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Academic Achievement of Elementary Students:  
A Comparison Study of Student Athletes Versus Nonathletes

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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

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by

Kimberly Renee' Dyke

May 2013

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Keywords: Athletics, Academic Achievement, Elementary Sports, Elementary School,  
Athletic Participation, Interscholastic Sports

## ABSTRACT

### Academic Achievement of Elementary Students: A Comparison Study of Student Athletes Versus Nonathletes

by

Kimberly Renee' Dyke

The place of sports in academic institutions has been analyzed at length for several years. However most studies focus on the participation of high school and university students in school sports. Very little research exists to suggest a positive or negative correlation between academic achievement and participation in interscholastic sports at the elementary level. As a result the relationship between academic performance and participation in school sports among elementary students in grades 4 and 5 was investigated in this study. Through an independent-samples t test analysis of 1,605 fourth and fifth grade boys and girls, it was determined that students who participated in school sports were likely to have higher standardized test scores in both reading and math as measured by the Tennessee Comprehensive Assessment Program. This was true of both male and female students. Additionally students of African-American, Asian, and Latino ethnicity who participated in interscholastic athletics also performed significantly higher on standardized tests than did their peers who did not participate in school sports. However it was determined that no significant relationship existed between participation in school sports and attendance at the elementary level. The results of this study suggest that there exists a positive relationship between interscholastic sports participation and academic achievement.

## DEDICATION

This dissertation is dedicated:

To my loving and supportive husband Timmy, who has encouraged me to pursue my dreams since the day we met. Many times along the way I tried to slack off, but he always knew how to motivate and keep me focused on my dreams. His encouragement and confidence in me has brought me to where I am today in my life, career, and academic studies. Without his love and support, this could not have been accomplished. I love you so much.

To my beautiful daughters Kaylee and Kara; the mere joy of your presence in my life has given me strength and encouragement to never give up. You girls have blessed my life and you have challenged me everyday to be better at whatever I do. I am praying that one day you both will be able to see, that no matter what obstacles in life you may encounter, you can persevere and overcome them.

To my mother, Glenda, who instilled in me a strong work ethic and taught me the value of education. She has taught me to be strong and self-confident. Her long talks on the phone got me through my finals, interviews, and defenses. I hope I have made you proud.

To my big sis, Melissa, she is my best friend. She has always made time for me and protected me from whatever may be thrown my way. I strive to be more like you as you are a “superstar” in my eyes. Thank you for helping me enjoy the simple pleasures life has to offer and for having fun along the way. Our times together are treasures.

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teaching. I will be forever grateful to her for having continual confidence in me. I only wish she could be here with me today, sharing my accomplishments. I know she would be so proud of me.

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## CHAPTER 1

### INTRODUCTION

For some student athletes participation in sports has given them reason to go to school and to perform well in the classroom. Knowing that the opportunity to earn a college degree may depend upon their ability to secure an athletic scholarship, some student athletes will put forth their best effort in the classroom. Being involved in athletics gives some students a sense of belonging in the school culture by encouraging good attendance and participation in school programs. Effective athletic programs instill a sense of self-efficacy and pride in students, characteristics that can carry over to the classroom and nurture academic success as well (Kirkcaldy, Shepard, & Siefen, 2002).

In some cases participation in athletics has given students the false belief that they are “above the rules,” an attitude that can carry on beyond school years. Schools often have problems with athletes who believe their status in the athletic program supersedes their role as student in the classroom. Learning and classroom performance often take a backseat to performance on the field. Behaviors learned by young adults on the court are not the positive values that our society purports to endorse in the classroom (Rhea & Lantz, 2004). Concessions, both academic and administrative, are sometimes made to ensure student eligibility for sports, thus leading to some student athletes’ sense of entitlement. Because lessons learned in school sports can be so influential in determining a young person’s future, the relationship between interscholastic athletics and the academic endeavors of students is worth exploring. Much research has been conducted on the academic effects of participation in athletics

among college and high school athletes, little has been conducted with respect to elementary students.

