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Interscholastic Sports, Academic Performance, and Attendance of
Middle School Student Athletes and Nonathletes

A dissertation

presented to

the faculty of the Department of Educational Leadership and Policy Analysis

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Doctor of Education in Educational Leadership

by

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December 2011

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Keywords: Middle School, Interscholastic Sports, Attendance, Math End-of-Grade Testing,
Reading End-of-Grade Testing

ABSTRACT

Interscholastic Sports, Academic Performance, and Attendance of Middle School Student Athletes and Nonathletes

by

Kenneth Huey Samuelson

The purpose of this study was to determine if student athletes were more successful in school than nonathletes at 2 middle schools located in the same school district in Western North Carolina. Each school serves students in grades 6-8; however, data were only gathered from students in grades 7 and 8 because students in grade 6 are prohibited from participating in athletics at the middle school level. The testing variables included number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses. Grouping variables were students in the same cohort with data obtained from 7th grade during the 2009-2010 school year, followed by data obtained from 8th grade during the 2010-2011 school year. Results were analyzed from School A, School B, and Schools A and B combined. Independent samples t-tests were used to make comparisons between student athletes and nonathletes for each of the variables. Based on the findings of this study, middle school students involved in interscholastic sports missed fewer days of school than students who were not involved in athletics. Differences were found in End-of-Grade Math and Reading percentile scores between student athletes and nonathletes in School B. Students who participated in athletics tended to earn higher End-of-Grade percentile scores. No significant differences were found for the same assessments in the

other middle school. Data from both schools combined have found no significant difference in Reading End-of-Grade percentile scores; however, students who participated in athletics tended to have a higher percentile scored on Math End-of-Grade exams than student nonathletes. School B had significant differences in student outcomes in final grades for both math and reading courses with the student athletes earning a higher grade. School A did not have a significant difference in final grades for math courses but did have a significant difference in final grades for reading courses with student athletes earning a higher grade. Data from both schools combined found a significant difference between student athletes and nonathletes in final grades for math and reading courses. Student athletes tended to have a higher grade in each subject when compared to nonathletes.

DEDICATION

This dissertation is dedicated to the people who have believed in me even when I did not believe in myself. First of all I would like to dedicate this to my loving, beautiful, and supportive wife Monet. Monet has been a driving force behind my educational endeavors since the day I met her back in our undergraduate studies. Many times along the way I wanted to take what I thought would be the “easy way” out of things and quit. Her encouragement and confidence in me has brought me to this place in my academic studies.

Two other driving forces in my life are my daughters, Isabella and Callie. Since they have blessed my life, the thoughts of giving up have never crossed my mind. I am hoping that one day they will be able to see that no matter what obstacles in life they cross they can overcome them.

I would also like to remember my great-aunt Mae Marsden. She was there in my childhood when no one else was. Her passion and dedication to do the best at whatever she was doing planted a seed of hope in the midst of chaos.

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Throughout my academic career I have had many educators who have made a positive impact in my life and I am ever grateful to all of my teachers from elementary school to my doctoral studies.

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CHAPTER 1

INTRODUCTION

The educational system in America has experienced extreme funding cuts from federal, state, and local sources. Educational leaders have been forced to ask what programs can or cannot be cut. Interscholastic sports are a program that is often considered for elimination in order to reduce cost of educating middle school students (Alexander, 2011; Bouchard, 2010; Hetman 2011; McKinney & Zash, 2011). Rosewater (2009) reported, “High-quality organized sports are a gateway to academic achievement, better grades, improved chances of attending college, and success in the labor market—and these benefits are especially important to low-income families” (p. 50). As Rosewater states, interscholastic sports have been credited to contribute to success in the academic environment. Stephens and Schaben (2002) stated, “Participation in athletics build discipline, set goals, organize time, and develop self-confidence. Athletes who transfer these skills to their academics are greeted with success” (p. 38).

The effects of interscholastic sports on the middle school level student are lacking scientific based evidence. Phillips and Schafer (1971) found:

1. Athletes generally receive slightly better grades and are more likely to aspire to and attain more education than comparable nonathletes. This is especially marked among athletes from blue-collar homes.
2. There is some evidence to indicate that athletes are less likely than nonathletes to become delinquent. What we do not know is where this relationship is, due to selection factors or due to some deterrent effect on athletic participation.
3. Athletes from blue-collar backgrounds are more likely to be upwardly mobile than nonathletes. This can be explained to a great extent by their greater educational attainment, but other factors such as sponsorship and association may also bear mobility. (p. 331)

The effect of interscholastic sports on the middle school student has been an area of debate since the development of the middle school movement (McEwin, 1981). McEwin stated, “Regardless of the personal feelings about the controversy, all aspects of the issue should be carefully

examined by those responsible for making these decisions which so profoundly affect the welfare of these youth” (p. 4). Cuts made to any program affect the life of a young adolescent student and need to be made with careful consideration.

Budget cuts have been implemented on a daily basis in modern education. Zash (2011) stated that in the 2011 fiscal year budget passed by the North Carolina General Assembly budget cuts have been made in several programs, including:

- Preschool/More at Four
- Textbooks
- Allotments for janitorial staff, clerical staff, central office personnel
- Community and state funded colleges
- Juvenile justice
- On top of overall named budget cuts, schools are required to cut funds totaling 124 million with local discretion

School districts across the country, including those in North Carolina, have been faced with tremendous budget cuts. School officials have been asked to cut programs that are outlined in the state budget and in areas that are not specified by the North Carolina General Assembly. Wilson (2011) stated, “The Charlotte-Mecklenburg school board will consider eliminating middle school athletics for the 2011-12 school year to generate savings that will help save the high school athletics program” (para. 2). With the need to support areas that directly enhance the learning environment through the provision of academic services to students, middle school athletics are often considered expendable in nature. Some school leaders have questioned whether interscholastic sports are beneficial at the middle school level (Miller, 2011). Stephens and Schaben stated:

“When budget cuts threaten the existence of interscholastic sports programs, administrators, counselors, teachers, parents and students can negotiate or even diminish the effects of such proposed cuts with data indicating the academic benefits of such programs to underscore their necessity.” (p. 39)

Statement of the Problem

Many educational leaders have been put in the position of having to determine whether interscholastic sports at the middle school level hinders or enhances student academic achievement. Previous studies at the high school and collegiate level found that participation in sports teams positively affects students' performance resulting in athletes having higher GPAs than those who do not participate on sports teams (Ayers, 2008). Previous research focused on high school or college athletes. Additional research needs to be conducted on the effects of participation in interscholastic sports on middle school student behavior and academic performance. The purpose of this study was to determine if student athletes were more successful in school than nonathletes at two schools located in the same school district in Western North Carolina. A student was considered successful in school if he or she passed all of his or her classes, had a passing score on the North Carolina End-Of-Grade Tests, and attended school on a regular basis.

Research Questions

Three research questions were used to guide this study to determine the impact of interscholastic sports on student achievement.

1. Are there significant differences in each of the following five measures (number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School A?

2. Are there significant differences in each of the following five measures (number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School B?
3. Are there significant differences in each of the following five measures (number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in a combined total for School A and School B?

Significance of the Study

Research on the effect of interscholastic sports on middle school academics is limited. Previous studies have focused on the collegiate and high school levels and not on early adolescent athletes (Pearson, Crissey, & Riegle-Crumb, 2009). Elite (2005) found the association between student outcomes and participation in school sports was related to the student participant. This study was used to examine the impact of participation in interscholastic sports on student performance in reading and math courses, Reading and Math End-of-Grade tests, and attendance rates for middle school students. Results of this study can provide information to educational leaders who are seeking guidance on the decision to continue financially supporting interscholastic sports at the middle school level.

Definition of Terms

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

Absences: Number of days the student is not present in school.

End of Grade Testing: Designed to measure student performance on the goals, objectives, and grade-level competencies specified in the *North Carolina Standard Course of Study* (North Carolina Department of Public Instruction Accountability Services, 2005).

Interscholastic Sports: Any school sponsored sporting event that holds competition (North Carolina Department of Public Instruction Curriculum and School Reform Services, 2005).

Middle School: A school for students in the 6th, 7th, and 8th grades.

Student Athlete: Any student who participates in or is involved in a school-sponsored sports team (the teams include: baseball, basketball, cheerleading, football, golf, soccer, softball, track, volleyball, and wrestling).

Student Success: A student who passes his or her classes, had a passing score on the North Carolina End-Of-Grade Tests, and attends school on a regular basis.

Limitations and Delimitations of the Study

A limitation of this study is that it included only one school system in western North Carolina; however, the school system has two middle schools. Another limitation is that although students have a choice of participating in interscholastic sports, they have to meet academic and attendance requirements therefore causing student athletes to achieve a set standard to participate (North Carolina Department of Public Instruction Curriculum and School Reform Services, 2005). Data from this study may be skewed due to this standard because

students who do not meet the attendance and the academic requirements are not allowed to participate.

Overview of the Study

This research study is composed of five chapters. Chapter 1 consists of the statement of the problem, research questions, significance of the study, definition of terms, limitations and delimitations of the study, and an overview of the study. Chapter 2 includes a review of literature of the education of young adolescent students as well as the impact of interscholastic sports on this education. Chapter 3 provides a description of the methodology, research questions and null-hypotheses, instrumentation, population, data collection, and summary. Chapter 4 reports collected data. Chapter 5 presents the implications of the study and recommendations for further research.

