 derives the ACT composite score. The English subtest assesses the students' ability in punctuation, grammar, rhetorical skills, and sentence structure through responses to 75 multiple choice questions over five separate reading passages in 45 minutes. A subtest score for mathematics, derived from 60 multiple-choice questions, assesses the students' basic mathematics and computation skills in 60 minutes. The reading test focuses on reading comprehension skills, assessing the students' reading ability through a 4-part 35-minute test using 40 multiple-choice questions. The fourth subtest included in the ACT addresses science and tests the students' ability to solve problems using reasoning, analyzing, evaluating, and interpreting skills. Comprised of 40 multiple-choice questions the science subtest is limited to 35 minutes (Farnen, 2016). Students aspiring to attend a college or university upon high school graduation are encouraged to begin testing during their junior year in high school.

Traditionally ACT exams have been administered on designated Saturday mornings, with some optional Sunday test dates established for those unable to attend a Saturday test administration for religious reasons (ACT, 2016). Recently, however, several states, including Arkansas, have administered the ACT during the traditional school day, adhering to the specific protocol required at national test administrations (Arkansas Department of Education, 2016a). Personnel trained to comply with ACT testing policy and procedures administer the exam, requiring students to sit in pre-assigned seats and provide identification, which incorporates a personal photograph of the student, or an ACT Talent Search Student Identification Form (ACT, 2016).

Data Analysis

To test Hypotheses 1 and 2, two 2 x 2 factorial analyses of variance (ANOVAs) were conducted using gender and athletic participation as the independent variables. The dependent variables were GPA and composite ACT, respectively, for students in Grade 12. To test Hypotheses 3 and 4, two 2 x 2 factorial ANOVAs were conducted using gender and participation in music-based performing arts (band and choir) as the independent variables. The dependent variables were GPA and composite ACT, respectively, for students in Grade 12. Hypotheses 5 was analyzed by a 2 x 2 factorial ANOVA using gender and no participation in athletics or music-based performing arts (band and choir) as independent variables to determine the effects of no participation versus participation in athletics or music-based performing arts (band and choir) as measured by the ACT composite score, the dependent variable, for students in Grade 12. To test the null hypotheses, the researcher used a two-tailed test with a .05 level of

significance. A Bonferroni correction was also used because multiple comparisons were being employed.

CHAPTER II

REVIEW OF RELATED LITERATURE

Recognizing the importance of strong academic outcomes and methods to improve student performances, considerations beyond curriculum delivery or student interventions provide opportunities for further research. Studies with varied outcomes identify an association or relationship between academic performance and student participation in athletics or music-based performing arts. While varied outcomes exist, some studies found a statistically significant relationship between involvement in athletics and music-based performing arts in student academic performance, a contrasting view to studies conducted in the early 1960s (Lumpkin & Favor, 2012). Demands for increased student outcomes, beginning with the implementation of No Child Left Behind, further challenged districts to focus or prioritize resources on the tested academic disciplines for districts concerned with meeting accountability benchmarks (Harris Interactive Inc., 2006). The challenge continues, with increasing expectations and decreasing resources, in identifying areas within the budget to reduce spending. Along with governing school boards tasked with making sound financial decisions, district level administration must give careful consideration to not only the tested academic disciplines but also the outcomes associated with student participation in extracurricular activities such as athletic programs and music-based performing arts. Certainly, academic success is the primary goal of educational institutions; however, elements such as intrinsic worth,

self-esteem, and self-confidence constitute other student outcomes associated with these programs and activities, some more difficult to quantify than others.

Participation in Athletic Programs

The existence of athletics, represented by team sports, is prevalent in many schools across the nation. A 2004 report published by the National Association of State Boards of Education (NASBE) found school-sponsored sports programs existed in 98% of high schools across the nation. Fejgin (1994) used data collected in the National Educational Longitudinal Study of 1988 to conduct a study that assesses the effects of student participation in athletics on various student outcomes. Questionnaires for this study used 26,000 eighth-grade students along with parents, teachers, and schools. Data collected over a 2-year period allowed for the surveying of students during both their 8th- and 10th-grade years that provided a longitudinal perspective and allowed for a cautious causal interpretation of the findings, as stated by Fejgin. Students who participated in athletics possessed higher grades, self-concept, educational aspirations, and fewer discipline problems in school, according to Fejgin. The NASBE (2004) report also acknowledged studies revealing that athletes anticipated college enrollment at higher rates than nonathletes. Lumpkin and Favor (2012) conducted a study, using data available from the Kansas Department of Education and Kansas High School Athletic Association, seeking to link participation in athletics to positive academic achievement. The use of this data allowed for a comparative analysis between student athletes and nonathletes in GPA, dropout rates, and graduation rates. The analysis of academic performance, as measured by GPA of over 139,000 Kansas high school students, found “clear and striking differences” (p. 54) in academic outcomes of students who participated in athletics and

those of nonathletes. Of the students participating in athletics, 80.5% reported a 3.0 or higher GPA as compared to 69.5% of nonathletes who reported identical academic performance levels. Student surveys and ACT optional questionnaires provided self-reported data for both studies, including grades and GPA ranges. While this study used data in the form of grades and GPA ranges, self-reporting is subjective and deserves careful review. Juxtaposed to Fejgin (1994), as well as Lumpkin and Favor (2012), Price (2013) examined data submitted by school administrators, perhaps increasing the authenticity of grade reporting, also demonstrating greater academic success of athletes versus nonathletes in the areas of graduation rate, dropout rates, attendance and average letter grades. Given these results, including more competitive or intramural athletics in future curricular planning and development, followed by further research, warrants consideration.

To determine whether a correlation existed between academic performance and athletic participation, Price (2013) used results from an online survey conducted by the National Interscholastic Athletic Administrators Association, which included data from schools for over 550,000 students from 961 high schools across 49 states. Data reported encompassed public, private, and charter schools located in urban, suburban, and rural communities. A positive correlation existed for athletic participation and overall average grade. Price conducted several analyses, one specifically by filtering the data in two categories to test for a correlation between high schools with greater than 50% athletic participation and higher cumulative letter grade averages for students, an approach somewhat unique to this study. The results of this analysis found a statistically significant correlation between high schools with greater than 50% involvement in athletics as well

as higher cumulative grade averages for those high school students than of student data associated with high schools having less than 50% involvement in athletics. Results such as these provide a rationale for schools to explore additional opportunities for student participation in the area of athletics.

A prominent study conducted by Whitley (1999) provided analogous results. Whitley, recognized by the NASBE as having conducted one of the more rigorous studies, compared the academic performance of athletes and nonathletes in North Carolina high schools from 1993 through 1996. This study surveyed over 285,000 high school students in a 3-year period, examined the data, and analyzed gender, ethnicity, attendance, discipline referrals, and dropout and graduation rates as variables. The North Carolina study revealed that student athletes consistently outperformed nonathletes academically as represented by GPA. Additionally, nonathletes had higher discipline referrals, higher absentee rates and were more likely to drop out of school than athletes. The NASBE acknowledged Whitley as insightful in reference to the relationship between athletic participation and academic performance; however, they expressed concern related to athletes as self-selected participants. Using self-selected participants has the potential of attracting individuals who possess an interest in the study itself, thus completing surveys thoroughly and promptly. The opportunity to save time in locating and engaging participants also allows the research to begin and proceed expeditiously. Those seeking to discredit or challenge a study suggest that self-selection allows for a sampling of participants with similar interests and characteristics potentially creating an inherent bias. The NASBE (2004), as well as other researchers, acknowledged the difficulty in drawing a causal inference between athletic participation and academic

performance and cited the difficulty in establishing whether student athletes possess intrinsic motivation, ultimately driving success. Some suggest that it is the students with higher aspirations for academic achievement who choose to participate in extracurricular activities. Broh (2002), using data from the 1998 National Longitudinal Study, controlled for the selection of high achieving students into athletics in her data analysis and found that when considering extracurricular activity in high school, participation in sports influenced positive academic outcomes more than participation in other extracurricular activities. The NASBE (2004) also recognized data gathered in the 2003-2004 school year from Waterloo, Iowa, which reinforced the findings of other research. Simply stated, student athletes earn higher GPAs than nonathletes. The review of various studies found a statistically significant correlation between athletic participation and academic achievement yet, after data analysis, researchers were unable to produce unequivocal results indicating a causal relationship between athletic participation and academic outcomes.