### *Statement of the Problem*

The purpose of this study was to examine the differences in student academic achievement among students who participate in school sponsored athletics and students who do not participate in school sponsored athletics, specifically as evident in standardized student achievement (TCAP) scores. Previous studies such as Chomitz et al. (2009) have shown a clear positive correlation between general physical fitness and academic achievement. Conversely the discussion of the literature showed no clear consensus regarding the effect of participation in elementary school sports on academic performance. While studies by Fox, Barr-Anderson, Neumark-Sztainer, and Wall (2010), Broh (2002), and Barber, Eccles, and Stone (2001) indicated a positive correlation between students' academic performance and participation in athletics, a study by Melnick, VanFossen, and Sabo (1988) showed "no significant effect on grades or standardized test scores in the general student population" (p. 32).

Student attendance among interscholastic athletes was also addressed to determine whether a significant difference existed in attendance rates for interscholastic athletes as compared to the attendance rates of nonathletes. Previous analyses by Sheldon (2007) have indicated that schools with high rates of daily attendance showed positive results on reading and math standardized tests. McMillan (1991) revealed the need to meet team requirements, such as attendance, could have a subsequent effect on academics.

### *Research Questions*

Four questions were used to guide this study to determine the impact of interscholastic athletics on student academic achievement.

1. Is there a significant difference in the academic performance of elementary students who participate in interscholastic athletics and the academic performance of elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.
2. Is there a significant difference in academic performance of elementary male and female students who participate in interscholastic athletics and the academic performance of male and female students who do not participate in interscholastic athletics as evidenced by standardized test scores.
3. Is there a significant difference in the academic performance of Caucasian, African American, Asian, and Latino elementary students who participate in interscholastic athletics and the academic performance of Caucasian, African American, Asian, and Latino elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.
4. Is there a significant difference in the absences of elementary students who participate in interscholastic athletics and the absences of students who do not participate?

### *Significance of the Study*

In American society successful participation in sports tends to carry with it general social acceptance, positive self-perception, and community affirmation. Given

that this positive view of such participation leads to the encouragement of children to be involved in sports, it is important to fully understand all consequences of participation. Parents and school personnel need to be aware of the academic effect participation in sports may have in order to determine if sports participation should be encouraged for their child.

Further as school administrators seek to determine how athletics fit into the overall school program, it is of utmost importance that principals understand the academic effect of interscholastic academics for the purposes of formulating policy and devising school structures. As previously noted much analysis has been conducted to determine the effect of athletic participation on high school and college athletes. However, because athletic programs are also standard among elementary schools, the academic effects of such programs are worth exploring.

### *Definitions of Terms*

Most terms significant to the study are commonly understood. However it is important to clarify some general terms and those that are specific to the context in which the study takes place.

*Absences* - the number of days a student is not present in school.

*Elementary School* - a school for students in kindergarten, 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> grades.

*Interscholastic Athletics* - those sports programs that are sponsored by the school and fall under the terms and rules of the school as overseen by the school administrator.

*Student Athlete* - any student who participates in or is involved in a school-sponsored athletic team. The teams for this study will include girls basketball, boys basketball, and cheerleading.

*Scale Scores* - test scores used to compare growth from year-to-year, having a lowest and highest attainable score range. It requires use of tens of thousands of students' scores and a committee-based scaling process that is unique to test administration.

*Tennessee Comprehensive Assessment Program (TCAP)* - the criterion referenced academic testing program of the Tennessee Department of Education administered to all public school students in the spring of each academic year.



### *Limitations of the Study*

A potential limitation of the study may be that among the elementary students represented in the survey, only basketball and cheerleading were offered as school sports, whereas the review of the literature reflected students involved in numerous sports carrying varying degrees of time requirements and perceived importance. Additionally, elementary students involved in cheerleading participate in their sport throughout the entirety of the school year, while those involved in basketball only participate in season.