CHAPTER 2

LITERATURE REVIEW

School sponsored sports have been an area of debate since drastic funding cuts have taken place in the American educational system (Gardner, 2011; Mede, 2011; Shea, 2011; Vilona 2011). Parents, teachers, and school personnel have struggled to find the funds for interscholastic sports at the middle school level (Cavanagh, 2009; Hu, 2008; Wilson, 2011). Hartmann (2008) found that students who participated in sports “perform better academically than their non-athletic peers” (p. 5). This finding supports the argument that continuing to fund interscholastic sports has academic benefits. In contrast, nonsupporters of scholastic sports often say that schools are wasting finances that could be used to support academic courses (Sailer, 2007; Zirin, 2010).

In the field of education there have been cutbacks. These cutbacks include funding reductions from the federal, state, and local governments. School administrators have been forced to discontinue nonessential programs (Hackett, 2010; Solocheck, 2011). These budget cuts have been necessary to ensure that funding is available in order to provide students with the education they will need to compete in the 21st Century.

Studies have been conducted on the effects of sports in education on the high school and postsecondary levels, although at this time data from the middle school level is lacking (Din, 2006; Hartmann, 2008; Sitkowski, 2008). The number of studies on the effects of sports at the middle school level is limited; therefore, school administrators do not have enough research on which to rely in order to make choices about keeping or disbanding public funded sports at the 7th and 8th grade levels. McEwin and Dickinson (1998) stated, “The proper role of

interscholastic sports for young adolescents has been an intensely debated topic for several decades, and it remains as much an issue as ever” (p. 52).

The purpose of this literature review was to research the impact of participation in middle school athletics on the academic success of 7th and 8th grade students. The literature review was focused on the needs of adolescent learners, history of middle school education, impact of interscholastic sports on student academics, and factors that threaten the continuation of middle school sports in some school districts across America.

The Adolescent Learner

The adolescent learner is unique and requires attention. Jackson and Davis (2002) referred to early adolescence as being a “fascinating period of rapid physical, intellectual, and social change. It is a time when young people experience puberty - when growth and development is more rapid than any other developmental stage except infancy” (p. 6). Early adolescent learners are facing changes that they do not understand nor know how to handle. Schurr, Thomason, Thompson, and Lounsbury (1995) stated:

Middle school students are neither elementary nor secondary students; they are members of a unique tier of education. These ten to fourteen-year-olds have their own set of developmental characteristics and needs that must be recognized and addressed. The more genuine knowledge we have about middle grade learners, the better the chances are that our decision will result in success... (p. 1)

The early adolescent learner is in an ever-changing environment both physically and emotionally. Steinberg (2011) stated, “Adolescents can be mature one moment and frustratingly immature the next. The nature of brain development helps explain why” (p. 42). In addition to the emotional and physical changes of the adolescent learner, the world is evolving as well. Students within today’s society also have to develop skills that were once not part of everyday

life and school curriculums. The adolescent learner also has to learn 21st Century Skills that include the use of technology that is ever-changing and evolving (Spencer & Toy, n.d.).

The adolescent learner is in continuous development and change. Schurr et al. (1995) stated:

Young adolescents have concerns that include: understanding personal changes, developing a personal identity, finding a place in the group, personal fitness, social status, dealing with adults, peer conflict and gangs, commercial pressures, questioning authority, personal friendships and living in the school. (p. 130)

As adolescent learners are trying to figure out who they are as individuals they are also consistently trying to fit in with their peers. The brain in the adolescent learner is physically changing and developing. Steinberg (2011) stressed, “It’s important that, as educators, we provide adolescents with opportunities to practice things like planning, anticipating the consequences of a decision, and regulating their own behavior” (p. 46). As the brain is developing educators need to have the young adolescents practice in planning, experiencing consequences, and monitoring their actions for proper development. Steinberg also stated, “Assignments that require teenagers to think ahead, make a plan, and carry it out may stimulate the maturation of brain systems that enable more mature self-regulation” (p. 46). As early adolescents develop these skills, with guidance they will be able to handle more stressful situations in their lives. Wormeli (2011) stated, “If we learn to handle issues constructively during these formative years, ages 10-15, we tend to respond positively to challenges in the future” (p. 49).

Middle school is a time of development for students. Students start to learn who they are and who they want to become in the future. The typical middle school student may want to be treated like a child one moment and treated like an adult the next moment. The perception of the middle school experience will cause a chain reaction within the life of a student. Wormeli (2011)

stated, “Robert Balfanz, a principal research scientist at Johns Hopkins University, presents compelling evidence that the middle school experience has direct correlation with graduation rates” (p. 48). When students have a positive middle school experience, they are more likely to obtain their high school diploma. In order to better the chances for students to have positive early adolescent educational experience educators need to assist the students with finding out who they are as individuals and help them to develop their own personal interests. Students need an environment in which they are able to explore and develop their own individual interests.

Wormeli (2001) suggested we use the following to capture student interests:

- Express Interest in Knowing and Being with Your Students
- Create an Emotionally Safe Environment
- Use Stories
- Offer Vivid Lessons
- Express Enthusiasm for Your Subject
- Build Suspense
- Meet Learning Needs
- Maintain Momentum
- Communicate Goals Clearly
- Use Games
- Use Authentic Learning and Assessment
- Use Frequent and Formative Feedback
- Use PQRS to Motivate Reading
- Provide Background
- Use Cooperative Learning Strategies
- Use the Boom Box
- Let Students Use Their Bodies. (pp. 7-18)

Education of early adolescent students is continuously evolving to meet the needs of students. The current movement in middle schools in education is Project Based Learning (Greenwich Public Schools, 2011). According to the Buck Institute for Education, Project Based learning is (2011):

Project Based Learning (PBL) is an inquiry based process for teaching and learning. In PBL, students focus on a complex question or problem, then answer the question or solve the problem through a collaborative process of investigation over an extended period of

time. Projects often are used to investigate authentic issues and topics found outside of school. During the inquiry process, students learn content, information, and facts necessary to draw conclusions about the question. Students also learn valuable skills and habits of mind during the process. (para. 1)

Project Based Learning corresponds with the middle school philosophy in education and has been embraced by school systems as a tool to be used by teachers in all grade levels. Middle school education is continuing to evolve, improving the educational experiences for students. Along with Project Based Learning, educators have learned how to enhance the classroom by using technology with the use of Smart Boards, interactive question and answer systems, presentation programs (PowerPoint), use of email, FaceBook, and other blogging type websites (Spencer & Toy, n.d.).

The middle school years are a pivotal time for students. Students are trying to understand and develop who they are as individuals (Wormeli, 2001). Educators and parents need to be able to realize the emotional and physical needs of young adolescent learners. It is a pivotal time in their development. As their needs change, their educational opportunities must change as well in order to meet those needs.

History of Middle School Education

The education of the adolescent learner has evolved over the years and is in constant change (Mayer, 2011). Throughout the years early adolescent learners have been grouped with elementary schools in the K-8 model, on their own as middle schools or junior high schools, and even with high schools (Lockoff & Lockwood, 2010; Thompson & Homestead, 2004). In mainstream public education two primary ways of grouping young adolescent learners are junior high schools and middle schools.

A movement that changed the education of the young adolescent learner as stated by George, Stevenson, Thomason, and Bean (1992), “The Committee of Ten recommended, in

1892, that the secondary school program should begin two grades earlier, with six years of elementary and six years of secondary education” (p. 3). This concept solved the problem of an uneven division in the educational system at the time. The division led to the concept of the educational system that embraced high school (grades 10-12) and junior high school (grades 7-9). According to George et al., “The junior high school would provide the final portion of general education and offer a transition to the high school years” (p. 3). The main emphasis of the junior high school was to provide the content knowledge needed for a student to be successful in high school.

As junior high schools were established the educational community noticed that students in early adolescence were not as dedicated to their studies as older students. Hansen and Hearn (1971) stated, “Children of this age have a real desire to participate, to belong, to do things which may be related to but are not directly labeled school work” (p. 21). Many students find interests that are outside of the typical curriculum of the educational system. Hansen and Hearn also stated, “A satisfactory middle school program needs more than classrooms; it should have facilities for art, music, science, industrial arts, homemaking, and physical education” (p. 21). These findings assisted in the paradigm shift of the middle school movement in the American educational system (Thompson & Homestead, 2004). Thoughts of being focused on content rapidly shifted to thoughts that were more student centered in nature (Schurr et al., 1995). Teachers were becoming tools and gateways of educational knowledge and not the focal point of the educational process. Schools across America were transformed from common junior high schools to middle schools. Some teachers learned and used Gardner’s Multiple Intelligences in their classrooms to embrace student interest in the subjects they were teaching. The practice of being focused on content for middle grades instruction started to dwindle, and development of

the student became the primary focus of middle school education. Thompson and Homestead (2004) stated, “The middle school philosophy embraces the notion of exploration—the idea that young adolescents should spend a part of the day in elective courses in which they can discover and explore various topics” (p. 4).

When one is looking at the development of the education of the young adolescent, one needs to see the concrete changes that have taken place with the development of middle schools versus junior high schools. Bondi (1972) compared and contrasted middle schools and junior high schools by classifying areas of primary emphasis. This study provided insight that showed both school models may display similar attributes on the outside; however, the education provided on the inside of the building deemed the establishment as either a middle school or junior high.

MIDDLE SCHOOL EMPHASIZES

- a child-centered program
- learning how to learn
- creative exploration
- belief in oneself
- student self-direct, under expert guidance
- student responsibility for learning
- student independence
- flexible scheduling
- student planning in scheduling
- variable group sizes
- team teaching
- a self-pacing approach, with students learning at different rates

JUNIOR HIGH SCHOOL EMPHASIZES

- a subject-centered program
- learning a body of information
- mastery of concepts and skills
- competition with others
- adherence to the teacher-made lesson plan
- teacher responsibility for student learning
- teacher control
- the six-period day
- the principal-made schedule
- standard classrooms
- one teacher for a class
- a textbook approach, with all students on the same page at the same time. (p. 13)

One can see by this comparison that the goals of educating early adolescents in middle school are much different from the educational goals found in junior high school. As schools transitioned from junior high schools to middle schools, the teacher and student relationship has

changed. This structural change in education held the teacher responsible as being the giver of knowledge, imparting such wisdom to the student. In education today the teacher's new role is that of a facilitator of the educational process, with students taking an active role in their own education. Classrooms are no longer set up in straight lines where students sit quietly while the teacher lectures. A master teacher at the middle school level embraces group work, and the students are very much active within the educational process (Cambourne, 2006; Jackson & Davis, 2000).