National student participation in athletics continues to increase on an annual basis and is supported by data gathered in a High School Athletics Participation Survey, conducted in all 50 states and the District of Columbia. This survey conducted by the National Federation of State High School Association, indicated an increase in student participation in athletics for the 27th consecutive year. The number of students participating in high school sports during the 2015-2016 school year was 7,868,900, increasing 61,853 from the previous year. In the past, student participation in multiple sports was not uncommon; however, the National Federation of State High School Association recently reported a decline in multisport participation. Rerick (2016) reveals

information gathered by the National Federation of State High School Association through a post-season player's survey indicating a decline in participation rates as student athletes make choices to drop one or more sports to focus on a single sport. Proponents of single-sport participation maintain that the additional time devoted to a single sport will allow the athlete to develop skills specific to the main sport, hence increasing the possibility of participating at the post-secondary level. Opponents contend that only 7% of high school athletes advance on to play at the college level, with only 3% receiving athletic scholarships. Thus, playing sports in high school should promote enjoyment, not stress. Additionally, the specialization of any given sport provides opportunities for burnout, injuries resulting from overuse of specific muscles and joints, and pressure to prepare to play at the next level. Additional research to determine whether there is an academic benefit associated with athletic participation, and if so at what levels a diminishing return exists, appears warranted.

A study conducted by Klein (2011) did seek to examine a possible relationship between academic performance and the level or amount of athletic participation by students. The sample group included predominantly middle class, Caucasian participants; many resided in rural areas. Some might question the composition of this sample group in that the lack of diversity in group members limits or restricts the findings. Additionally, living in a rural area possesses another limitation; some students participate in athletics by default, as there is nothing else to occupy their time. Klein first investigated the correlation between the number of different sports that a student participated in and academic performance. His findings supported a negative relationship between athletic participation and academic performance. He extended the study and addressed the

question of whether increasing the number of sports indicated a negative or positive correlation to the student's academic performance. The findings of Marsh and Kleitman (2002) indicated a point of diminishing returns in cases of exceptionally high levels of participation and concurred with Klein (2011). As high levels of participation existed, a decline in academic achievement occurred, which produced a negative correlation in athletic participation and academic performance. Contrary to Klein (2011), Fredricks and Eccles (2006) conducted a study on the participation of 11th-grade students and found higher GPAs and greater forecasts of success by students for both during and after high school. Mahoney and Cairns (1997), when considering students at a high risk of not graduating, indicate high participation buffers against dropping out. Limitations worthy of consideration in the research of Klein (2011) include small sample size and flexibility in academic course selection as degrees of course difficulty varied in content and delivery. Student autonomy in relation to course enrollment also prevailed as students seeking to avoid issues associated with eligibility enroll in courses that are less challenging or rigorous, potentially influencing academic outcomes conveyed by GPA. To this end, the researcher's findings warrant careful examination. It is evident that multiple variables factor into research causing an apparent conflict in establishing a causal relationship between participation in activities and athletics and successful academic performance.

Perception and Identity

Among all the referenced variables previously discussed, no mention has been made of a student's self-image regarding whether self-perception or perception of others is a variable. Is it possible that a student's sense of self-worth in terms of being, or not

being, an athlete is a legitimate consideration in analyzing the relationship, or lack thereof of, between participation in athletics and academic success? Attempting to establish an association of athletic participation with academic performance, Miller et al. (2005) used data from a longitudinal Family and Adolescent Study collected from students and their families living in Western New York. In addition to traditional variables such as gender, ethnicity, GPA, socioeconomic status, and discipline referrals, the researchers asked students who categorized themselves as athletes if they considered themselves a *jock*. This jock identity, often considered synonymous with the term *athlete*, provided a two-dimensional view of an athlete. Jock identity added an intriguing variable to the study and provided contrasting results from previous studies when associated with gender, GPA, ethnicity, socioeconomic status, and discipline referrals. While a preponderance of existing research links athletic participation to favorable academic performance, incorporating jock identity brought to bear limited resemblance to previous research findings. Few studies explore the connection of athlete to jock or disaggregate outcomes of *what* one does from *whom* a person perceives himself or herself to be. However, researchers found that self-classification of athlete and jock did predict academic achievement at the post-secondary level (Barber, Eccles, & Stone 2001; Eccles & Barber, 1999). As in other studies, this self-reporting or self-classification weakens the outcomes in the sense that the outcomes result from opinion, not hard data.

Assimilating statistical results from any study requires thoughtful deliberation as validity, in essence, serves to support the researchers' claim. Follow-up data, collected two years into the study, from Miller et al. (2005) found higher misconduct for females who identified themselves as jocks than those who did not and lower grades for female

jocks than for non-jock students. These results invite future research in addressing the issue of semantics regarding self-identification as a jock or an athlete. Interestingly, in relation to gender, female athletes reported statistically significantly less favorable outcomes related to misconduct than did male athletes, contrary to previous findings associated with gender variables. Concerning academic outcomes represented by GPA, the longitudinal data interacted significantly as female athletes outscored female nonathletes; however, grades for male athletes were marginally lower than those of male nonathletes, a finding not commonly derived in other studies.

Motivation

While this research explored academic outcomes, in relation to gender and participation in athletics and music-based performing arts, several researchers would suggest that a student's intrinsic motivation, not involvement, promotes favorable academic outcomes. Niehaus, Rudasill, and Adelson (2012) referenced numerous bodies of research, which support positive relationships between intrinsic motivation and academic outcomes. These intrinsically motivated students strive to excel because of factors like pleasing significant others, parents, or favorite teachers and reportedly possess similar characteristics to those existing in students who participated in extracurricular activities such as lower absenteeism and higher graduation or completion rate.

Extrinsic motivation, another plausible consideration associated with academic outcomes of students, implies that motivation influenced by external factors such as adult or parental praise, potential rewards, or popularity among peers motivates performance. The potential to acquire any of these external items is not a guaranteed motivator;

students must desire these items with an understanding that rewards only come through positive academic outcomes (Cherry, 2017). We are what we believe ourselves to be. However, the use of self-reported data and self-classification may cast skepticism on the findings. Researchers limited by time find the utilization of self-reported data both easier and faster than engaging in experiments or seeking the approval and release of test data. Taking on the form of either quantitative or qualitative data, self-reported data provides the opportunity for large data samples to be gathered quickly, incurring less expense than other methods. The utilization of self-reported data raises concerns about the honesty of the participant's responses (Hoskin, 2012). Using self-reported data in a study presents an opportunity for skepticism on the research findings. These results of less than reliable findings, potentially caused by self-reporting, should motivate researchers into finding more innovative methods for gathering similar data to strengthen the outcomes of future studies.

Avoiding the issues associated with self-reporting, Din (2005) collected grades for 225 students from five rural Kentucky high schools located in poverty areas of the Appalachian Mountains region. The study incorporated 15 teams comprised of various sports: football, basketball, baseball, track, volleyball, cheerleading, and softball. Comparing student pre-season grades to post-season grades, for all commonly taken courses, allowed the researcher to evaluate changes in academic performance. Neither teachers nor students gained knowledge of the study. This undisclosed feature of the research eliminates the possible manipulation of grades by teachers, or extra effort of students seeking to achieve at a higher than normal rate, thus affecting the findings. No significant differences between the pre- and post-season grades existed, indicating

unchanged grades and no impact on academic performance. The length of this study seems to diminish the relevance of the findings, unlike Whitley's (1999) 3-year longitudinal study indicating the consistent outperformance of athletes as compared to nonathletes. Events over time potentially alter outcomes; thus, restricting data to a shortened period of time provides only a snapshot in time of any given student performance. When seeking to identify a relationship between athletic participation and academic performance it would appear that a longer study would comply with the basic assumption of regression to the means. Longer studies may provide more reliable data as there are more linear points to consider.

Participation in Music-Based Performing Arts

While the perpetuation of athletics within the school day continues to evoke debates among those responsible for financial decisions, music-based performing arts have also attracted the attention of those concerned with improving academic outcomes, while experiencing shrinking school revenues. As previously mentioned, school districts have allocated financial resources to the tested academic disciplines for which the district is held accountable, to avoid academic sanctions. Some researchers, however, contend that student participation in music-based performing arts positively impacts academic achievement, thus crucial to overall curriculum design and worthy of continued course offering. Kelstrom (1998), convinced of the importance of music education, advocates for requiring enrollment in music courses and for music to join the ranks of *core* subjects, such as language arts, mathematics, social studies, and science. Concerns continuing to plague proponents of music-based performing arts exist surrounding the need for ample

time, during the high school years, to prepare students adequately to score well on both state-mandated exams as well as college entrance exams.