### *Overview of the Study*

This research study consists of five chapters. Chapter 1, introduction to the study, provides background information. It is composed of the statement of the problem, research questions, significance of the study, definition of terms, limitations and delimitations, and an overview of the study. Chapter 2, review of literature, which gives detail to the historical perspective of the development of interscholastic athletics, benefits of overall sports participation, athletics and academics, athletics and self-perception, class and cultural effects of athletic participation, and effects beyond school age. It also includes detrimental effects of overall athletic participation including psychological and physical stressors, behavioral effects, and substance abuse. In addition, Chapter 2 reviews physical fitness and learning and the obesity stigma in schools. Chapter 3 describes the methodology used in selecting participants and data collection, population, research questions with null-hypotheses, instrumentation, data collection, and data analysis. Chapter 4 contains an analysis of the collected data and

a summary of the results of the study. The final chapter is a review of the assumptions underlying the study and the limitations of the study. It also provides a summary of how the findings showing how the results supported the research questions, and offers suggestions and recommendations for further research on this topic.

A quantitative, comparison study was conducted to find the differences between the academic performance of students who participate in interscholastic athletics and those who do not. Because the data necessary to conduct the study already existed, an ex-post facto design was selected. Over 1,500 fourth and fifth graders in an East Tennessee public school system were the population for this study.

## CHAPTER 2

### LITERATURE REVIEW

#### *Introduction*

Development of the whole child involves the intellect as well as the fostering of social constructs and physical health. Though many schools include physical education as part of their required curriculum, organized athletics provide a more focused, competition-driven skills development experience with the potential added benefit of developing such interpersonal and intrapersonal skills such as being part of a team, goal setting, and enhanced self esteem. The purpose of this study was to determine what, if any, effect participation in organized sports has on the academic achievement of students as determined by their performance on standardized tests.

The following review of literature was composed to give a historical perspective for the development of interscholastic organized sports, previous scholarly views on the academic effects of participation in organized sports both positive and negative, and the potential social, mental, and physical effects of participation in athletics, both positive and negative. Sources reviewed include periodicals, reports of relevant organizations, published books, and related textbooks.

#### *Historical Perspective*

Organized sports are a form of entertainment that predates written history. From precolonization athletic competitions of America's indigenous tribes to modern day professional sports leagues, American culture is infused with the idea that one who

excels at athletics is superior. Looking back at “The Golden Age of Sports” in the 1920s, Jack Dempsey, Caroline Gertrude Ederle, and Babe Ruth, who are among the most popular names in sports, led the way for a higher interest in participation of organized sports today (Bohn, 2009).

The first World Cup of Soccer took place in the 1930s. Then in the 1940s, with 13 television stations available, big business was brought to sports by marketing athletic teams and merchandise. By the 1950s sport had become more than a game. Sports were a part of everyday conversation from talking about the desegregation of most all sports to the domination of the National Football League on the airways, the desire for sports was never greater (The 1950s: Sports: Overview, 2001).

Moving into the 1960s, society was riveted by Roger Maris smashing Babe Ruth’s long-lasting 60 home run mark, Wilt Chamberlain scoring a still-standing record of 100 points in the National Basketball Association, and the first Super Bowl played in 1967, with the Green Bay Packers outlasting the Kansas City Chiefs. In the 1970s the sports world changed into an even greater business. The significance of winning also changed during this period. A victory was no longer a mark in the records but had financial, commercial, and political consequences (Crandall, 2007).

The cultural popularity of organized sports continued in the 1980s and 1990s, with the likes of gymnast Mary Lou Retton and basketball player Michael Jordan. Millions of dollars were being made and hopes and dreams of playing a professional sport some day filled the heads of many youth around the world.

Although we saw enemies made between endorsing opposing sports teams, athletics brought people together through social networking. Through sitting in the

stands and meeting a new friend to chatting on-line about a game or sporting event, sports was social capital (Green & Brock, 2005). Organized sports bound communities together and created relationships that lasted a lifetime. Sports and sport heroes evolved in the past 100 years to become part of our everyday lives.

With such an idealistic view of athletics and the athletes themselves permeating American culture on all fronts, it was no surprise that athletic programs made their way into the school cultures of America's public schools. During the late 18th century, what started as student-initiated physical release and a means of social gathering at high schools developed into an official school-sanctioned activity. High school students at Worcester, Massachusetts High School casually formed a baseball team in 1859. Soon, students were vying for competition; students began recruiting friends among classmates and students not enrolled at the school (Jable, 2008).