The role of middle school teachers often requires them to become the advisors and the students are the advisees (Thompson & Homestead, 2004). Effective teachers have to have the ability to become open to talk to their students within the middle school concept. Teachers now have to show they are real people to their students who have struggled, prospered, and even failed. Students need to see that even with failure there is a chance of learning and growth. Teachers open up to their students in their home rooms also known as Teacher Advisory Groups.

Across the 30 year history of middle schools teachers have taken it upon themselves to build advising into their teaching. They serve as advocates for, as well as role models and advisors to, their students. We believe that middle school teachers, because of their interest in the age level, will individually continue to do their best to guide students, whether formal advisement activities are established or not...Middle school students need safe environments where students can discuss issues and concerns while receiving feedback from trusted adults. (Thompson & Homestead, 2004, p. 60)

A true middle school model cannot be determined simply by looking at the name of the facility. Bondi (1972) stated, "A successful middle school depends more upon faculties than upon facilities, more on people than upon the purpose" (p. 9). It is not how a building looks or what type of courses that are taught within a middle school, rather it is all about how the teachers, students, administrators, parents, and guardians react and act with each other. A successful middle school should be able to use a student's interests to entice the student to

become interested in learning. A functioning middle school is filled with art, drama, music, sports, and cooperative learning groups (Schurr, Thomason, & Thompson, 1995).

Interscholastic Sports and Academics

Interscholastic sports as defined in Chapter 1 are any school sanctioned sporting activities for students enrolled 7th through 12th grade. The relationship of interscholastic sports and academics is an area of great interest to parents, educators, and those who financially support education (McEwin & Dickinson, 1998; Tredeau & Shepherd, 2008). Stephens and Schaben (2002) stated, “The relationship between academic achievement and participation in interscholastic sports at the middle schools, high schools, and colleges is of interest to principals and college administrators.” (p. 34). Students, educators, coaching staff, and administrators have all considered the effects of interscholastic sports on education. Studies have been conducted on the relationship between interscholastic sports and academic performance of high school student athletes (Dobosz & Beaty, 1999; Gorman, 2010; Hoff, 2006) and at the college level (Lawrence, 2008; London, 2002; Maloney & McCormic, 1993).

Factors that contribute to the development of students also play a major role in the educational process. Coaches of athletic teams are just as valuable to the educational system as teachers (Emma, 2009). Interscholastic sports have been viewed by some as a vital part of education. Yin and Moore (2004) stated, “Interscholastic sports, a major component of extracurricular school activity, are traditionally viewed as an integral component of America’s comprehensive educational system that contribute to physical, social, intellectual and psychological development of participants” (p. 1448). Educators, parents, and students credit much success in the academic realm of education to participation in interscholastic sports. Yin and Moore (2004) also found that “Such claims have been questioned in recent decades, with

some school officials even suggesting that physical education and athletic programs consume resources that could be better spent” (p. 1448).

The impacts of interscholastic sports on the young adolescent learner are not supported by research. McEwin and Dickinson (1998) stated, “The proper role of interscholastic sports for young adolescents has been an intensely debated topic for several decades, and it remains as emotional an issue today as ever” (p. 52). Most members of a learning community have a very emotional attachment to the topic of interscholastic sports and how these sports affect the educational process and the system in general. The emotional attachment to this topic is usually very strong, whether one believes that interscholastic sports are positive or negative. It is hard to find a member of the learning community who is well rounded in the support for academics and interscholastic sports.

The North Carolina Middle/High School Athletic Manual begins with the following:

Interscholastic athletics have a vital place in the total educational program when they are effectively planned, organized, administered, supervised, and evaluated. Through school athletics, many of the interests and needs of young people can be served better than through any other channel. For this reason, it is important that school administrators, teachers, students, parents, and community personnel determine what educational objectives seem most desirable and plan athletic programs in keeping with the overall purposes of the school program. (p. 1)

The importance of interscholastic sports in public education is included in the opening statement of the North Carolina Middle/High School Athletic Association Manual and calls attention for each individual learning community to seek out the pros and cons of interscholastic sports within their local school system. The role of interscholastic sports cannot be limited simply to the impact on education in general, but must also include the impact on each individual student’s education. The organization calls for interscholastic sports to be well structured in order to reach maximum benefits for the individual athletes and school systems. The North Carolina

Middle/High School Athletic Association views athletics as a supplement to support the concept that educational attainment is the most important reason for a student to attend school.

The effects of interscholastic sports on education can be viewed as both positive and negative depending on what research has been read or what particular bias one may hold.

Benefits of Interscholastic Sports

Over the years the term dumb jock has been used by many educators, parents, and students (Arkansas Athletic Association, 2010; Carter, 2010; Potter 2011; Whitley, 1999). This term is a derogatory stereotype against interscholastic or collegiate athletes. Hartmann (2008) stated, “In contrast to prevailing ‘dumb-jock’ stereotypes, kids who play sports tend to perform better in school than kids who don’t” (pp. 3-4). Hartmann also found this stereotype to be incorrect in many other cases. The dumb jocks actually performed better in academic classes and assessments than students who did not participate in interscholastic sports. Stephens and Schaben (2002) stated, “Both male and female athletes had significantly higher GPAs than nonathletes of the same sex” (p. 37). This observation was made after the mean GPAs of the students were compared. Stephens and Schaben also stated, “Participation in athletics can help students build discipline, set goals, organize time, and develop self-confidences. Athletes who transfer these skills to their academics are greeted with success in their lives beyond the playing field and in their everyday lives when faced with challenges” (p. 38). The interscholastic athletes in the study were found to have on average higher GPAs than those who did not participate in interscholastic sports. Fox, Barr-Anderson, Neumar-Sztainer, and Wall (2010) stated:

For high school girls, both physical activity and sports team participation were each independently associated with a higher GPA. For high school boys, only sports team participation was independently associated with a higher GPA. For middle school students, the positive association between physical activity and GPA could not be separated from the relationship between sports team participation and a higher GPA.

Conclusion: Regardless of whether academic success was related to the physical activity itself or to participation on a sports team, findings indicated positive associations between physical activity involvement and academic achievement among students. (p. 31)

The concrete reasons why an interscholastic sports participant excels in academics is unknown. Stephens and Schaben (2002) concluded, “The reason athletes excel in the classroom, at this point, does not seem important. The fact remains that students involved in curricular activities, especially interscholastic sports, perform better than those who are not involved” (p. 39). The authors also encourage students who do not participate in interscholastic sports to participate in other activities. “Although not every student will be a stellar athlete, numerous studies linking academic success to cocurricular participation indicate that educators should encourage students to be involved in interscholastic sports, intramurals, or other cocurricular activities” (p.39). The benefits from being a part of a team will benefit all students who are actively involved in cocurricular activities.

Some of the benefits of interscholastic sports are very hard to measure because many of the benefits are intangible and remain unforeseen on a daily basis (Rosewater, 2009). Some individuals simply assume what is and is not impacted by participation in interscholastic sports. In the state of North Carolina students are required to have a certain level of academic achievement in order to participate in interscholastic sports. This requirement results in the student athlete being held to higher academic standards on and off the playing field when compared to the classroom expectations of students who do not participate in sporting activities (North Carolina Department of Public Instruction Accountability Services, 2005). Trudeau and Shepherd (2008) found, “Physical activity has positive influences on concentration, memory, and classroom behavior” (p. 1). Students who participate in interscholastic sports have more

opportunities to release energy outside of the classroom rather than limiting the release within the classroom setting and therefore possibly disrupting academic progress.

Many students, parents, guardians, and educators have a belief that student athletes achieve at a greater level in all aspects of their individual education even beyond the classroom (Phillips & Schafer, 1971; Tucker, 2010). These other areas of achievement may include, but are not limited to, greater development of socialization skills, a healthy level of competitiveness, and greater development of personal leadership skills. It is believed that student participation in an interscholastic sporting team assists in fostering an environment that allows students to work beyond the educational skills that are required of them in math, language arts, social studies, and science. The skills that are learned on the playing field foster leadership and team building skills off the field as well. This additional opportunity afforded by athletic involvement allows a student to grow beyond what he or she may have had a chance to do in the educational classroom setting alone. McEwin (1981) stated the following as potential benefits for students participating in interscholastic sports at the middle school level:

Proponents of interscholastic sports for levels below senior high school believe many benefits are derived from participation in varsity-type sports activities: Among the most common claims are the following:

- One of the best ways to learn to meet problems and overcome obstacles in life is through competing with others on the athletic field.
- Competitive sports allow individuals to live up to their potential and become leaders.
- Sports are fun, offer opportunities to make friends, and offer additional play activities.
- Early training may lead to awarding of college scholarships.
- Sports stress physical fitness.
- Good sportsmanship is learned.
- Competitive sports will be played anyway; therefore, the school should sponsor and control programs.
- Sports programs help prevent delinquency.
- Competitive sports build school spirit.