Kelstrom (1998) cited the frequent steering of students into the annually tested core subjects, technology courses, and scheduling conflicts as the culprits in reducing student participation in music-based performing arts classes. She embodies the belief that inclusion of music classes into the school day improves academic outcomes, and she acknowledges Hungary, Japan, and the Netherlands as countries that recognize the contribution that music education makes to student aptitudes. These three, at the time of this research, were among the top ranked countries in the world for science achievement. Additionally, Kelstrom maintained the position that the United States trails far behind other countries in making music education an integral part of the curriculum. Part-time placement of music in elementary schools, where music is typically taught once a week and music courses offered in high school, count as only elective courses, substantiates her claim. Another study conducted by Gouzouasis, Guhn and Kishor (2007) in British Columbia, used student data and supports music education, suggesting that music education “fosters academic excellence in other core subjects” (p. 82). Kelstrom (1998), as well as Fitzpatrick (2014), maintain that instruction in music develops skills critical to academic success. Fitzpatrick refers to articles written asserting the position that the incorporation of music education increases test scores, stimulates greater learning potential, promotes language acquisition and numerous other skills, ultimately contributing to advanced academic achievement. For music-based performing arts to earn a seat at the table with core subjects, research must provide clear and compelling

evidence linking participation in music-based performing arts to increased academic outcomes.

Music and Academic Outcomes

As students begin to contemplate their future, a focus on academic outcomes typically increases during the high school years. State regulations governing student eligibility and the ability to participate in competitive events also heightens student concerns for qualifying grades. These regulations, along with other associated topics such as graduation rate, attendance, discipline infractions, and post-secondary plans promote research interests at the secondary level. While not performed in a high school, Schneider and Klotz (2000) conducted a study of 346 students in Grades 5-9 from a cross-section of urban, suburban, and rural schools, enrolled in athletics and music performance classes. Schneider and Klotz used student results from core battery scores in reading, language, and mathematics from the California Achievement Test administered between 1991 and 1995. Scores from each year of the study were analyzed for a significant relationship between test scores and participation, as well as nonparticipation, in athletics and music-based performing arts. Results varied in that statistical equivalence was found in the analysis of student academic outcomes in the fifth and sixth grade. Musicians in Grades 7, 8, and 9, however, possessed significantly higher scores in mathematics and language than those of athletes but not those of nonparticipating students. Interestingly, the scores stabilized by Grade 9 for music students while the scores of athletes and nonparticipating students trended downward.

Today's critics of education emphasize the declining *quality* in the delivery of academics. Schneider and Klotz (2000) identified a factor in their study that enhanced

their overall findings. An analysis conducted between music programs considered to be of high quality and those that were not, based on participation in a district concert event, found the academic performance of music students in quality programs was significantly higher than those of athletes and nonparticipating students. Some might suggest that participation at a level beyond a 'requirement' contributes to enhanced academic outcomes.

Finally, while the participants in this study were in Grades 5-9, results identified an overall decline in test scores in the ninth grade of athletes and nonparticipating students but not those of musicians. Musicians had slight increases in language scores. Schneider and Klotz (2000) acknowledge that many factors could contribute to the decline in scores, but suggest the possibility of transitioning to high school as an event influencing the decline for these students. Additionally, they submit that participation in music-based performing arts possibly counteracts a decline in test scores for music students.

Research Using Gender, ACT, and GPA

Gender Findings

Using data from the National Longitudinal Study of Adolescent Health, Rees and Sabia (2010) sought to examine the effects of participation in athletics on academic outcomes. Comprehensive GPAs for females indicated a small GPA increase for female athletes but not for males. Using data from a Nebraska high school, Stegman and Stephens (2000) sought to determine whether a relationship between participation in sports and academic outcomes existed. Results from the study indicated that a difference did exist for females. Those with high participation rates significantly outperformed those

with low rates of participation. Camp (1990) not only found females to score higher than males but also found that females participated in more student activities than did males. These findings suggest that participation in student activities enhances academic outcomes. Some, considering these findings, might question the rationale behind establishing specific eligibility guidelines for participation in state- sanctioned activities. If participating in student activities contributes to increased academic outcomes, then opportunities for the marginal student to improve may constitute reconsideration concerning the implementation of eligibility requirements.

When considering GPAs, Lumpkin and Favor (2012) found 12% of female athletes possessed a 3.0 GPA, higher GPAs than female nonathletes. As the GPA increased to 3.5 or higher, so did the percentage of female athletes achieving beyond female nonathletes, 62% to 44%. The data relating to males revealed 74% of the athletes reported 3.0 GPA's while only 64% of nonathletes reported 3.0 GPA's. GPA increases to 3.5 or above revealed male athletes, as compared to male nonathletes, to be 43% to 34% respectively. In comparing the GPAs of females to those of males, females performed better than males with 87% reporting 3.0 or higher GPAs as compared to 74% of the males reporting 3.0 or higher GPAs. The same was found to be true when comparing female nonathletes to male nonathletes 75% to 64%. In considering ACT results, Lumpkin and Favor found female athletes scoring below male athletes in both science and mathematics, and, as found traditionally, female athletes outperformed male athletes in reading and English. These results seem to support commonly accepted beliefs about higher interest and performance levels in science and mathematics by males, with females performing at a higher level in reading and English.

GPA and ACT

Often, research begins with a simple statement of curiosity, which once developed requires a plethora of decisions by the researcher regarding study protocols. Research findings, expressed in relation to identified variables, communicate the researcher's conclusion. Of particular interest to this researcher are studies that incorporated the use of GPA and ACT scores as dependent variables. In each of the following studies, Kelly (2012), Cox and Stephens (2006), Miranda (2001), and Reed (2014) incorporated student GPA data. While these studies explored academic outcomes incorporating GPA, or specifically identified state or local exams, few used GPA and ACT as the sole dependent variables in conjunction with student participation in athletics and music.

Jones (2010), however, conducted a study of five Class A South Dakota public high schools examining the impact of participation in athletics and music on student GPA and ACT scores. Transcripts of students from 2003-2007 were used in determining the division of students into subgroups of 4-year participation or nonparticipation in athletics and music, as well as a 4-year participation group for students who were both athletes and musicians. Results from this study found both higher mean GPA and ACT scores existed for students who participated in athletics and music than for nonparticipating students. The subgroup of students who were musicians *and* athletes achieved both a significantly higher mean GPA and significantly higher mean ACT score than any other subgroup. Another study using GPA and ACT conducted by Streb (2009) sampled 492 graduating seniors from a large Midwestern high school and found significantly higher GPAs and ACT scores for students participating in extracurricular activities than nonparticipants. Kaufmann (2002), considering GPA and ACT scores, as well as attendance, mathematics

coursework, and participation in athletics, found a significant positive relationship between academic success and athletic participation. Lumpkin and Favor (2012) analyzed the following data from Kansas high school students: GPA, graduation rate, dropout rate, ACT, state assessments, gender, and ethnicity. Comparisons between athletes and nonathletes was statistically significant in relation to ACT scores. While the results were mixed, Kansas athletes scored significantly higher than nonathletes in ACT mathematics and science subtests. Male athletes, however, did not outperform male nonathletes in the reading ACT subtest, the English subtest, or the ACT composite score. Contrasting results in scores for females emerged as female athletes outperformed female nonathletes on the ACT English, mathematics, science, and composite scores.

Professional curiosity leads to questions concerning many interconnected relationships discussed in this study. For example, a more recent study conducted by Reed (2014) sought to explore possible relationships between ACT scores, GPA, and attendance, to participation in extracurricular activities. In this study, the Mississippi High School Activities Association recognized and defined extracurricular activities as athletics, band, cheer, choral, dance, debate, drama, speech, and writing. Activities sanctioned by state associations require students to maintain a specific GPA, awarding *eligibility* status to the student wishing to compete. Some choosing to oppose the governing of competitive activities by a state association, or simply opposed to extracurricular activities, suggest the possibility of intentional grade inflation in an attempt to keep students eligible for participation. Results from this study indicated that a statistically significant difference existed as students who participated in extracurricular activities had both higher GPAs and ACT scores than students who did not participate in

extracurricular activities. Those willing to accept the rationale that students earning higher GPAs are more likely to score well on ACT exams, might also argue that higher ACT scores negate accusations of grade inflation.

Other studies indicate the lack of agreement in current research concerning the relationship, or lack thereof, of academic achievement and student participation in athletics and performing arts. Examples are Fredricks and Eccles (2006) who found positive academic outcomes associated with the number of activities in which students participated. Diametrically opposed to this study, Klein (2011) indicated a negative relationship existed in that as the amount of participation increased, the level of academic performance decreased. These opposing results indicate a need for additional research to add to the body of research, supporting or negating these findings.

Public education, under fire for poor academic performance and declining student outcomes, competes with private and charter schools for the enrollment of high achieving students with some suggesting that public schools, left with educating mediocre students, face significant challenges in providing a high-quality education for their students. Public schools experiencing declining enrollment, resulting from the changing political climate and growing support for private and charter schools, must identify or improve system strengths and market those strengths in an attempt to retain and attract high achieving students (Bohte, 2004). Restricting student enrollment and attendance to a neighborhood school based solely on demographics have long since passed as school choice and the ability to commute increase (Richards & Perez, 2016). If researchers reveal unequivocal findings that participation in athletics or music-based performing arts supports linkage to increased academic outcomes, in the form of GPA or ACT scores, then these findings, if

marketed efficiently, could improve public school enrollment and overall academic performance.