Concerned about controlling the increasingly popular campus activity, administrators decided to take control by providing school sponsorship, and thus, attaining jurisdiction of the practices of the teams. Although there was evidence that some New England boarding schools featured organized team sports in the 1860s, it was not until the latter part of that century when interscholastic athletics were recognized as a positive component of a fully developed program of learning (Jable, 1986).

As the occurrence of school athletic teams began to spread nationwide, schools began to take notice of the effect such programs were having on their students and school communities. The New York Times heralded the inclusion of sports programs in schools both for its effects on student athletes and the school itself in 1909. Pointing

out that school athletics is an effective means of promoting the school through advertising athletic victories, the Times also mentioned the physical and personal development of the student athlete. “Experience has shown that the pursuit of athletics in schools has a value beyond the development of strong and healthy bodies in the cultivation of a healthy spirit and high standards of character” (Athletics in Schools, 1897, p. 3).

In 1909 the Times again pointed out the positive effects of participation in sports by reporting that Judge R.C.S. Drummond of Auburn, New York promoted the practice of interscholastic athletics as a means of keeping troublesome young boys from becoming troublesome grown men. “It is because I believe that a healthful outlet for boyish energies may thus be provided, that thus the more successfully may youthful activities be diverted from unhealthful pleasures to wholesome, strength-bringing exercises, and through them to a nobility of character and a devotion to duty that I advocate an encouragement of school athletics” (Athletics A Cure, 1909, p. 1).

Following World War I the prevalence of interscholastic sports saw a time of significant growth. As enrollment in city high schools increased and the popularity of organized sports grew, the educational sector saw fit to intervene in order to preserve the educational integrity of athletics (Miracle & Rees, 1994). In the 1920s school athletic teams were hosting and participating in interscholastic tournaments from New York to Chicago. “During the late 1950s and early 1960s, interest in youth sports continued as President John F. Kennedy emphasized the important role a vigorous lifestyle had on fitness and health” (Morrow, Zhu, Franks, Meredith, & Spain, 2009, p. 2). Although plagued by the same ills as society itself including racial segregation and

gender discrimination, interscholastic athletics began to take firm shape and become a mainstay in public schools.

Today high school athletics are an integral part of communities and elicit a tangible means of fostering civic pride. From the early 1970s participation in high school athletics rose from 4.5 million to 7.3 million in 2007 (HighBeam, 2005). Over time many experts claimed that participation in sports led to personal development by enhancing such things as fitness, health, and wellbeing; social competence; physical competence and self-esteem; moral development, aggression and violence abatement; and academic achievement (Intrator & Siegel, 2008).

### *Benefits of Sports Participation*

Today athletics are a part of school programs at all levels. Athletic opportunities exist for high school and college athletes as well as for even the youngest elementary students. Schools included these opportunities seeking to develop positive physical and mental skills among students. Seefeldt, Ewing, and Walk (1992) identified the following possible benefits associated with participation in sports:

- Learning physical skills. Young athletes learn both fundamental motor skills (e.g., running, jumping and hopping) and sport-specific skills (e.g., how to putt a golf ball or shoot a jump shot in basketball) that allow them to stay active.
- Appreciation of fitness. Two of the motives for participation identified by children is “to get exercise” and “stay in shape”
- Sense of belonging. Another strong motive of participation is social interaction. Sports can provide peer interaction through both teammates and healthy competition
- Acquiring sport skills for leisure. Learning the fundamental motor skills through sport can aid in skill development, but can also be transferred to other sports and leisure activities, promoting increased participation and involvement.

Individual benefits reported included healthier eating habits, increased parental support, decreased anxiety and depression, and higher levels of self-esteem, motivation, and overall psychological well-being and better body image (Bachman, Johnston, & O'Malley, 2006). Skills learned on the court or field were transferred into the classroom as well. In their 2002 study Stephens and Schaben found that "participation in athletics can help build discipline, set goals, organize time, and develop self-confidence. Athletes who transfer these skills to their academics are greeted with success" (p. 38).

### *Athletics and Academics*

While athletics are ingrained in most public schools in mainstream America, the purpose of public school is not to foster professional athletes but to develop contributing members of society. School officials and parents question whether participation in school sports helps or harms the academic achievement of students. Therefore studies of the academic effects of participation in school sports are extensive. Results of such studies are mixed as to the effect on the student athlete's academic performance (Samuelson, 2011).