- Competitive sports pay their own way and sometimes help finance other sports. (p. 5)

The benefits of interscholastic sports do not only take place at the middle school level. As McEwin found, the potential benefits for middle school student participation in sports may apply and are similar to the students that have been conducted on the collegiate athlete. A study conducted by Despres, Brady, and McGowan (2008) stated that:

Some of the most frequently promoted benefits of athletics include supporting the educational mission of the host institution; promoting the physical, social, and mental welfare of the student; enhancing the reputation and visibility of the university; and fostering alumni support and campus spirit. (p. 200)

In support of interscholastic sports The University of Texas at Austin stated (2009), “For the Spring 2009 semester, 235 student-athletes at The University of Texas at Austin-more than 60 percent-earned a 3.0 grade-point average (GPA) or better, and 36 student-athletes earned perfect 4.0 GPAs” (para. 1-3). It is believed that collegiate level sports will not only enhance a student’s education but also the educational institution as a whole (Getz & Siegfried, 2010; Voinis, 2009). This notion serves as a possible reason for many schools to continue their support in funding interscholastic sports teams.

The benefits of interscholastic sports go beyond the classroom and playing field, entering all aspects of life. Lumpkin and Stokowski (2011) stated:

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

Students who participate in school sponsored sports are given the opportunity to learn and to grow in many different ways when they are exposed to sports by a coach who is willing to foster

skills that apply to the student's life (Intrator & Siegel, 2008). Using these life skills supports the concept of interscholastic sports as being beneficial to both the athlete and society. A team or group of individuals are able to benefit as a whole when a coach is able to teach athletes that playing sports is not all about winning, rather, that playing sports is about being an individual who is part of something bigger. Intrator and Siegel found, "Seemingly, a powerful connection between sports involvement, academic achievement, and psychological development could exist but it is not a result of "mere exposure" or no purposeful involvement alluded to by many over the years" (p. 22). Student involvement in interscholastic sporting programs does not necessarily mean the student is going to have greater academic achievement or automatic success in life. The participation needs to go beyond the surface, applying to the athlete's academics and life in general. Academic achievement will increase when the athlete applies the skills he or she is learning in athletic participation to everyday life. Jefferies (1999) stated:

For years we've espoused the educational value of athletics--the development of teamwork, sportsmanship, cooperation, competition, work ethic, and more. Supporting our anecdotal perceptions, a recent PBS special entitled: Get in the Game, reported, "the evidence of supporting sports participation is over whelming...It has the power to combat everything from racism, to low self-image, to the high school dropout rate...athletes make higher grades, get into less trouble, graduate at a higher rate, dropout less often, and have higher GPAs than nonathletes. And for girls, the Woman's Sports Foundation observed that female athletes were 92% less likely to be involved in drugs, 80% less likely to get pregnant, and three times more likely to graduate from high school. (p. 7)

Interscholastic sports involvement contributes to students living a healthier lifestyle that does not include drug and alcohol abuse. Rosewater (2008) stated, "High-quality organized sports are a gateway to academic achievement, better grades, improved chances of attending college, and success in the labor market—and these benefits are especially important for low-income youth" (p. 50). Interscholastic athletes have a greater chance to develop and hone the skills they need to maintain a job and support a family.

Proverbs 22:6 (King James Version) states, “Train up a child in the way he should go: and when he is old, he will not depart from it.” When students participate in interscholastic sports they are provided with a greater number of opportunities to develop the skills they need.

Negative Effects of Interscholastic Sports

The role of middle school sports has been questioned by research. Ward (2008) presented data that showed “inverse relationships between presented budgets for athletics and proficiency scores, implying that shifting the budget toward athletics might detract from the educational goal of providing students with basic skills” (p. 568). It is a common perception that other programs have to suffer when it comes to providing funding for athletics. The study conducted by Ward examined the effects of athletic funding on the school as a whole, particularly focusing on the other school based programs that suffered as a result of the sports funding. It is a common belief in the opposition of interscholastic sports that academics fail due to lack of funding, with sports given top priority in provisions (Bishop, 2008; Cloakley, 2003). For example, some schools have been appropriated funds for synthetic sports fields while teachers in the very same system are losing their jobs due to lack of funding. Cheerleading, a sport often overlooked by mainstream educators, typically affects a smaller number of students. Roberts (2007) states, “For the sum of a million dollars, the National Federation endorsed a national high school cheerleading championship” (p. 280). This allocation of funds prompted the general public to question the use on such a small group of individuals when many more could have benefited from it in the academic setting.

Another example of funding being used for athletics instead of academics was presented by Zirin (2010). Zirin found that students at the University of California at Berkeley “are facing a 32% tuition hike, while the school pays football coach Jeff Tedford 2.8 million dollars a year”

(para. 4). The perception is that these students who are paying for an education are losing out on educational opportunities because the football coach is receiving such a high salary. Zirin also pointed out the school made renovations to the stadium at the cost of \$400 million. Schools across the nation from middle school to college depend on their sports teams to bring in revenue to support programs, yet when the teams are losing the revenue drops and students suffer at the cost of the sports department. Supporters of academics argue that the funds designated to the sporting teams should be given directly to academics. Some perceive the goal of the educational system is lost when interscholastic sports are funded and academics are not. Ward (2008) stated:

There are at least two implications from these findings. First, the positive association reported with individual level does not transfer to district level. Although empirical studies suggest that individuals might accrue academic benefits from their participation, this study has found that school districts do not receive similar benefits. Thus, athletics might fail to support academic goals at the organizational level. (p. 574)

The educational system as a whole is affected by interscholastic sports. Roberts (2007) stated, “It is extraordinarily difficult, if not impossible, to avoid doing harm to the primary mission of schools when the stakes of extracurricular athletic competition are raised” (p. 280). Too many times in education the school day is disrupted for interscholastic sporting events. As Roberts stated they were meant to be extracurricular, hence they should take place outside of the typical school day. The individual results of participation in interscholastic sports do not transfer to the whole picture that the educational system has set for the educational goals of students.

A research study conducted by Coe, Pivarnick, Womack, Reeves, and Malina (2006) found the following:

...improved academic performance was associated with vigorous activity obtained outside of school in the present study. The findings suggest that a potential role may exist for vigorous activity in physical education classes. Although students did not perform better academically during the semester they were enrolled in physical education, the results indicate that they did not show a decrease in academic achievement compared with students who received an extra hour of academic instruction per day. (p. 1519)

The research suggested that interscholastic sports have no influence on academics because there was no significant difference in academic performance between the semester in which the students had some form of physical activity and the semester in which there was no physical activity (Coe et al., 2006). The findings were based on physical education and not interscholastic sports, but it can be assumed that the same effects would take place if the study was conducted with students who did and did not participate in interscholastic sports. The findings of this study raise questions as to the positive effects of interscholastic sports in middle schools across the educational system of the United States.

The purpose of interscholastic sports has also changed drastically over the years. Davis (2009) stated:

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

Davis also found that changes in interscholastic sports have caused a conflict when examining the effect on student athletes. There are times in which participation in interscholastic sports can cause a student to be less successful in school because the student is missing out on valuable instruction or is distracted by games and practices. Davis (2009) stated, "Instead of feeling compelled to relate the traditional ideals of athletics, coaches now feel compelled to produce results above all else" (p. 129). Gone are the days of teaching values to students through interscholastic sports. The coaches are now driven to win games, tournaments, and titles. Sports that were once beneficial are now a hindrance and impediment, not only to the educational success of a student, but also to the success of the individual in life beyond the classroom.

Leaders within the sporting community have also questioned the possible benefits of participation in interscholastic sports. King (2008), an athletic director at the college level, recalled during an interview the effect of interscholastic sports from some of his students:

- Sports specialization at an early age limits children's ability to learn to play a variety of sports for fun and excludes, at a young age, those who are not "good enough" to compete.
- Parents are at every game and sometimes even at practice sessions, creating unwanted pressure on both children and the coaches. This phenomenon shifts the purpose of the game from fun and learning to winning. This game becomes the parents', not the child's.
- Sports being so organized that the ability to develop creativity is greatly reduced. Kids aren't learning some of the problem-solving and creativity that comes with free play.
- All consuming desire of student-athletes, coupled with pressure from parents, to get an athletic scholarship only to find out that sports at that level is a business. For many, the results are unfulfilled dreams and disappointment. (para. 3)

According to King (2008) students across the nation have a notion that being a competitor in interscholastic sports will be beneficial to the point that the student expects to go to college and compete on a level that would afford to them a scholarship, developing into a professional athlete. In reality interscholastic sports have the potential to cause students to have dreams and ambitions that are often unobtainable. Operation Outward Reach (2010) states:

Children and teenagers have unrealistic expectations about their chances of getting a further education or a career through sports. Maybe one out of fifty kids who play sports in high school get a scholarship into college. Maybe one out of a hundred college ball players get drafted. If your high school had five thousand kids in it, and every one of them played sports, one would play professionally. (para. 3)

Parents, teachers, and student athletes need to realize potential hazards of interscholastic sports for the student. The goal of the educational system is not to foster professional athletes, it is to foster students who will be contributing members of society.

The emphasis of interscholastic sports has been a major stumbling block for some students. Wharton (2004) found, "More children are repeating a grade in school to gain an edge

in athletics. Experts worry about fairness and skewed priorities” (para. 1). Parents, students, and coaches are so pressed to win and produce award winning interscholastic sports teams that they are willing to retain a student in order to have a winning team or even provide greater chances of scholarships in the future. This emphasis on sports has on occasion led to coaches’ encouraging teachers to change students’ grades. Beem (2006) recounted:

Grier discovered some coaches in that school were consistently fielding ineligible athletes on teams that then went on to compete in statewide tournaments. Coaches had asked teachers to change students’ grades and attendance records to cover up the infractions. (p.10)

The students’ education was compromised, along with the professionalism of the coach and teachers, in order to meet the demands of a winning interscholastic sports team.