Private School Research

Limited research exists relating to private school and participation in music-based performing arts. Miranda (2001) conducted a study in a north central Texas private school utilizing data from five graduating classes beginning in 1996 through 2000. Seeking to explore a possible relationship between extracurricular activities and GPA, along with ACT scores, Miranda found a tenuous, cause-effect relationship between participation and GPA. Musicians held the highest GPA of 3.61 on a 4.0 scale compared to athletes with an average GPA of 3.26. Her study also revealed an interesting contrast to other research studies in that students who did not participate in extracurricular activities possessed a higher average GPA of 3.38 than those of participating athletes. Musicians outperformed both athletes and nonparticipating students, with athletes once again scoring below nonparticipating students. ACT results mirrored the GPA data in that musicians possessed the highest ACT score at 26, athletes average ACT score was 23, and students electing nonparticipation in extracurricular activities had a higher average score of 24 compared to those of athletes. These results support a notable positive impact on participation in music on ACT scores. Data from this study provide a platform for discussion in support of including music-based performing arts within the curriculum.

While studies exploring possible relationships between music-based performing arts and academic outcomes of students are limited, studies exploring a relationship between athletics and academic outcomes appear more prevalent. Smith (2015), using data from seven schools across three states in the southern region of the United States,

explored the possibility of a causal relationship between participation in athletics and academic outcomes, as measured by ACT. Smith concluded that no significant interaction between participation in athletics and ACT scores existed. Findings of significant interaction in private school venues, once documented, provide support for additional research in both private and public schools.

CHAPTER III

METHODOLOGY

Improving the academic outcomes of students attending public schools garners the attention of parents, industry, and policy makers at both the state and national level. Legislation enacting accountability standards for public schools, along with the increasing popularity of private and charter schools has intensified the focus on public schools to provide a quality education for all students. The review of literature suggested that student engagement, beyond the realm of academics, suggests a possible association with enhanced academic outcomes (Fejgin, 1994; Lumpkin & Favor, 2012; Price, 2013; Whitley, 1999). Each of these researchers considered various academic indicators, however, student grades were considered in each study.

Grades, self-concept, educational aspiration and discipline referrals were school-related behaviors that Fejgin (1994) considered in her research. Using a longitudinal approach allowed her to control for these academic behaviors prior to students participating in high school athletics, thus permitting a cautious causal interpretation of the data. Fejgin found that students involved in school sports had higher grades, higher self-concept, greater educational aspirations, and fewer discipline referrals. Similar findings of higher achievement in academic indicators by athletes were reported in research conducted by Lumpkin and Favor (2012); however, in this study, the differences

in GPA's graduation rate, retention, and ACT scores between athletes and nonathletes were contributed to Whites more than other races.

Price (2013) also considered graduation rate, dropout rates, attendance, and grades; simply stated, he found athletes demonstrated greater achievement than nonathletes in every academic category. Whitley's (1999) research has become one of the more prominent studies conducted in North Carolina, including more than 285,000 students in grades 9-12 over three years. Whitley examined attendance, discipline referrals, dropout and graduation rates, as well as GPA, by race and gender. His analyses of the data found GPAs 22.66% higher for athletes compared to nonathletes, additionally, analyses of subgroups, race, and gender specifically, indicated higher GPAs for athletes compared to nonathletes of the same subgroup. Other relevant academic indicators such as attendance, discipline referrals, retention, and graduation rates were also included in his research. Data analyses revealed, nonathletes missed twice as many days per year as athletes, a higher discipline referral mean of 9.80%, and a dropout mean of 8.98% for nonathletes as compared to 0.70% for athletes. Each of these academic indicators factors into the overall success of students; however, this study focused primarily on GPA and ACT as academic indicators.

The purpose of this study was to explore the relationship, if any, between both male and female students, participation, and academic outcomes, as defined through GPA and ACT scores. The following hypotheses were designed to guide the researcher in the research process:

1. No significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in athletics

versus students with no athletic participation on academic performance as measured by GPA.

2. No significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in athletics versus students with no athletic participation on academic performance as measured by the ACT composite score.
3. No significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in music-based performing arts versus students with no music-based performing arts participation on academic performance as measured by GPA.
4. No significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in music-based performing arts versus students with no music-based performing arts participation on academic performance as measured by the ACT composite score.
5. No significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who did not participate in either athletics or music-based performing arts versus students who did participate in academic performance as measured by ACT composite score.

The following will provide information about the components of the study: research design, sample, instrumentation, data collection procedures, analytical methods, and limitations.

Research Design

A quantitative, causal-comparative strategy was used for this study. The researcher used a 2 x 2 factorial between-groups design to analyze each hypothesis. The use of a between-groups factorial design was selected as the study used two independent variables, gender and participation, with each variable possessing two levels (Leech, Barrett, & Morgan, 2015). For Hypotheses 1 and 2, the independent variables were gender (male versus female) and participation in athletics (participation versus nonparticipation). For Hypotheses 3 and 4, the independent variables were gender (male versus female) and participation versus no participation in music-based performing arts (defined as band and choir). The dependent variable for Hypotheses 1 and 3 was GPA, and the dependent variable for Hypotheses 2 and 4 was ACT composite score. For Hypothesis 5, the independent variables were gender (male versus female) and no participation in either athletics or music-based performing arts (defined as band and choir). The dependent variable for Hypothesis 5 was ACT composite score. Participation in athletics, band, and choir was defined as enrollment in two full academic years, or four semesters, as reflected on student transcripts for courses taken in grades 9-12.

Sample

Because the study used a causal-comparative strategy, the researcher selected a sample from the four accessible database populations of each participating school. For example, accessible populations for Hypothesis 1 included the following: Athletic Participating Males, Athletic Participating Females, Athletic Nonparticipating Males, and Athletic Nonparticipating Females. ACT scores and GPAs from 2016 graduates of four rural Northwest Arkansas high schools were included. Each student was assigned a final

GPA; however, since students are not required to take the ACT exam, only 70% of the 2016 graduates had documented ACT scores on their transcripts. Analysis of student transcripts revealed 127 students had the equivalent of two or more years of transcribed enrollment in athletic courses. Additionally, 97 students had the equivalent of two or more years of transcribed enrollment in music-based performing arts, transcribed as enrollment in band or choir courses. The researcher chose schools based on their similar enrollment, student demographics of ethnicity, and grade configuration.

Data displayed in Table 1, expressed in percentages, represents a total of 440 student records, 230 males and 210 females, and reveals the students' demographics by school. Grade level enrollment ranged from 90-140 students with selected schools all in school districts holding a 4-A classification, as assigned by the Arkansas Activities Association. A convenience sample of scores from the students was drawn using a stratified random selection process.

Table 1

Demographic Data

School	Gender		Race					
	Male	Female	American Indian	Asian	African American	Hispanic	White	2+
1	45%	55%	7%	9%	1%	9%	67%	7%
2	51%	49%	2%	2%	1%	2%	91%	2%
3	65%	35%	0%	7%	0%	8%	85%	0%
4	50%	50%	6%	0%	0%	1%	91%	2%

Instrumentation

Student transcripts for 2016 graduating students were collected, grouped, and analyzed by gender based on enrollment or participation in athletics and music-based performing arts, specifically band and choir. The focus of the analysis included gender, overall student GPA, and ACT composite scores, if available. A rounded averaging of the four subtests, English, mathematics, reading, and science, producing a score from 1-36, results in the ACT composite score. The English subtest assesses the students' ability in punctuation, grammar, rhetorical skills, and sentence structure through responses to 75 multiple choice questions over five separate reading passages in 45 minutes. A subtest score for mathematics, derived from 60 multiple-choice questions, assesses the students' basic mathematics and computation skills in 60 minutes. The reading test focuses on reading comprehension skills, assessing the students reading ability through a four-part 35-minute test using 40 multiple-choice questions. The fourth subtest included in the ACT addresses science and tests the students' ability to solve problems utilizing reasoning, analyzing, evaluating, and interpreting skills. The science subtest, comprised of 40 multiple-choice questions, is limited to 35 minutes (Farnen, 2016). Students aspiring to attend a college or university upon high school graduation are encouraged to begin testing during their junior year in high school.

Traditionally ACT exams have been administered on designated Saturday mornings, with some optional Sunday test dates established for those unable to attend a Saturday test administration for religious reasons (ACT, 2016). Recently, however, several states, including Arkansas, have administered the ACT during the traditional school day, adhering to the specific protocol required at national test administrations

(Arkansas Department of Education, 2016a). Personnel trained to comply with ACT testing policy and procedures administer the exam, requiring students to sit in pre-assigned seats and provide identification, which incorporates a personal photograph of the student, or an ACT Talent Search Student Identification Form (ACT, 2016).