Several scholarly studies iterate the positive correlation of participation in sports and academic performance. Chomitz et al. (2009) sought to determine relationships between physical fitness and academic achievement among students in the Massachusetts public schools. The cross sectional study of public school data showed a positive significant relationship between fitness and academic achievement as measured by the Massachusetts Comprehensive Assessment System. The same



conclusion was found by the California Department of Education when studying the relationship between fitness and achievement on the SAT/9 Reading and Math test (Grissom, 2005).

This benefit was particularly important to students in poverty who viewed sports as a “way out.” Benefits to academic achievement were seen when looking at students in struggling schools. Guest and Schnieder (2003) found that participation in interscholastic athletics was most strongly associated with achievement in school with low educational expectations and school in poor communities.

Though physical fitness yielded biological results that aided in the learning process, a correlation between academic achievement and participation in interscholastic athletic programs required a look at the relationship between not only personal fitness but particularly association with an athletic team.

Fox et al. (2010) examined the association between team participation in sports and academic performance as evidenced by grade point averages of students in the Minneapolis-St. Paul metropolitan area; however, findings of this study yielded the same positive correlation between physical fitness and academic achievement; however, it remains unclear if such benefits were a result of team membership or fitness itself.

Broh (2002) studied the same relationship among students in elementary and secondary schools. Her research revealed that participation in athletics helps students perform well academically in high school more than any other extra curricular activity. Broh’s study revealed several benefits for student athletes:

They benefit developmentally in terms of building self-confidence and self

esteem and the ability to problem-solve; they develop socially in that they build relationships with students and teachers and parents that can act as resources for them in terms of their academics. It also seems to change who their peer groups are. They gain social status in school, and that seems to promote stronger engagement in the educational environment. (p. 88)

In a similar study other researchers agreed that, when looking at educational attainment, participation in school sports compares favorably to participation in “intellectual” activities including band, debate, music, and arts (Barber et al., 2001).

One potential argument for the positive relationship between participation in sports and academic achievement may not have been the effect of participation in the team itself but the residual effects of meeting requirements of team participation including attendance requirements, minimum GPA requirements, parental involvement in the school through involvement with the team, and a desire to continue participation beyond high school, which brings its own academic entrance requirements (Videon, 2002). Further, schools with strong athletic programs often held all students to high behavioral and academic standards and emphasize a standard of excellence (McMillan, 1991).

Hauser and Lueptow (1978) pointed out the relationship between positive academic performance and the typical personality characteristics of the successful school athlete. Those characteristics include a desire to succeed, competitiveness, and ability to give one’s best effort for success. Their findings showed that “athletes are better students to begin with,” and the possibility existed that, “the same social or personality factors that cause athletic participation and success also cause academic achievement and attainment” (p. 308).

Though the positive academic effects are noted in several studies, Zaugg (1998)

found the degree of variance in achievement of athletes versus nonathletes was not always significant. Maloney and McCormick (1993) found that athletes in revenue sports, or the “big” sports including basketball and football, did not, on average perform as well in the classroom as their nonathlete peers while those participating in nonrevenue sports showed no difference in academic performance when compared to nonathletes. Emmons (1995) with his research on academic achievement of high school students stated, “there is no significant difference in the academic achievement, as represented by grade-point average of high school student athletes” (p. 109). In 2004 Myles Brand, president of the National College Athletics Association (NCAA), pointed this out by reporting some “troubling trends—in particular, declining graduation rates among white basketball and football players as well as a disappointing 38% graduation rate among African-American male basketball players within a six-year time frame” (Suggs, para. 2). Given these trends the NCAA revised academic initiatives governing the achievement of its players.

Seeking to examine the long-held “dumb jock” stereotype of student athletes Marsh and Kleitman (2003) studied the possible connection between participation in school sports and academic achievement. Findings showed that while those participating in team sports showed stronger association with academics than those in individual sports, the data did not support a claim that a significant difference in achievement existed.

Melnick, VanFossen, and Sabo (1998) completed numerous longitudinal studies on sports and education. Their analysis tested the effect of sports participation on various educational outcomes including grades, standardized scores, goals and

attainment, and college attendance. Results indicated that, with few exceptions, “participation in sports in high school has no significant effect on grades on standardized test scores in the general student population” (p. 31).