The changes in the interscholastic sports system have hurt many students due to the overwhelming demands that are involved in current athletic programs. McEwin (1981) stated that interscholastic sports participation can cause damage for middle school students by:

1. Emotional Damage: Children are not miniature adults or “little pros” and should not be treated as such for sports benefits that are not automatic...The pressures of being associated with “making the team” or playing under the expectations of peers, parents, coaches and others...may cause permanent emotional damage.
2. The Pressure to Win: Overemphasis on winning interferes with the school’s physical education program for all children and existing sports programs are often designed to please parents and other spectators...72 percent of the children pooled said they would rather play regularly on a losing team than sit on the bench of a winning one.
3. The Burn Out Theory: Individuals involved in athletic programs in their early years may tire of these activities before they reach an age where their full potential can be realized.
4. Fan and Parent Behavior: Many accounts of detrimental parent and spectator behavior have been documented by the media. Potentially positive aspects of highly competitive sports have been documented by the media.
5. Coach Behavior: The middle and junior high school have been described as a training ground for coaches. Coaches may accept positions in order to obtain more training hoping to be promoted to the senior high coaching staff.
6. Diminished Opportunities For All: Inadequate financial support of middle and junior high school teams leaves players with inferior equipment, inadequate

physical examinations, poor in-game care, poor officials, poor fields, and inept coaching.

7. The Star System: ...monetary and human resources are expended on a small percentage of the elite while the general school population suffers. The overlooked often include females who are not afforded a fair share of the resources. (pp. 5-13)

Factors Threatening Sports in Middle School Education

The debate on the effects of middle school interscholastic sports on education continues across the country. The controversy is causing student athletes and supporters to worry that interscholastic sports will eventually cease to exist. The greatest threat to interscholastic sports at the middle school level is funding. Wilson (2011) stated, "Middle school athletics are on the chopping block as Charlotte Mecklenburg Schools continue to look for ways to cope with a big budget gap for next school year". To ward off the cutting of interscholastic sports Cavanagh (2009) stated:

To save money-and spare individual sports from outright elimination-some districts are raising student fees, a common strategy when the economy and school budgets go south. Others are cutting back the number of games and events which in turn reduces travel and other expenses. (p. 6)

Another issue many school systems have faced is that students and their families are facing the same financial difficulties at home. Payne (1996) found that 16.3% of all students are in poverty. Many school systems are raising student fees to overcome the lack of funding for interscholastic sports. This deters some students from participation in interscholastic sports because they are unable to pay the student participation fees.

The keyword to success in interscholastic sports is organization. According to the North Carolina Department of Public Instruction Curriculum and School Reform Services (2005) a sports program that is unorganized has the potential to hurt an athlete's academic achievement level. A functioning middle school sports program is not going to have a positive effect on a

student's life if the proper time and effort is not put into the program. The students and coaching staff need to be able to go beyond relating the training the athlete is receiving to playing the sport on the playing field. The athlete should take this instruction and apply it to everyday life.

The interaction between the coach and team can also hinder a student's education. A coach who focuses on the sport, and not also on academics, can negatively impact a student's education. The coach can cause the student to become unfocused in academics by pulling the athlete out of class, thus causing crucial support for the athletic department by the teaching staff to cease. When the focus of a sports team is on interscholastic sports and not on academics as well, school officials may decide to cut the athletic program all together (Gurney & Weber, 2008).

Summary

A definitive answer as to the impacts of interscholastic sports on the education of student athletes has yet to be determined. This literature review addressed the needs of young adolescent learners, defined the middle school concept, and examined the evolution of the junior high school to the middle school. The middle school movement has changed and modified how adolescents are educated. This literature review also examined how, and if, interscholastic sports have affected student athletes' academic performance. The literature presented both positive and negative impacts of interscholastic sports on student success.

CHAPTER 3

METHODOLOGY

Middle schools across America are facing budget cuts from state, federal, and local funds. Due to the loss of educational funds leaders are being forced to examine the impact of interscholastic sports at the middle school level on student achievement in academics and attendance. Leaders cannot make an informed decision about keeping sports, or saving money by eliminating them, without research based information regarding the impact of interscholastic sports on student success. This chapter identifies the research design, participants of the study, data collection procedures, research questions, and null hypotheses along with methods used to analyze the collected data.

For this study a nonexperimental design has been used. A comparative study has been implemented to determine how interscholastic sports are related to students' grades in reading and math, performance on Reading and Math End-of-Grade Tests, and attendance. According to McMillan and Schumacher (2010) a comparative design is one in which "the researcher investigates whether there are differences between two or more groups on the phenomena being studied. As with descriptive designs, there is no intervention" (p. 22). The main objective of this study was to compare success between students who participate in interscholastic sports and success of students who do not participate in interscholastic sports at the middle school level.

Research Questions and Null Hypotheses

The study analyzed three research questions to determine the impact of interscholastic sports on student achievement.

1. Are there significant differences in each of the following five measures (number of days absent from school, percentile score on Math End-of-Grade tests,

percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School A?

H_{O1}₁: There is no significant difference between number of days absent from school between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School A.

H_{O1}₂: There is no significant difference between percentile score on Math End-of-Grade tests between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School A.

H_{O1}₃: There is no significant difference between percentile score on Reading End-of-Grade tests between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School A.

H_{O1}₄: There is no significant difference between final grades in math courses between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School A.

H_{O1}₅: There is no significant difference between final grades in reading courses between middle school students who participate in interscholastic sports and

middle school students who do not participate in interscholastic sports in School A.

2. Are there significant differences in each of the following five measures (number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School B?

H₀₂₁: There is no significant difference between number of days absent from school between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School B.

H₀₂₂: There is no significant difference between percentile score on Math End-of-Grade tests between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School B.

H₀₂₃: There is no significant difference between percentile score on Reading End-of-Grade tests between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School B.

H₀₂₄: There is no significant difference between final grades in math courses between middle school students who participate in interscholastic sports and

middle school students who do not participate in interscholastic sports in School B.

H₀₂₅: There is no significant difference between final grades in reading courses between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School B.

3. Are there significant differences in each of the following five measures (number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in a combined total for School A and School B?

H₀₃₁: There is no significant difference between number of days absent from school between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in a combined total for School A and School B.

H₀₃₂: There is no significant difference between percentile score on Math End-of-Grade tests between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in a combined total for School A and School B.

H₀₃₃: There is no significant difference between percentile score on Reading End-of-Grade tests between middle school students who participate in

interscholastic sports and middle school students who do not participate in interscholastic sports in a combined total for School A and School B.

H₀₃₄: There is no significant difference between final grades in math courses between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in a combined total for School A and School B.

H₀₃₅: There is no significant difference between final grades in reading courses between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in a combined total for School A and School B.

Population

The selected population for this study included the 2010-2011 8th grade classes from two middle schools located in the same school district in the rural mountains of Western North Carolina. This school district had a population of 2,128 students. The two schools were traditional middle schools with 6th, 7th, and 8th grades. The school system was composed of six elementary schools, two middle schools, and one high school (Current Enrollment, 2011). Every elementary and middle school within the school system received Title One funding for Economically Disadvantaged Students. The high school was the only school within the county that did not receive Title One funds.

The data were collected from the two middle schools within this county in Western North Carolina. Students who were researched for this study completed 8th grade during the 2010-2011 school year. The two middle schools offered interscholastic sports to 7th and 8th grade students.

The data collected have been analyzed as School A and School B, along with a whole group analysis, for the student athletes compared to student nonathletes.

The two middle schools were organized using the middle school concept of teaming. School A had a four-person team. Courses taught by the team were communication skills, math, science, and social studies. Students rotated among these teachers all year for the four courses. The students went off team two periods a day for electives (Ward, 2011). School B had a three-person team. The students were taught year long in communication skills and math. The students were taught science and social studies each for one semester per academic school year. The students rotated between the three classes throughout the school day. The students went off team for two periods a day for elective classes (Bentley, 2011).

Students at both schools have been provided the option to take on-line courses via North Carolina Virtual Public School to earn high school or general elective credit. The students at both middle schools also had the opportunity to take English 1 and Integrated Math 1, both of which are also high school courses.

Both of the middle schools included in this study offer interscholastic sports to 7th and 8th grade students (Bentley, 2011; Ward, 2011). Interscholastic sports offered at both middle schools were basketball, softball, baseball, track, golf, cheerleading, wrestling, soccer, volleyball, and football.

Student athletes in North Carolina are held to an academic standard. According the North Carolina Department of Instruction Curriculum and School Reform Services (2005), “In grades seven and eight, the student must pass at least one less course than the number of required core courses each semester” (p. 3). Most sports were offered for both male and female students. Each school had teams for baseball, softball, football, cheerleading, track and field, and

volleyball. The two schools joined together to form wrestling, golf, and soccer teams (Bentley, 2011; Ward, 2011). For the purpose of this study any student who participated in an interscholastic sport for any period of time is considered a student athlete.

North Carolina regulations prohibit 6th grade students from participating in interscholastic sports (North Carolina Department of Public Instruction Curriculum and School Reform Services, 2005). Any athletic participation at the 6th grade level takes place outside of the school and is not sponsored by the school system. There are no interscholastic sports in the 6th grade and no data were provided for the students during their 6th grade year of middle school. The two cohorts of students examined in this study have had the opportunity to participate in interscholastic sports during the 2009-2010 and 2010-2011 school years. For the purpose of this study student data included attendance, End of Grade Test scores in math and reading, along with final grades in the reading and math. The schools in this study have been labeled as School A and School B.