Data Collection Procedures

Four high schools, comparative in size and demographics, in Northwest Arkansas participated in this study. In the fall of 2016, upon the completion and approval of the Institutional Review Board process, four Northwest Arkansas school districts were invited to participate in the study. District superintendents accepted the invitation and arranged for the photocopying of transcripts for each 2016 graduating senior, removing any identifiable information to avoid a breach of confidentiality. ACT scores were affixed to student transcripts which listed courses taken by name and school year. The student transcripts arrived within a week following the formal request for data. By collecting the data for this study in the fall of 2016, district employees had ample time to finalize transcripts for students graduating in the spring of 2016, complete the verification process, and assimilate the data. Requested data was either delivered to or picked up by the researcher. Once all transcripts were reviewed, the data were coded and entered into an Excel spreadsheet in preparation for analysis in *Statistical Package for the Social Science* software. Upon completion of data entry, student transcripts were stored in a secure location.

Analytical Methods

Upon receipt of the requested data, the researcher analyzed each transcript to determine length of enrollment in athletics, band, and choir, student's overall GPA, as

well as identifying the student's highest ACT composite score, for those who had more than one reported ACT score. To test Hypotheses 1 and 2, two 2 x 2 factorial ANOVAs were conducted using gender and athletic participation as the independent variables. The dependent variables were GPA and composite ACT, respectively, for students in Grade 12. To test Hypotheses 3 and 4, two 2 x 2 factorial ANOVAs were conducted using gender and participation in music-based performing arts (band and choir) as the independent variables. The dependent variables were GPA and composite ACT, respectively, for students in Grade 12. Hypotheses 5 was analyzed by a 2 x 2 factorial ANOVA using gender and no participation in athletics or music-based performing arts (band and choir) as independent variables to determine the effects of no participation versus participation in athletics or music-based performing arts (band and choir) as measured by the ACT composite score, the dependent variable, for students in Grade 12. To test the null hypotheses, the researcher used a two-tailed test with a .05 level of significance. A Bonferroni correction was also used because multiple comparisons were being employed (Morgan, Leech, Gloeckner, & Barrett, 2013).

Limitations

Some studies exploring the effect, or possible effect, of student engagement on academic outcomes, exist--each potentially affected by uncontrollable influences or limitations. Several limitations relating to this study emerged, categorized into three specific areas relating to demographics, data analyses, and academics. The purpose of a specific study guides the researcher's selection of demographic variables, some of which include socioeconomic status, age, race, ethnicity, gender, educational level, and geographic location. Four districts agreed to participate in this study, and while the study

did not use race or ethnicity as a variable, the demographic information disclosed indicated a lack of diversity with 83.6% of the participants as White. An additional limitation, relating to demographics, and potentially influencing the findings, is the geographic location of all four participating schools, each residing in a rural area of the state.

When testing a hypothesis, a large sample population allows the researcher to generalize about the topic at hand as the data is analyzed. Once the data were reviewed, limitations in the data analysis process existed. Pre-established parameters for the study defined classification of students as *participating* in athletics or music-based performing arts, as students that have a minimum of four semesters of transcribed enrollment in those classes. Filtering participating students from the data set, and then sorting by gender, further reduced the sample size, thus limiting the ability to generalize.

Finally, limitations in academic related issues surface when using GPA as an academic indicator, as long-running debates continue surrounding the degree of subjectivity incorporated in the assignment of student grades. Grade assignment varies in and across academic disciplines within school districts and stands to reason that the potential for grade deflation or inflation existed in the assignment of grades. These GPAs were used in this research.

Uncontrollable characteristics, influences, or design of a study potentially impact the outcome or interpretation of research. Although these limitations exist, the findings of this study provide both information for school districts faced with improving academic outcomes, amidst shrinking budgets, and a platform for further research.

CHAPTER IV

RESULTS

The purpose of this study was to determine any effects by gender of student participation in athletics or music-based performing arts on academic outcomes for students in Grade 12 of four rural Northwest Arkansas high schools, measured by GPA and ACT composite scores. A quantitative, nonexperimental study with five hypotheses was conducted. All five hypotheses were 2 x 2 between-group designs. Independent variables were participation and gender. The independent variable of participation defined in Hypothesis 1 and Hypothesis 2 was participation in two or more years of athletics. The independent variable of participation in Hypothesis 3 and Hypothesis 4 was participation in two or more years of music-based performing arts (defined as band and choir). The independent variable of participation in Hypothesis 5 was participation in either athletics and/or music-based performing arts. The dependent variable for Hypothesis 1 and Hypothesis 3 was GPA while the dependent variable for Hypothesis 2, Hypothesis 4, and Hypothesis 5 was ACT composite score. Prior to running the necessary statistical analysis, the appropriate assumptions of normality and homogeneity of variances were checked.

Analytical Methods

Data for the study were collected and coded for participation in athletics, music-based performing arts (band and choir), and gender. Using *IBM Statistical Packages for*

the Social Sciences Grad Pack 23, five hypotheses were analyzed. Each hypothesis was analyzed using 2 x 2 factorial ANOVAs, and assumptions of normality and homogeneity of variances were assessed prior to the statistical analysis. A separate sample was pulled for Hypothesis 5.

Demographics

The study used 440 students in Grade 12 from four rural Northwest Arkansas high schools in 2016. The gender breakdown of the sample population was 232 males and 208 females. The ethnicity of the population includes 83.6% White, 5.0% Hispanic, 4.3% Asian, 3.6% American Indian, Two or more races 2.9%, and 0.5% Black. No additional demographic data were collected.

Hypothesis 1

Hypothesis 1 stated that no significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in athletics versus students with no athletic participation on academic performance measured by GPA. The assumptions of homogeneity of variances and normal distribution and outliers of the dependent variable were checked. The Levene's test, $F(3, 123) = 3.19$, $p = .026$, indicates that the assumption of homogeneity of variances is violated. The skew and kurtosis values were within the 1.0 and -1.0 range. No outliers were present as demonstrated by a box and whisker plot. The Kolmogorov-Smirnov test was used to test for normality with $p < .05$ for each group, indicating that the data were not normally distributed across all groups. While some abnormalities exist with the data, the factorial ANOVA is quite robust to violations of normality (Leech et al., 2015). Table 2 displays the group means and standard deviations.

Table 2

Means, Standard Deviations, and n for GPA as a Function of Gender and Athletic Participation

Athletic Participation	Gender	<i>M</i>	<i>SD</i>	<i>n</i>
No Participation	Male	2.90	0.60	34
	Female	2.97	0.69	56
	Total	2.95	0.65	90
Yes Participation	Male	2.92	0.59	29
	Female	3.20	0.30	8
	Total	2.98	0.55	37
Total	Male	2.91	0.59	63
	Female	3.00	0.66	64

To test this hypothesis, a 2 x 2 Factorial ANOVA was conducted to evaluate the effects of athletic participation by gender on academic achievement as measured by GPA.

The results are displayed in Table 3.

Table 3

Factorial ANOVA Results from GPA 2016 Grade 12 Students as a Function of Gender and Athletic Participation

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>ES</i>
Athletic Participation	0.28	1	0.28	0.69	.407	0.006
Gender	0.61	1	0.61	1.53	.218	0.012
Athletic Part*Gender	0.21	1	0.21	0.53	.467	0.004
Error	49.08	123	0.39			

Insufficient evidence existed based on the interaction of the variables to reject the null hypotheses, $F(1, 23) = 0.53$, $p = .467$, partial $\eta^2 = 0.004$. Given there was no significant interaction between the variables of gender and athletic participation, the main effect of each variable was examined separately. The adjusted R squared of 0.011, demonstrated that the model explained 1.1% of the variance in GPA based upon gender and athletic participation. The main effect for gender was not significant, $F(1, 123) = 1.53$, $p = .218$, partial $\eta^2 = 0.012$. The main effect for athletic participation was not significant, $F(1, 123) = 0.69$, $p = .407$, partial $\eta^2 = 0.006$.

Hypothesis 2

Hypothesis 2 stated that no significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in athletics versus students with no athletic participation on academic performance as measured by the ACT composite score. The assumptions of homogeneity of variances

and normal distribution and outliers of the dependent variable were checked. The Levene's test, $F(3, 86) = 3.38, p = .022$, indicates that the assumption of homogeneity of variances was violated. The skew and kurtosis values were within the 1.0 and -1.0 range. The Kolmogorov-Smirnov test was used to test for normality with $p < .05$ for each group, indicating that the data were not normally distributed across all groups. While some abnormalities exist with the data, the factorial ANOVA is quite robust to violations of normality (Leech et al., 2015). Table 4 displays the group means and standard deviations.