Given that the results of studies to find a connection between academic achievement and participation in sports was ambivalent at best, more empirical data was needed to come to a more concrete conclusion. Several additional demographic factors were evident in the population of student athletes that may also hold implications for academic performance. Many previous studies of the academic consequences of sports participation failed to consider that the possibility that associations may vary among different social and socioeconomic groups (Hartmann, 2008).

According to Eitle and Eitle (2002) reported associations in published studies failed to differentiate between which racial or socioeconomic groups showed positive educational consequences and which had adverse or no effect. Additionally little research existed that indicated which sports were associated with positive academic effects. Initial findings show that different sports have different consequences for academic achievement (Braddock, 1981).

Further the question remained as stated by Stegman and Stephens (2000) “which came first—do students perform better academically because they participate in sports, or do they participate in sports because they are better students?” (p. 2). Fujita (2008) reported in his study on the effects of extracurricular activities on academic performance that it was not necessarily the participation in sports that was responsible for producing better grades, but it could be that “good” students are participating in sports. Hartmann (2008) pointed out the need for further research:

In terms of causal factors, for example, there is an ongoing debate about the extent to which the relationship is the result of being involved in high school athletes (thus suggesting that sports participation directly facilitates or enhances academic achievement) as opposed to being the product of other, related social factors such as parental income or education (factors that are well known to determine much educational attainment and correlate highly with sports participation). (p. 6)

For the purpose of finding definite answers that aid in the formulation of policy, these pervasive questions remained.

### *Athletics and Self-Perception*

Another theory surrounding the connectivity of participation in sports and positive academic performance pointed to the positive correlation between athletic team membership and development of interpersonal and intrapersonal skills and positive self-development habits. For example Broh (2002) found that while participation in sports had some positive affect on academic performance, the personal growth benefits were significant. These benefits included improved self-esteem and locus of control and increased social ties between students and parents, students and the school, parents and the school, and parents with other parents.

The driving force of schools cannot be mutually exclusive to developing intellectual abilities, they must also nurture emotional and social abilities in students in order to maximize intellectual capacities. Broh (2002) continued by stating, "Participation in interscholastic sports promotes students' development and social ties among students, parents, and schools, and these benefits explain the positive effect of participation on achievement" (p. 1).

School athletic teams provided students with enjoyable and supervised activities that encouraged healthier eating habits, increased parental engagement, as well as

decreased anxiety and depression (Harrison & Gopalakrishnan, 2003). Additionally the Substance Abuse and Mental Health Services Administration (2001) showed a positive association between participating in school sports and lower rates of smoking tobacco and drug and alcohol use as well as a general disapproval of their peers' abuse of these substances.

The Center for Disease Control and Prevention Research (2010) suggested a strong relationship between participation in team athletics and higher levels of self-esteem among students. Their research found that girls who participated in organized sports boasted higher levels of self-esteem and motivation as well as an overall mental wellbeing and better body image. Thorne (2009) reported on The Carnegie Council on Adolescent Development that "athlete's self-esteem was heightened through a developed sense of affiliation, a feeling of confidence in one's physical abilities, the appreciation of one's personal health and fitness and the development of social bonds with individuals and institutions" (p. 1). At an age where social acceptance was seemingly critical to self-esteem Chase and Dummer (1992) reported that, when compared to looks and other factors, adolescent boys ranked sports over any other factors in determining social status.

This connection between playing on a team and positive self-perception seemed to be specifically associated with participation in school sanctioned athletics. A two-factor data analysis of 104 inner city middle school students in southeast England revealed that students who participated in physical activity outside the school when compared to students who participated in the same amount of physical activity through school sponsored athletics reported significantly lower scores on self-perception

subscales (Daly & Leahy, 2003). The researchers also evidenced that this perception carried over into the off-season. Amorose, Anderson-Butcher, and Cooper (2009) traced athletes' perceived levels of competence, autonomy, and relatedness before, during, and after their respective sports seasons and found that those perceptions build up during the sports season positively related to changes in the athletes' internalized self-esteem.