School A

The mission of School A's learning community is that "All students will acquire the necessary skills for a productive life through rigorous curriculum, relevant instruction, and supportive relationships with students, teachers, staff, parents, and community" (Ward, 2011, para. 1). This statement stresses that the goal of the school was to instill a broad range of knowledge to each student so that the student would have the skills necessary to be competitive in the 21st century. The vision of the school was to become a model for rural school systems across America (Ward, 2011, para. 1). The principal of School A states the school provides:

"...many sports for our students to broaden their middle school experience. Our school instills the ideas of sportsmanship and integrity in the spirit of athletics. Our program has a wide range of different sports to reach more of our student athletes." (Ward, 2011, para. 1)

During the 2010-2011 school year this school consisted of 99 students in the 8th grade and 310 students in the entire school. Each student was required to take communication skills or language arts, math (either pre-algebra or Integrated Math I), social studies, and science along with four electives, two per semester.

School B

The mission statement of School B is, “Our school, through supportive relationships and rigorous, relevant curriculum, will prepare every student to transition to and succeed in high school and beyond (Bentley, 2011, para. 1). The vision of the school is “Our school will be an exemplary and progressive middle school” (para. 1). School B also has a mission for athletics that emphasizes the importance of physical activity and structured team sports for young adolescents. “Middle School is a place to develop skills and sportsmanship. We encourage all students to get involved in athletics” (para. 2).

During the 2010-2011 school year School B consisted of 68 students in 8th grade and a total of 199 students in the entire school. Every 8th grade student in this school was required to take math and communication skills or language arts all year. Science and social studies were offered as semester-long courses. The students were also required to take four electives, two per semester.

Data Collection

The superintendent of schools and the Institutional Review Board of East Tennessee State University granted permission to collect data and conduct this study. Attendance, student grades in math and reading, and End-of-Grade test scores in math and reading for all students who completed 8th grade during the 2010- 2011 school year were included in this study. The data source for attendance, grades, and End-of-Grade test scores came from the school system’s

director of accountability and data management system. The athletic directors of School A and School B were contacted to receive rosters for students who participated in school sponsored sporting activities during the 2009-2010 and 2010-2011 school years.

The design of this study was set up as a whole group analysis and not as an individual analysis of students. Individual student identity has remained confidential. The identity of the school system was not included in the study and it was labeled as a system in Western North Carolina with School A and School B. This description can fit more than one system in Western North Carolina.

Data Analysis

Data collected for this study were analyzed using significance testing. Independent t-tests were used to analyze outcomes for student athletes and nonathletes in math and reading grades, End-Of-Grade testing in math and reading, and attendance. The results answered the research questions and null hypotheses on the significant difference between participants in interscholastic sports and nonparticipants. For the purpose of this study schools A and B were compared along with the whole group population. *Statistical Package for the Social Sciences for Windows* was used to calculate the data.

Summary

Chapter 3 includes methodology of this study which is composed of research and null hypotheses, population, data collection, and data analysis. This chapter is the foundation for the data collection and data analysis in Chapter 4. Chapter 4 provides data interpretation and recognizes significant differences. Chapter 5 provides suggestions for future research.

CHAPTER 4

ANALYSIS OF THE DATA

The purpose of this study was to determine if student athletes were more successful in school than nonathletes at two middle schools located in the same school district in Western North Carolina. Student success was determined by the number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses. Two middle schools identified as School A and School B serving grades 6-8 were selected for this study. The two middle schools were located in a rural setting with similar student populations. Data were only collected about the same set of students who were enrolled in grade 7 during the 2009-2010 school year and then in grade 8 during the 2010-2011 school year. No data are included for the group of students from grade 6 as they are not permitted to participate in interscholastic sports in North Carolina until grade 7.

In this chapter data were presented and analyzed to answer three research questions and 15 null hypotheses. Data were collected about students who participated in interscholastic sports and about students who did not participate in interscholastic sports. Five data measures for both groups of students were analyzed: days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses. Data were retrieved from the local school system's director of accountability, student data management system, and directors of athletics.

Analysis of Research Questions

Research Question 1: Are there significant differences in each of the following five measures (number of days absent from school, percentile score on Math End-of-Grade tests,

percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School A?

H₀₁: There is no significant difference between number of days absent from school between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School A.

An independent-samples t test was conducted to evaluate whether the mean number of days absent from school differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The number of days absent was the test variable and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was significant, $t(182) = 2.298, p = .023$. Therefore, the null hypothesis was rejected. Students who participated in interscholastic sports ($M = 8.93, SD = 6.87$) tended to miss fewer days of school than students who did not participate in interscholastic sports ($M = 11.50, SD = 7.73$). The 95% confidence interval for the difference in means was .36 to 4.78. The η^2 index was .03, which indicated a small effect size. Students who did not participate in interscholastic sports tended to miss more days of school than students who did participate in interscholastic sports.

H₀₂: There is no significant difference between percentile score on Math End-of-Grade tests between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School A.

An independent-samples t test was conducted to evaluate whether the mean percentile scores of Math End-of-Grade tests differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports.

The percentile score on the Math End-of-Grade tests was the test variable and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was not significant, $t(171) = 1.48, p = .14$. Therefore, the null hypothesis was retained. The η^2 index was .01, which indicated a small effect size. Students who participated in interscholastic sports ($M = 63.99, SD = 26.22$) tended to score about the same as those who did not participate in interscholastic sports ($M = 57.90, SD = 27.14$). The 95% confidence interval for the difference in means was -2.04 to 14.22.

H₀₁₃: There is no significant difference between percentile score on Reading End-of-Grade tests between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School A.

An independent-samples t test was conducted to evaluate whether the mean percentile scores of Reading End-of-Grade tests differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The percentile score on the Reading End-of-Grade tests was the test variable, and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was not significant, $t(167) = .31, p = .76$. Therefore, the null hypothesis was retained. The η^2 index was <.01, which indicated an extremely small effect size. Students who participated in interscholastic sports ($M = 62.27, SD = 26.97$) tended to score about the same as those who did not participate in interscholastic sports ($M = 60.92, SD = 28.87$). The 95% confidence interval for the difference in means was -7.31 to 10.01.

H₀₁₄: There is no significant difference between final grades in math courses between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School A.

An independent-samples *t* test was conducted to evaluate whether the mean final grade in math courses differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The final grades in math courses were the test variable and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was not significant, $t(169) = 1.45$, $p = .15$. Therefore, the null hypothesis was retained. The η^2 index was .01, which indicated a small effect size. Students participated in interscholastic sports ($M = 90.26$, $SD = 8.33$) tended to score about the same as those who did not participate in interscholastic sports ($M = 88.03$, $SD = 10.81$). The 95% confidence interval for the difference in means was -.81 to 5.27.

H₀₁₅: There is no significant difference between final grades in reading courses between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School A.

An independent-samples *t* test was conducted to evaluate whether the mean final grade in reading courses differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The final grades in reading courses were the test variable, and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was significant, $t(172) = 2.53$, $p = .01$. Therefore, the null hypothesis was rejected. Students who participated in interscholastic sports ($M = 89.77$, $SD = 7.68$) tended to have a higher final grade in reading than students who did not participate in interscholastic sports ($M = 86.09$, $SD = 10.48$). The 95% confidence interval for the difference in means was .81 to 6.56. The η^2 index was .04, which indicated a small effect size. Students who did not participate in interscholastic sports tended to have a lower final grade in reading than students who did participate in interscholastic sports.

The means and standard deviations of the five variables (number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participated in interscholastic sports and middle school students who did not participate in interscholastic sports in School A are shown in Table 1.

Table 1

Means and Standard Deviations of Five Measures Between Middle School Students Who Participated in Interscholastic Sports and Middle School Students Who Did Not Participate in Interscholastic Sports in School A

	Student Athletes (Student Nonathletes)			
<i>Variable</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>p</i>
Days Absent	72 (112)	8.93 (11.50)	6.87 (7.73)	.02
Math EOG Percentile	73 (100)	63.97 (57.90)	26.22 (27.14)	.14
Reading EOG Percentile	70 (99)	62.27 (60.92)	26.97 (28.87)	.76
Math Grade	69 (102)	90.26 (88.03)	8.33 (10.81)	.15
Reading Grade	71 (103)	89.77 (86.09)	7.68 (10.48)	.01

Research Question 2: Are there significant differences in each of the following five measures (number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School B?

H₀₂₁: There is no significant difference between number of days absent from school between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School B.

An independent-samples t test was conducted to evaluate whether the mean number of days absent from school differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The number of days absent was the test variable and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was significant, $t(121) = 2.948, p < .01$. Therefore, the null hypothesis was rejected. Students who participated in interscholastic sports ($M = 9.57, SD = 4.92$) tended to miss fewer days of school than students who did not participate in interscholastic sports ($M = 12.70, SD = 6.45$). The 95% confidence interval for the difference in means was 1.03 to 5.24. The η^2 index was .07, which indicated a medium effect size. Students who did not participate in interscholastic sports tended to miss more days of school than students who did participate in interscholastic sports.

H₀₂₂: There is no significant difference between percentile score on Math End-of-Grade tests between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School B.

An independent-samples t test was conducted to evaluate whether the mean percentile scores of Math End-of-Grade tests differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The percentile score on the Math End-of-Grade tests was the test variable and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was significant, $t(126) = 2.99, p < .01$. Therefore, the null hypothesis was rejected.

Students who participated in interscholastic sports ($M = 74.40$, $SD = 19.00$) tended to score higher than students who did not participate in interscholastic sports ($M = 61.63$, $SD = 26.65$). The 95% confidence interval for the difference in means was 4.32 to 21.22. The η^2 index was .07, which indicated a medium effect size. Students who did not participate in interscholastic sports tended to score lower than students who did participate in interscholastic sports.

H₀₂₃: There is no significant difference between percentile score on Reading End-of-Grade tests between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School B.