Table 4

Means, Standard Deviations, and n for ACT as a Function of Gender and Athletic Participation

Athletic Participation	Gender	<i>M</i>	<i>SD</i>	<i>n</i>
No Participation	Male	19.67	6.01	21
	Female	21.46	4.23	39
	Total	20.83	4.95	60
Yes Participation	Male	20.22	5.00	23
	Female	19.71	2.22	7
	Total	20.10	4.48	30
Total	Male	19.95	5.45	44
	Female	21.20	4.03	46

To test this hypothesis, a 2 x 2 Factorial ANOVA was conducted to evaluate the effects of athletic participation by gender on academic achievement as measured by the ACT. The results are displayed in Table 5.

Table 5

Factorial ANOVA Results from the ACT Composite Score of 2016 Grade 12 Students as a Function of Gender and Athletic Participation

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>ES</i>
Athletic Participation	5.52	1	5.52	0.24	.626	0.003
Gender	6.43	1	6.43	0.28	.599	0.003
Athletic Part*Gender	20.34	1	20.34	0.88	.350	0.010
Error	1983.70	86	23.07			

Insufficient evidence existed based on the interaction of the variables to reject the null hypotheses, $F(1, 86) = 0.88, p = .350, \text{partial } \eta^2 = 0.010$. Given there was no significant interaction between the variables of gender and athletic participation, the main effect of each variable was examined separately. The adjusted *R* squared of 0.006, demonstrated that the model explained 0.6% of the variance in the ACT based upon gender and athletic participation. The main effect for gender was not significant, $F(1, 86) = 0.28, p = .599, \text{partial } \eta^2 = 0.003$. The main effect for athletic participation was not significant, $F(1, 86) = 0.24, p = .626, \text{partial } \eta^2 = 0.003$.

Hypothesis 3

Hypothesis 3 stated that no significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in music-based performing arts versus students with no music-based performing arts participation on academic performance as measured by GPA. The assumptions of homogeneity of variances and normal distribution and outliers of the dependent variable were checked. The Levene's test, $F(3, 123) = 0.67, p = .570$, indicates that the assumption of homogeneity of variances was not violated. The skew and kurtosis values were within the 1.0 and -1.0 range. The Kolmogorov-Smirnov test was used to test for normality with $p < .05$ for each group, indicating that the data were not normally distributed across all groups. While some abnormalities exist with the data, the factorial ANOVA is quite robust to violations of normality (Leech et al., 2015). Table 6 displays the group means and standard deviations.

Table 6

Means, Standard Deviations, and n for GPA as a Function of Gender and Music-Based Performing Arts Participation

Music-Based Participation	Gender	<i>M</i>	<i>SD</i>	<i>n</i>
No Participation	Male	2.93	0.60	53
	Female	2.95	0.69	45
	Total	2.94	0.64	98
Yes Participation	Male	2.80	0.56	10
	Female	3.14	0.58	19
	Total	3.02	0.59	29
Total	Male	2.91	0.59	63
	Female	3.01	0.66	64

To test this hypothesis, a 2 x 2 Factorial ANOVA was conducted to evaluate the effects of music-based performing arts participation by gender on academic achievement as measured by GPA. The results are displayed in Table 7.

Table 7

Factorial ANOVA Results from GPA 2016 Grade 12 Students as a Function of Gender and Music-Based Performing Arts Participation

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>ES</i>
Music-Based Part	0.02	1	0.02	0.05	.827	0.000
Gender	0.65	1	0.65	1.65	.202	0.013
Music Part*Gender	0.54	1	0.54	1.35	.247	0.011
Error	49.20	123	0.40			

Insufficient evidence existed based on the interaction of the variables to reject the null hypotheses, $F(1, 123) = 1.35$, $p = .247$, partial $\eta^2 = 0.011$. Given there was no significant interaction between the variables of gender and music-based performing arts participation, the main effect of each variable was examined separately. The adjusted R squared of $-.006$, demonstrated that the model explained -0.6% of the variance in GPA based upon gender and music-based performing arts participation. The main effect for gender was not significant, $F(1, 123) = 1.65$, $p = .202$, partial $\eta^2 = 0.013$. The main effect for music-based performing arts participation was not significant, $F(1, 123) = 0.05$, $p = .827$, partial $\eta^2 = 0.000$.

Hypothesis 4

Hypothesis 4 stated that no significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in music-based performing arts versus students with no music-based performing arts

participation on academic performance measured by the ACT composite score. The assumptions of homogeneity of variances and normal distribution and outliers of the dependent variable were checked. The Levene's test, $F(3, 86) = 3.50, p = .019$, indicates that the assumption of homogeneity of variances was violated. The skew and kurtosis values were within the 1.0 and -1.0 range. The Kolmogorov-Smirnov test was used to test for normality with $p < .05$ for each group, indicating that the data were not normally distributed across all groups. While some abnormalities exist with the data, the factorial ANOVA is quite robust to violations of normality (Leech et al., 2015). Table 8 displays the group means and standard deviations.

Table 8

Means, Standard Deviations, and n for ACT as a Function of Gender and Music-Based Performing Arts Participation

Music-Based Participation	Gender	<i>M</i>	<i>SD</i>	<i>N</i>
No Participation	Male	19.62	5.59	39
	Female	21.06	4.30	32
	Total	20.27	5.06	71
Yes Participation	Male	22.60	3.50	5
	Female	21.50	3.46	14
	Total	21.79	3.41	19
Total	Male	19.95	5.45	44
	Female	21.20	4.03	46

To test this hypothesis, a 2 x 2 Factorial ANOVA was conducted to evaluate the effects of music-based performing arts participation by gender on academic achievement as measured by the ACT. The results are displayed in Table 9.

Table 9

Factorial ANOVA Results from the ACT Composite Score of 2016 Grade 12 Students as a Function of Gender and Music-Based Performing Arts Participation

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>ES</i>
Music-Based Part	35.67	1	35.67	1.56	.215	0.018
Gender	0.37	1	0.37	0.02	.899	0.000
Music Part*Gender	19.76	1	19.76	0.87	.355	0.010
Error	1963.38	86	22.83			

Insufficient evidence existed based on the interaction of the variables to reject the null hypotheses, $F(1, 86) = 0.87, p = .355$, partial $\eta^2 = 0.010$. Given there was no significant interaction between the variables of gender and music participation, the main effect of each variable was examined separately. The adjusted R squared of .004, demonstrated that the model explained 0.4% of the variance in the ACT based upon gender and music-based performing arts participation. The main effect for gender was not significant, $F(1, 86) = 0.02, p = .899$, partial $\eta^2 = 0.000$. The main effect for music participation was not significant, $F(1, 86) = 1.56, p = .215$, partial $\eta^2 = 0.018$.

Hypothesis 5

Hypothesis 5 stated that no significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who did not participate in either athletics or music-based performing arts versus students who did participate in academic performance as measured by ACT composite score. A new variable for *participation* was created. The first category was students who participated in athletics, music, or both. The second category of the new variable was students who did not participate in music or athletics. The Levene's test, $F(3, 85) = 2.37, p = .076$, indicates that the assumption of homogeneity of variances was not violated. The skew and kurtosis values were within the 1.0 and -1.0 range. The Kolmogorov-Smirnov test was used to test for normality with $p < .05$ for each group, indicating that the data were normally distributed across all groups. While some abnormalities exist with the data, the factorial ANOVA is quite robust to violations of normality (Leech et al., 2015). Table 10 displays the group means and standard deviations.

Table 10

Means, Standard Deviations, and n for ACT as a Function of Gender and Athletic and/or Music-Based Participation

Athletic and/or Music-Based Participation	Gender	<i>M</i>	<i>SD</i>	<i>n</i>
No Participation	Male	18.76	6.21	17
	Female	21.42	4.59	26
	Total	20.37	5.38	43
Yes Participation	Male	20.79	4.93	33
	Female	19.46	2.85	13
	Total	20.41	4.45	46
Total	Male	20.10	5.42	50
	Female	20.77	4.16	39

To test this hypothesis, a 2 x 2 Factorial ANOVA was conducted to evaluate the effects of participation by gender on academic achievement as measured by the ACT.

The results are displayed in Table 11.

Table 11

Factorial ANOVA Results from the ACT of 2016 Grade 12 Students as a Function of Gender and Athletics and/or Music-Based Performing Arts Participation

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	<i>ES</i>
Athletic and/or Music-Based Participation	0.02	1	0.02	0.00	.978	0.000
Gender	8.68	1	8.68	0.37	.547	0.004
Any Part*Gender	77.64	1	77.64	3.27	.074	0.037
Error	2018.15	85	23.74			

Insufficient evidence existed based on the interaction of the variables to reject the null hypotheses, $F(1, 85) = 3.27$, $p = .074$, partial $\eta^2 = 0.037$. Given there was no significant interaction between the variables of gender and music participation, the main effect of each variable was examined separately. The adjusted R squared of 0.008, demonstrated that the model explained 0.8% of the variance in the ACT based upon gender and participation. The main effect for gender was not significant, $F(1, 85) = 0.37$, $p = .547$, partial $\eta^2 = 0.004$. The main effect for participation was not significant, $F(1, 85) = 0.00$, $p = .978$, partial $\eta^2 = 0.000$.