Participation in school athletics afforded students the opportunities to build and strengthen critical societal skills. A team provided the same social constructs as society itself, thus allowing athletes to "practice" the skills of goal setting, emergence of leadership, effective communication, and controlled aggression. "It can be contended that sport participation facilitates and teaches sportsmanship and moral reasoning if quality leaderships and environments are provided" (Nucci & Young-Shim, 2005, p. 126). Rudd (2005) argued that in American culture it appeared that values such as teamwork, work ethic, and self-sacrifice were important in maintaining capitalistic values in an accompanying democratic state. Sports provided an ideal venue for developing these characteristics in an attempt to win.

Another byproduct of sports participation that potentially influenced academic performance was the idea of increased social capital. As defined by Putnam, Leonard, and Raffaella (1993) "social capital refers to social connections and social cohesion, the glue that holds societies together. Social capital includes the networks, norms, and trust that allow individuals to work together for collective goals" (p. 47). Through organizational membership, team players were quick to build friendships and be exposed to diverse views. The potential of effective social capital involved more than

the athletes themselves. Parents chatting it up in the bleachers about team goals and equipment needs might have engendered a sense of community centered around the school team and, consequently, the school itself (Green & Brock, 2005).

Large distributors including Nike and Adidas began flexing their financial prowess among schools by offering sponsorship packages. “Increasing commercialism caused athletes to specialize in one particular sport in order to perfect their skills with the hope of someday landing a lucrative professional contract. Untold numbers resorted to steroids and other performance-enhancing substances to improve their lot of securing a college scholarship” (Jable, 2008, para. 1).

Focus on individual achievement and financial benefits have in many places led to a win-at-all-costs culture among school athletics. Such an approach to sports participation has led to reverse self-perception effects including increased self-consciousness and criticism. According to Hoffman (2006) anxiety developed from this high-stakes version of sports participation too often led to poor habits including use of illegal performance enhancing drugs and a positive association between athletic involvement and alcohol use among females in lower socioeconomic status schools and males in higher socioeconomic status schools. Adding to this ideological dilemma was the fact that such pressures on individuals were becoming evident in a time when social categories become elaborated and segmented (Eckert, 1989). Still the connection between the social consequences of being involved in sports and academic achievement could not be denied, whether positive or negative.

### *Class, Culture, and the Effects of Athletic Participation*



When Powell, Peet, and Peet (2002) examined the effects of sports participation in the context of minority students and those with low socioeconomic status, they found that beginning at a very young age, low-income students exhibit positive relationships between participation in after school activities and grades when participation occurs at low to moderate levels. These findings are not because children of low-income families tend to be at greater risk for academic difficulties and hail from neighborhoods and schools that offer fewer opportunities for safe and challenging experiences after school. It is from attending after-school programs that promote academics as opposed to spending time watching television and “hanging out.”

Guest and Schneider (2003) found that the identity of school athletes seemed to have a positive effect on community perception, more so than in affluent communities. The longitudinal study showed that athletes were more likely to be seen as good students in poor communities and in schools where not many students go to 4-year colleges. Guest and Schneider stated “Only in lower- and middle-class schools where less than half the students go on to four-year colleges is identifying as athletic associated with achieving higher grades and with aspiring to higher educational levels” (p.103).

An earlier study by Eitle and Eitle (2002) concurred with the connection between positive athlete perception and low-income minority cultural capital. The study stated that “coupled with cultural capital influences, academic outcomes, our findings suggest that the link between sports and academics may differ depending on the cultural resources that the student brings to school” (p. 141). They contended that the hope of a professional career created a stronger draw to school athletics among black students.

They state, “because their participation satisfies more immediate social or personal needs, the implication of our research is that cultural disadvantage may contribute to an increased interest in and dependence of particular sports” (p. 141). The researchers also pointed out that this correlation may in fact have adverse consequences in terms of academic achievement due to overreliance on sports as social capital and therefore less attention given to academics.

### *Effects Beyond School Age*

In 2000 the Review of Economics and Statistics reported finding some evidence that athletic participation directly affected labor market outcomes and one’s earnable wages. Using the National Longitudinal Survey of Youth and the National Longitudinal Study of High School Class of 1972, researchers concluded that those who participated in athletics had higher subsequent educational attainment and higher wages. Researchers point out that the wage premium earned by athletes was not directly related to enhanced productivity, but athletic participation may have acted as one of several signals of individuals with greater ability or of individuals with a lower value of leisure (Baron, Ewing, & Ewing, 2000).