An independent-samples t test was conducted to evaluate whether the mean percentile scores of Reading End-of-Grade tests differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The percentile score on the Reading End-of-Grade tests was the test variable and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was significant, $t(123) = 2.46$, $p = .02$. Therefore, the null hypothesis was rejected. Students who participated in interscholastic sports ($M = 72.25$, $SD = 17.67$) tended to score higher than students who did not participate in interscholastic sports ($M = 61.99$, $SD = 26.17$). The 95% confidence interval for the difference in means was 1.99 to 18.53. The η^2 index was .05, which indicated a medium effect size. Students who did not participate in interscholastic sports tended to score lower than students who did participate in interscholastic sports.

H₀₂₄: There is no significant difference between final grades in math courses between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School B.

An independent-samples *t* test was conducted to evaluate whether the mean final grade in math courses differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The final grades in math courses were the test variable and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was significant, $t(124) = 3.22, p < .01$. Therefore, the null hypothesis was rejected. Students who participated in interscholastic sports ($M = 89.13, SD = 6.64$) tended to score higher than students who did not participate in interscholastic sports ($M = 84.65, SD = 8.08$). The 95% confidence interval for the difference in means was 1.72 to 7.22. The η^2 index was .08, which indicated a medium effect size. Students who did not participate in interscholastic sports tended to score lower than students who did participate in interscholastic sports.

H₀₂₅: There is no significant difference between final grades in reading courses between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School B.

An independent-samples *t* test was conducted to evaluate whether the mean final grade in reading courses differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The final grades in reading courses were the test variable, and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was significant, $t(124) = 3.29, p < .01$. Therefore, the null hypothesis was rejected. Students who participated in interscholastic sports ($M = 86.90, SD = 5.51$) tended to have a higher final grade in reading than students who did not participate in interscholastic sports ($M = 83.08, SD = 6.99$). The 95% confidence interval for the difference in means was 1.52 to 6.12. The η^2 index was .08, which

indicated a medium effect size. Students who did not participate in interscholastic sports tended to have a lower final grade in reading than students who did participate in interscholastic sports.

The means and standard deviations of the five variables (number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participated in interscholastic sports and middle school students who did not participate in interscholastic sports in School B are shown in Table 2.

Table 2

Means and Standard Deviations of Five Measures Between Middle School Students Who Participated in Interscholastic Sports and Middle School Students Who Did Not Participate in Interscholastic Sports in School B

<i>Variable</i>	Student Athletes (Student Nonathletes)			
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>p</i>
Days Absent	53 (70)	9.57 (12.70)	4.92 (6.45)	<.01
Math EOG Percentile	53 (75)	74.40 (61.63)	19.00 (26.65)	<.01
Reading EOG Percentile	52 (73)	72.25 (61.99)	17.67 (26.17)	.02
Math Grade	48 (78)	89.13 (64.65)	6.64 (8.08)	<.01
Reading Grade	52 (74)	86.90 (83.08)	5.51 (6.99)	<.01

Research Question 3: Are there significant differences in each of the following five measures (number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in

reading courses) between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in a combined total for School A and School B?

H₀₃₁: There is no significant difference between number of days absent from school between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in a combined total for School A and School B.

An independent-samples t test was conducted to evaluate whether the mean number of days absent from school differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The number of days absent was the test variable and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was significant, $t(305) = 3.49, p < .01$. Therefore, the null hypothesis was rejected. Students who participated in interscholastic sports ($M = 9.2, SD = 6.10$) tended to miss fewer days of school than students who did not participate in interscholastic sports ($M = 11.96, SD = 7.27$). The 95% confidence interval for the difference in means was 1.20 to 4.32. The η^2 index was .04, which indicated a small effect size. Students who did not participate in interscholastic sports tended to miss more days of school than students who did participate in interscholastic sports.

H₀₃₂: There is no significant difference between percentile score on Math End-of-Grade tests between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in a combined total for School A and School B.

An independent-samples *t* test was conducted to evaluate whether the mean percentile scores of Math End-of-Grade tests differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The percentile score on the Math End-of-Grade tests was the test variable and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was significant, $t(299) = 2.95, p < .01$. Therefore, the null hypothesis was rejected. Students who participated in interscholastic sports ($M = 68.37, SD = 23.93$) tended to score higher than students who did not participate in interscholastic sports ($M = 59.50, SD = 26.91$). The 95% confidence interval for the difference in means was 2.96 to 14.78. The η^2 index was .03, which indicated a small effect size. Students who did not participate in interscholastic sports tended to score lower than students who did participate in interscholastic sports.

H₀₃: There is no significant difference between percentile score on Reading End-of-Grade tests between middle school students who participate in interscholastic sports and middle school students who do not participate in a combined total for School A and School B.

An independent-samples *t* test was conducted to evaluate whether the mean percentile scores of Reading End-of-Grade tests differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The percentile score on the Reading End-of-Grade tests was the test variable and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was not significant, $t(292) = 1.66, p = .10$. Therefore, the null hypothesis was retained. The η^2 index was .01, which indicated a small effect size. Students who participated in interscholastic sports ($M = 66.52, SD = 23.89$) tended to score about the same as those who did

not participate in interscholastic sports ($M = 61.37$, $SD = 27.68$). The 95% confidence interval for the difference in means was -.95 to 11.25.

H₀₃₄: There is no significant difference between final grades in math courses between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in a combined total for School A and School B.

An independent-samples t test was conducted to evaluate whether the mean final grade in math courses differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The final grades in math courses were the test variable and the grouping variable was participation in an interscholastic sport and nonparticipation in an interscholastic sport. The test was significant, $t(295) = 3.00$, $p < .01$. Therefore, the null hypothesis was rejected. Students who participated in interscholastic sports ($M = 89.79$, $SD = 7.67$) tended to score higher than students who did not participate in interscholastic sports ($M = 86.57$, $SD = 9.84$). The 95% confidence interval for the difference in means was 1.11 to 5.34. The η^2 index was .03, which indicated a small effect size. Students who did not participate in interscholastic sports tended to score lower than students who did participate in interscholastic sports.

H₀₃₅: There is no significant difference between final grades in reading courses between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in a combined total for School A and School B.

An independent-samples t test was conducted to evaluate whether the mean final grade in reading courses differs between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports. The final grades in reading courses were the test variable and the grouping variable was participation in an

interscholastic sport and nonparticipation in an interscholastic sport. The test was significant, $t(298) = 3.78, p < .01$. Therefore, the null hypothesis was rejected. Students who participated in interscholastic sports ($M = 88.56, SD = 6.97$) tended to have higher final grades in reading than students who did not participate in interscholastic sports ($M = 84.83, SD = 9.28$). The 95% confidence interval for the difference in means was 1.79 to 5.67. The η^2 index was .05, which indicated a medium effect size. Students who did not participate in interscholastic sports tended to have a lower final grade in reading than students who did participate in interscholastic sports.

The means and standard deviations of the five variables (number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participated in interscholastic sports and middle school students who did not participate in interscholastic sports in School A and School B combined are shown in Table 3.

Summary

In this chapter data obtained for Schools A and B over 2 years were presented and analyzed. There were three research questions and 15 null hypotheses. An independent samples t-test was conducted for each of the null hypotheses. All data were collected from the local school system's director of accountability, student data management system, and directors of athletics.

Table 3

Means and Standard Deviations of Five Measures Between Middle School Students Who Participated in Interscholastic Sports and Middle School Students Who Did Not Participate in Interscholastic Sports in School A and School B Combined

<i>Variable</i>	Student Athletes (Student Nonathletes)			
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>p</i>
Days Absent	125 (182)	9.20 (11.96)	6.10 (7.27)	<.01
Math EOG Percentile	126 (175)	68.37 (59.50)	23.93 (26.91)	<.01
Reading EOG Percentile	122 (172)	66.52 (61.37)	23.89 (27.68)	.09
Math Grade	117 (180)	89.79 (86.57)	7.65 (9.84)	<.01
Reading Grade	123 (177)	88.56 (84.83)	6.97 (9.28)	<.01

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter contains the findings, conclusions, and recommendations for readers who may use the results as a resource when considering participation in or funding of interscholastic sports at the middle school level. The purpose of this study was to determine if student athletes were more successful in school than nonathletes at two schools located in the same school district in Western North Carolina. Success was defined as lower number of days absent from school, higher percentile scores on Math End-of-Grade tests, higher percentile scores on Reading End-of-Grade tests, higher final grades in math courses, and higher final grades in reading courses. The study was conducted using data collected over 2 years, following the same cohort of students from grade 7 to grade 8. The retrieved data for this study were number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses.

Summary of Findings

The data analyses reported are based upon three research questions that were tested at a .05 level of significance. The variables studied include number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses. Data were collected from two middle schools serving grades 6-8 located in the same school district in Western North Carolina. Data were collected from students in grade 7 during the 2009-2010 school year and from the same cohort of students in grade 8 during the 2010-2011 school year. Data were obtained from the school system's director of accountability, data management system, and directors of athletics.

Research Question #1

Are there significant differences in each of the following five measures (number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School A?

Days Absent From School. An independent t-test was used to determine if a significant difference exists between the days absent from school for middle school student athletes and student nonathletes. There was a significant difference found in the number of days absent from school between student athletes and nonathletes. The middle school student athletes in the study were found to have fewer absences from school when compared to the attendance of student nonathletes in School A.

Percentile Score on Math End-Of-Grade Tests. An independent t-test was used to determine if a significant difference exists between percentile scores on Math End-of-Grade tests for middle school student athletes and nonathletes. There was no significant difference found in the percentile scores for Math End-of-Grade tests between student athletes and nonathletes in School A.

Percentile Score on Reading End-Of-Grade Tests. An independent t-test was used to determine if a significant difference exists between percentile scores on Reading End-of-Grade tests for middle school student athletes and nonathletes. There was no significant difference found in the percentile scores for Reading End-of-Grade tests between student athletes and nonathletes in School A.