Summary

Five hypotheses were considered using data from four rural Arkansas high schools to determine if any effects by gender and student participation in athletics or music-based performing arts on academic outcomes as measured by GPA and ACT composite scores existed. There was no statistical interaction between the variables in

each hypothesis; thus, insufficient evidence existed to reject the null for all interaction hypotheses in the study. Next, the main effects were analyzed for each hypothesis. Again, no statistical significance for the main effects was found. The results are displayed in Table 12.

Table 12

Summary of Results for Hypotheses 1-5

H ₀	Results	<i>p</i>
1	No significant interaction or main effects for Gender and Athletic Participation on GPA	NS
2	No significant interaction or main effects for Gender and Athletic Participation on ACT Composite	NS
3	No significant interaction or main effects for Gender and Music-Based Performing Arts Participation on GPA	NS
4	No significant interaction or main effects for Gender and Music-Based Performing Arts Participation on ACT Composite	NS
5	No significant interaction or main effects for Gender and Athletic and/or Music-Based Performing Arts Participation on ACT Composite	NS

Small samples sizes for Hypothesis 1 and 2 for females participating in athletics existed. Males participation in music-based performing arts for Hypothesis 4 also had a sample size in the single digits, neither of which would be considered optimum sample sizes.

CHAPTER V

DISCUSSION

Legislation enacting accountability standards for public schools has intensified the need for optimum student achievement in academics as measured by state-mandated assessments. Student engagement, beyond the realm of academics, suggests a possible association with enhanced academic outcomes (Fejgin, 1994; Lumpkin & Favor, 2012; Price, 2013; Whitley, 1999). In pursuit of academic excellence, district school boards and administrators must carefully allocate the district's fiscal resources to maximize available funds. If student participation in athletics and music-based performing arts indicate a link to increased academic outcomes, then eliminating these programs to reduce budget concerns may not be the best choice. The purpose of this study was to explore the possible academic effects of student participation in athletics and music-based performing arts. Student participation was defined as enrollment in athletics and/or music-based performing arts for two or more academic years during Grades 9-12 in four rural Arkansas high schools. A quantitative, causal-comparative strategy was employed for this study utilizing student GPAs and ACT composite scores as academic achievement indicators.

This chapter reflects on each hypothesis and the results from the data collection and analysis conducted in this study. Possible implications and thoughts for discussion and reflection are presented for school officials' consideration as they review policy and

make decisions regarding extracurricular activities and budgetary concerns. Included also are recommendations for future studies intended to expand the body of knowledge related to the potential interaction between student participation and academic outcomes.

Conclusions

To address the five hypotheses presented in this study, a 2 x 2 between-group factorial ANOVA was used for each hypothesis. The independent variables were gender (male versus female) and participation. The dependent variable was academic achievement measured by either the student's overall GPA or ACT composite score. The independent variables in Hypothesis 1 and Hypothesis 2 were gender and participation in two or more academic years of athletics. The independent variables in Hypothesis 3 and Hypothesis 4 were gender and participation in two or more academic years of music-based performing arts (band and/or choir). The independent variables in Hypothesis 5 were gender and two or more academic years of participation in either athletics and/or music-based performing arts. The dependent variable for Hypothesis 1 and Hypothesis 3 was GPA while the dependent variable for Hypothesis 2, Hypothesis 4, and Hypothesis 5 was the ACT composite score. To test the null hypotheses, the researcher used a two-tailed test with a .05 level of significance. The following hypotheses were tested and used to determine conclusions.

Hypothesis 1

Hypothesis 1 stated that no significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in athletics versus students with no athletic participation on academic performance measured by GPA. There was no significant interaction between the variables of gender

and athletic participation as measured by GPA. With no significant interaction between the variables of gender and athletic participation, the main effect of each variable was examined separately. The main effect for athletic participation was not significant nor was the main effect for gender significant. Considering these results, there was not enough evidence to reject the null hypothesis stating that no significant difference will exist between gender and athletic participation as measured by GPA. While no significant interaction occurred, both males and females participating in athletics had higher average mean scores compared to nonparticipating males and females.

Hypothesis 2

Hypothesis 2 stated that no significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in athletics versus students with no athletic participation on academic performance as measured by the ACT composite score. There was no significant interaction between the variables of gender and athletic participation as measured by the ACT composite score. With no significant interaction between the variables of gender and athletic participation, the main effect of each variable was examined separately. The main effect for athletic participation was not significant nor was the main effect for gender significant. Considering these results, there was not enough evidence to reject the null hypothesis stating that no significant difference will exist between gender and athletic participation as measured by the ACT composite score. While no significant interaction occurred, males participating in athletics had higher average mean ACT composite scores than did nonparticipating males, and males participating in athletics had higher average mean

ACT composite scores than did females participating in athletics. However, nonparticipating females had the highest mean ACT composite score.

Hypothesis 3

Hypothesis 3 stated that no significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in music-based performing arts versus students with no music-based performing arts participation on academic performance as measured by GPA. There was no significant interaction between the variables of gender and participation in music-based performing arts as measured by GPA. With no significant interaction between the variables of gender and participation in music-based performing arts, the main effect of each variable was examined separately. The main effect for participation in music-based performing arts was not significant nor was the main effect for gender significant. Considering these results, there was not enough evidence to reject the null hypothesis stating that no significant difference will exist between gender and participation in music-based performing arts as measured by GPA. While no significant interaction occurred, females participating in music-based performing arts had higher average mean GPAs than did nonparticipating females, and females participating in music-based performing arts had higher average mean GPAs than males participating in music-based performing arts.

Hypothesis 4

Hypothesis 4 stated that no significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who participated in music-based performing arts versus students with no music-based performing arts participation on academic performance measured by the ACT composite score. There

was no significant interaction between the variables of gender and participation in music-based performing arts as measured by the ACT composite score. With no significant interaction between the variables of gender and participation in music-based performing arts, the main effect of each variable was examined separately. The main effect for participation in music-based performing arts was not significant nor was the main effect for gender significant. Considering these results, there was not enough evidence to reject the null hypothesis stating that no significant difference will exist between gender and participation in music-based performing arts as measured by the ACT composite score. While no significant interaction occurred, males participating in music-based performing arts had higher average mean ACT composite scores than did nonparticipating males, as well as higher average mean ACT composite scores than females both participating and nonparticipating in music-based performing arts.

Hypothesis 5

Hypothesis 5 stated that no significant difference will exist by gender between students in Grade 12 in four rural Northwest Arkansas high schools who did not participate in either athletics or music-based performing arts versus students who did participate on academic performance as measured by ACT composite score. There was no significant interaction between the variables of gender and participation in athletics and or music-based performing arts as measured by the ACT composite score. With no significant interaction between the variables of gender and participation in athletics and or music-based performing arts, the main effect of each variable was examined separately. The main effect of participation in athletics and/or music-based performing arts was not significant nor was the main effect for gender significant. Considering these

results, there was not enough evidence to reject the null hypothesis stating that no significant difference will exist by gender between students who did not participate in either athletics or music-based performing arts versus students who did participate on academic performance as measured by ACT composite score. While no significant interaction occurred, males participating in music-based performing arts had higher average mean ACT composite scores compared to participating females. However, nonparticipating females held the highest average mean ACT composite scores compared to males and participating females.

Implications

The results from this study foremost implied that GPAs and ACT composite scores by gender for selected students from four rural Northwest Arkansas high schools who participated in athletics or music-based performing arts for a minimum of two academic years during Grades 9-12 did not significantly differ from students by gender who did not participate in athletics or music-based performing arts. These findings are not consistent with several studies discussed in the review of literature which support an association between athletic participation and academic achievement. Broh (2002) concluded that participation in some sports improved academic achievement, and Fejgin (1994) found statistical significance between grades of students and involvement in high school sports. Kaufmann (2002) considered both GPA and ACT as academic indicators, finding a positive significant relationship between athletic participation and academic success. In addition to athletic participation, Jones (2010) considered participation in music, finding significantly higher GPAs and ACT means for participation in music. Participation in athletics, while not as great, did indicate higher ACT means of athletes.