Final Grade in Math Courses. An independent t-test was used to determine if a significant difference exists between final grades in math courses for middle school student athletes and nonathletes. There was no significant difference found in the final grades in math courses between student athletes and nonathletes in School A.

Final Grade in Reading Courses. An independent t-test was used to determine if a significant difference exists between final grades in reading courses for middle school student athletes and student nonathletes. There was a significant difference found in the final grades in reading courses between student athletes and nonathletes. The middle school student athletes in the study were found to have higher final grades in reading courses when compared to student nonathletes in School A.

Research Question #2

Are there significant differences in each of the following five measures (number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in School B?

Days Absent From School. An independent t-test was used to determine if a significant difference exists between the days absent from school for middle school student athletes and student nonathletes. There was a significant difference found in the number of days absent from school between student athletes and nonathletes. The middle school student athletes in the study were found to have fewer absences from school when compared to the attendance of student nonathletes in School B.

Percentile Score on Math End-Of-Grade Tests. An independent t-test was used to determine if a significant difference exists between percentile scores on Math End-of-Grade tests for middle school student athletes and nonathletes. There was a significant difference found in the percentile scores for Math End-of-Grade tests between student athletes and nonathletes. The middle school student athletes in the study were found to have higher percentile scores on Math End-of-Grade tests when compared to the Math End-of-Grade percentile scores on tests of student nonathletes in School B.

Percentile Score on Reading End-Of-Grade Tests. An independent t-test was used to determine if a significant difference exists between percentile scores on Reading End-of-Grade tests for middle school student athletes and nonathletes. There was a significant difference found in the percentile scores for Reading End-of-Grade tests between student athletes and nonathletes. The middle school student athletes in the study were found to have higher percentile scores on Reading End-of-Grade tests when compared to the Reading End-of-Grade percentile scores on tests of student nonathletes in School B.

Final Grade in Math Courses. An independent t-test was used to determine if a significant difference exists between final grades in math courses for middle school student athletes and nonathletes. There was a significant difference found in the final grades in math courses between student athletes and nonathletes. The middle school student athletes in the study were found to have higher final grades in math courses when compared to the final grades in math courses of student nonathletes in School B.

Final Grade in Reading Courses. An independent t-test was used to determine if a significant difference exists between final grades in reading courses for middle school student athletes and student nonathletes. There was a significant difference found in the final grades in

reading courses between student athletes and nonathletes. The middle school student athletes in the study were found to have higher final grades in reading courses when compared to student nonathletes in School B.

Research Question #3

Are there significant differences in each of the following five measures (number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses) between middle school students who participate in interscholastic sports and middle school students who do not participate in interscholastic sports in a combined total for School A and School B?

Days Absent from School. An independent t-test was used to determine if a significant difference exists between the days absent from school for middle school student athletes and student nonathletes. There was a significant difference found in the number of days absent from school between student athletes and nonathletes. The middle school student athletes in the study were found to have fewer absences from school when compared to the attendance of student nonathletes of School A and School B combined.

Percentile Score on Math End-Of-Grade Tests. An independent t-test was used to determine if a significant difference exists between percentile scores on Math End-of-Grade tests for middle school student athletes and nonathletes. There was a significant difference found in the percentile scores for Math End-of-Grade tests between student athletes and nonathletes. The middle school student athletes in the study were found to have higher percentile scores on Math End-of-Grade tests when compared to the Math End-of-Grade percentile scores on tests of student nonathletes of School A and School B combined.

Percentile Score on Reading End-Of-Grade Tests. An independent t-test was used to determine if a significant difference exists between percentile scores on Reading End-of-Grade tests for middle school student athletes and nonathletes. There no significant difference found in the percentile scores for Reading End-of-Grade tests between student athletes and nonathletes of School A and School B combined.

Final Grade in Math Courses. An independent t-test was used to determine if a significant difference exists between final grades in math courses for middle school student athletes and nonathletes. There was a significant difference found in the final grades in math courses between student athletes and nonathletes. The middle school student athletes in the study were found to have higher final grades in math courses when compared to the final grades in math courses of student nonathletes of School A and School B combined.

Final Grade in Reading Courses. An independent t-test was used to determine if a significant difference exists between final grades in reading courses for middle school student athletes and student nonathletes. There was a significant difference found in the final grades in reading courses between student athletes and nonathletes. The middle school student athletes in the study were found to have higher final grades in reading courses when compared to student nonathletes of School A and School B combined.

The findings of this study support research of Stephens and Schaben (2002) that students who participate in athletics have significantly higher GPAs. Athletics provide a means to build discipline, set goals, focus on time organization, and develop self-confidence. These skills, when transferred from athletics to academics, provide success to the student athlete. Discipline required for participation in athletics at the school level can have a positive impact on student achievement when that same discipline is applied inside the classroom. While involvement may

improve education, it may also limit the amount of study time and academic focus students possess outside of the typical school day.

Conclusions

The purpose of this study was to determine if student athletes were more successful in school than nonathletes at two middle schools located in the same school district in Western North Carolina. Student outcomes studied were number of days absent from school, percentile score on Math End-of-Grade tests, percentile score on Reading End-of-Grade tests, final grade in math courses, and final grade in reading courses. The following conclusions are based on the findings of this study.

Significant differences were found in number of days absent in each part of the study. Student athletes in School A were found to have missed fewer days of school than student nonathletes. The same results were obtained when researching attendance for School B. The level of significance found for attendance between both sets of students combined was $<.01$. The results suggest that student involvement in interscholastic sports had a positive impact on attendance.

No significant difference was found in percentile scores for Math End-of-Grade testing for School A. School B yielded a significant difference in Math End-of-Grade test scores. Overall combined scores from School A and School B found a significant difference between student athletes and student nonathletes. The mean score for student athletes from both schools combined was 68.37 and the mean score for student nonathletes from both schools combined was 59.5. The results suggest that student involvement in interscholastic sports had a positive impact on academic achievement.

No significant difference was found in percentile scores for Reading End-of-Grade testing for School A. School B yielded a significant difference in Reading End-of-Grade test scores with a difference of over 10 points in the mean test scores for student athletes compared to student nonathletes. When data were combined for both schools results were not found to be significant. This was the only overall variable in the study that showed no significant difference when results from both schools were combined.

No significant difference was found in the final grades for math courses for students in School A. The mean for final grades between student athletes and nonathletes in School A was less than two points. A significant difference was found in the final grades for math courses for students in School B. This was also true in the results from the combined grades from both schools. The level of significance found in the comparison of final grades in math courses for student athletes and nonathletes was $<.01$. The results suggest that student involvement in interscholastic sports had a positive impact on academic achievement.

Significant differences were found in final grades for reading courses between student athletes and nonathletes in both schools separately and when results were combined. Student athletes were found to have higher final grades in reading courses than student nonathletes. Results for School A and School B combined found a four point difference in the mean of final reading course grades between student athletes and nonathletes. The results suggest that student involvement in interscholastic sports had a positive impact on academic achievement.

Recommendations for Practice

The findings and conclusions of this study have enabled the researcher to identify the following recommendations for practice for the two Western North Carolina middle schools:

1. Administration and teachers should investigate the possible reasons student athletes have fewer absences than nonathletes.
2. Administration and teachers should consult with the coaching staff at each school to learn of coaching strategies that could be modified into instructional strategies within the classroom to improve student academic achievement.
3. Administration should support interscholastic sporting programs and seek ways in which to provide financial support for their own athletic program at the school level.

Recommendations for Future Research

The findings and conclusions of this study have enabled the researcher to identify the following recommendations for future research for those interested in the outcome of interscholastic sports on academic achievement:

1. Broaden the scope of the study to include more schools and a larger population of students, preferably from schools that differ in student demographics.
2. Include other academic subjects into the research (science and social studies for example) and include additional assessments other than End-Of-Grade tests.
3. Conduct research focusing on other extra curricular activities to see if they have an impact on student achievement and performance. Consider studying students who are involved in the arts (band, chorus, visual arts, etc).
4. Conduct a qualitative study examining the effects of interscholastic athletic participation on the self-esteem and emotional state of student athletes.
5. Expand the study by adding survey information from students, teachers, parents, and community members to find out their perceptions of student involvement in athletics.

6. Consider breaking down the results and comparing male athletes and nonathletes to female athletes and nonathletes.
7. Research the financial sustainability of school athletic programs and the discrepancies that may result from school to school, and sport to sport, due to the difference in funding between school districts.

Summary

This study was conducted in order to provide evidence to either support or not support interscholastic sports at the middle school level. Chapter 1 served as the introduction that included the statement of the problem, research questions, significance of the study, definition of terms, limitations and delimitations of the study, and overview of the study. Chapter 2 contained the review of literature that focused on the adolescent learner, impact of interscholastic sports on academics, pros and cons of interscholastic sport involvement, factors threatening sports in middle school education, and a summary. Chapter 3 presented the methodology used for this study that included research questions and null hypotheses, population, data collection, data analysis, and a summary. Chapter 4 provided the analysis of data and a summary. Chapter 5 contained the summary of findings, conclusions, and recommendations for future study.

There was a significant difference in the overall combined data from both schools in favor of participation in interscholastic sports in final grades for reading and math as well as Math End-of-Grade testing percentile scores. No significant difference was found in Reading End-of-Grade testing percentile scores. There was also a significant difference in number of days absent with those students who participated in interscholastic sports having fewer absences. Student athletes performed better than nonathletes in both School A and School B in

all areas of the study except in Reading End-Of-Grade testing in which no significant difference was found. These findings support the inclusion of interscholastic athletics at the middle school level.

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