Whitley (1999) examined multiple academic indicators: attendance, discipline referrals, dropout and graduation rates, as well as GPA, by race and gender. His analyses of the data found GPAs 22.66% higher for athletes than nonathletes. Other studies considering the positive impact of music on academic outcomes include Fitzpatrick (2014) with music students scoring an average of 31 points higher on SAT Reading, and 23 points higher on SAT Mathematics, while Miranda (2001) found significantly higher GPA, SAT and ACT of musicians over athletes. Miranda (2001), Klein (2011), and Smith (2015) conducted similar research in that the data for their studies came from private schools, unlike many of the studies cited in this research which utilized data from public schools. Smith (2015) conducted research considering the impact of athletic participation on academic achievement in private schools. Smith, while focusing on athletic participation found no significant interaction effects between gender and athletic participation as measured by ACT scores. Klein (2011), using GPA as an academic indicator, found a negative relationship in athletic participation and academic outcomes. As athletic participation increased, GPA of athletes was lower than GPA of students who did not participate in athletics.

In addition to participation in athletics and music-based performing arts, this study considered academic outcomes related to gender. Rees and Sabia (2010), Camp (1990), Lumpkin and Favor (2012), and Jones (2010) all found females earned higher GPAs than did males. When considering ACT results, Lumpkin and Favor (2012) had mixed results as females outperformed males in the Reading and English ACT subtests, and males scored higher than females on the Mathematics and Science ACT subtests. Jones (2010) found females earned higher mean ACT scores than did males when

participating in athletics, or both athletics and music. Males, however, when considering only music participation, had a higher mean ACT score than did females.

The results of this study varied from previous research, explored similar hypotheses, and incorporated similar variables yet demonstrated no statistically significant findings of interaction between variables. A similarity to other studies did exist in GPA mean averages of females participating in athletics and music-based performing arts with participating females exhibiting higher mean GPA than nonparticipating females. However, nonparticipating females in athletics and female nonparticipation combined (athletics and music-based performing arts) earned the highest ACT mean average. Administrators and school officials considering research findings when making fiscal and curricular decisions may place more value on data from the ACT, a nationally recognized exam than on GPA, acknowledged by some as being a subjective measure. No significant findings of interaction between variables in this study would indicate that real differences exist between participating in athletics or music-based performing arts and academic performance as indicated by GPA and ACT composite scores. Results, attributed by gender, also indicated no real difference in academic performance between males and females.

These results indicate not only above-average GPAs but also very little difference in the sample groups, all performing well. Administrators and teachers, committed to closing the achievement gap between males and females in these schools, appear to be making gains. Similar mean scores in all groups, whether participating or not in athletics and music-based performing arts, indicate a solid academic opportunity for all students. Teachers are concerned with educating all children, not only those seen as high achievers.

Finally, enhanced preparation for post-secondary education for all students during Grades K-12 produces a larger pool of college-ready students to meet the needs for continued economic growth within this region of the state. A well-educated workforce promotes economic growth and provides opportunity for an enhanced quality of life for all.

ACT composite mean scores of the samples ranged from 18.76 for the category of males participating in neither athletics or music-based performing arts to an ACT composite mean score of 22.60 for males participating in music-based performing arts. Again, small sample sizes existed for these classifications as not all students participating in athletics or music-based performing arts had documented ACT scores. ACT mean scores within the random sampling revealed nonparticipating students scoring 0.73 points higher than those who participated in athletics. Participation in music-based performing arts yielded the largest discrepancy as nonparticipating students included in the sample scored 1.52 points lower than those who participated in music-based performing arts.

Students included in this study performed slightly above the 2016 ACT composite average for Arkansas. While there is room for improvement, the expectation for increased academic outcomes continues as the Northwest Arkansas region is home to the number one Fortune 500 company (Bahou, 2016). The forecasted continued economic growth has prompted a regional and state-led initiative to prepare students for the workforce through increased STEM (science, technology English, mathematics) related studies (Arkansas Economic Development Commission, 2017). This is another reason for studies such as these to aid school officials in curricular decision making.

Potential for Practice/Policy

This study was initiated to explore academic outcomes related to participation in athletics or music-based performing arts in rural Northwest Arkansas. As accountability standards and concerns regarding the quality of public education heighten, public school officials work to maximize resources and increase academic outcomes. Data gathered in this study aides the researcher in providing school administrators an unbiased and impartial perspective for consideration when addressing the allocation of funds for academics and extracurricular activities. Three items relevant to this study and worthy of consideration are student participation, gender results, and academic indicators, all generating debate among many in the educational community.

The opportunity for students to participate in extracurricular activities has, for some districts, strengthened not only the school but also the community, especially in rural areas where the school is the community. Parent and community involvement increases as evening sports events and concerts provide a gathering place for all. Data indicating academic benefits to including extracurricular activities such as athletics, band, and choir in the curriculum provides justification for the continuation of these programs, even in times of waning resources. Opponents of these activities contend that costs associated with providing these opportunities, uniforms, equipment, travel, and staff, are egregious and that funds allocated for these programs could be better utilized. Additional concerns arise related to the amount of time outside the school day that is allocated to programs such as these.

A second item addressed in this study worthy of examination focuses on academic results categorized by gender. ACT and GPA data indicating strengths and weaknesses in

male and female academic outcomes provides a platform to discuss alternatives to the current curriculum and delivery methods while entertaining options for school officials to adjust or expand the curriculum to address the academic disparity acknowledged by gender in the data. Despite varying positions on gender-specific education, results from this study and others are worthy of consideration as educators strive to improve academic outcomes.

Finally, this study provides academic data from GPA and ACT exams taken by students from four Northwest Arkansas high schools. The inclusion of GPA and ACT data in this study was based on the use of these academic indicators in state accountability formulas. In Arkansas, as well as many other states, eligibility criteria exist and are based on the students' GPA (Arkansas Activities Association, 2014; Camp, 1990), requiring students to maintain a minimum GPA to participate in extracurricular activities. If this requirement is a motivational factor among high school students, school officials could advocate for extracurricular activities such as sports, band, and choir to remain embedded in the curriculum to enhance student engagement. This study incorporated only GPA and ACT data. Other academic indicators such as dropout rate, graduation rate, attendance, and discipline referrals are addressed in the research discussed in the literature review, providing additional factors for school officials to consider. Using only academic performance precludes consideration of the possible impact of participation in athletics or music-based performing arts on other indicators related to academic outcomes such as attendance, discipline referrals, and dropout rates. If student interest in participating in extracurricular programs encourages attendance, then students will also be present for curriculum instruction, suggesting opportunity for

increased knowledge and possibly elevated GPA and ACT exam scores. Expanding the acquisition of data types provides an opportunity to explore the possible impact of student participation beyond the classroom.

Recommendations

Future Research Considerations

The results from this study indicate no significant difference in GPA and ACT composite scores for selected students from four rural Northwest Arkansas high schools who participated in athletics or music-based performing arts versus students who did not participate in athletics or music-based performing arts. Additionally, no interaction between the variables of gender and participation existed. Upon review of existing literature and data analysis of this study, the researcher recommends the following for future research to expand on this study:

1. An increase in sample size and inclusion of demographic data to contain ethnicity and economic status of students.
2. An expanded geographical area beyond one region of one state.
3. A longitudinal study to more fully examine academic indicators over time.
4. Incorporate both rural and urban schools with varying enrollment size.
5. An expanded data collection to include additional academic indicators such as graduation rate, dropout rate, attendance, and discipline referral.
6. Expansion of participation opportunities beyond athletics, band, and choir.
7. To examine student motivation in relation to eligibility guidelines of required GPA.

8. To examine if eligibility guidelines are damaging to overall student achievement through exclusion.
9. To explore self-selection by higher performing students into extracurricular activities.

Education is essential for students to successfully compete in the global marketplace. Pressure continues to mount for public school officials to enhance educational outcomes and to do so with limited resources. Studies investigating the interaction between academic outcomes and variables such as participation in sports and music-based performing arts provide data to aid educators in program development, revision, and continuation. These studies warrant review prior to the elimination of programs which perhaps have the potential to enhance academic outcomes. To improve the global ranking of the United States' education system, research must continue, providing data analysis to assist in educational advancement at the local and state level.

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APPENDIX



Status of Request for Exemption from IRB Review

(For Board Use Only)

Date: 11/30/16

Proposal Number: 2016-156

Title of Project: Effects of Participation in Athletics and Music Based Performing Arts by Gender on Academic Performance

Principal Investigator(s) and Co-Investigator(s): Judy Winslett jwinslet@harding.edu

- Research exempted from IRB review.
 - Research requires IRB review.
 - More information is needed before a determination can be made. (See attachment.)
-

I have reviewed the proposal referenced above and have rendered the decision noted above. This study has been found to fall under the following exemption(s):

- 1 2 3 4 5 6

In the event that, after this exemption is granted, this research proposal is changed, it may require a review by the full IRB. In such case, a **Request for Amendment to Approved Research** form must be completed and submitted.

This exemption is granted for one year from the date of this letter. Renewals will need to be reviewed and granted before expiration.

The IRB reserves the right to observe, review and evaluate this study and its procedures during the course of the study.

A handwritten signature in cursive script that reads "Rebecca O. Weaver".

Chair
Harding University Institutional Review Board