### *Negative Effects of Participation*

Despite the perceived benefits of participation in interscholastic sports, Hedstrom and Gould (2004) found that concerns were raised regarding the “highly competitive nature of youth sports and it is often argued that young athletes become injured or burnout as a result of excessive stress and pressure. Still others are thought to learn

inappropriate behaviors such as aggression or poor sportsmanship from their involvement” (p. 3). Research showing increases in injury rates, concerns about psychological stress, instances of unqualified adult leadership, and high attrition rates in middle level sports programs raised issues that needed to be addressed (American Academy of Pediatrics, 2002).

Speaking from the perspective of school administrator, McEwin and Dickinson (1998) delineated the five most frequently identified problems with participation in school sports. They noted the predisposition of young adolescents to physical injury, the question of psychological effects, high sports attrition rates, questions of proper coaching, and liability issues.

Researchers cited the same concerns for the individual student athlete. Studies cited negative effects including stress, anxiety, and physiological injury to the adolescent participant of interscholastic sports. Existing controversy over adolescents’ participation in interscholastic sports has focused on developmental benefits and liabilities (Weiss & Horn, 1990).

### *Psychological Stress*

Of utmost concern to the individual student was that of added psychological stressors. McEwin and Dickinson (1997) found educators expressed concern over the psychological stress experienced by students in highly competitive sports. Specific categories of sports had an influence on the stress and anxiety experienced by the student athlete. Size, maturity, physique, strength, and motor proficiency were all factors involved in injuries to adolescent athletes. Ryan (1995) described a pattern of

physiological stress and psychological stress among young female athletes that resulted in physical injuries.

According to Gould and Eklund (1996) stress and anxiety in competitive sports have been a research concern for many years. Student athletes at all levels experienced psychological stressors due to their participation in sports including extensive time demands, changing “star status”, injuries, the possibility of being benched, and conflicts with their coaches among other factors (Humphrey, Yow, & Bowden, 2000). Wilson and Pritchard (2005) sought to assess the different types of stress experienced by athletes and nonathletes at the college level. They contended that student athletes reported more stress than nonathletes in areas including increased responsibility, sleep deprivation, and demands of extra-curricular activities.

Competition itself provided another source of psychological stress for students. Kohn (1986) argued strongly that competition among students was detrimental to the psychological development process. He stated, “in the fundamental fact that competition involves the success of an individual and the concomitant failure of another” (p. 4). Further, Kohn introduced the term “mutually exclusive goal attainment” to explain how inciting competition among students taught those students to attain their goals at the expense of others. Kohn recommended the elimination of athletic competition due to the negative effects of stress.

Some students experience psychological stress from being eliminated from the roster of a sport in which they like to participate. Often elimination from a team roster was based on factors beyond the control of the student. This elimination resulted in a perceived social stigma among peers. Eliminating young adolescents from teams

denies them opportunities to learn new skills, to build confidence in their abilities, and to develop positive interactions with their peers. One result of this cutting process is that many young adolescents drop out of all future sports participation (McEwin & Dickinson, 1998). Concerns over such psychological effects led the National Association of Sport and Physical Education (2002) to recommend no-cut policies be adopted and intramural options be adopted in middle schools.

### *Behavioral Effects*

Benedict and Yager (1999) wrote about the growing concerns over the perceptions of increased violence, domestic abuse, aggressiveness, and criminal behavior exhibited by professional athletes. Miller, Barnes, Sabo, Melnick, and Farrell (2002) found it was feasible that increased violent and/or deviant behaviors may have been related to participation in sports. Given the innate competitive nature of athletes, the increased use and abuse of performance-enhancing drugs and illicit drug use advanced the exhibition of violent and/or deviant behaviors. Rhea and Lantz (2004) examined violent behaviors of athletes and nonathletes. The study found that male athletes reported higher aggressive responses than male nonathletes. They further found that in athletic programs that foster a win-at-all-costs philosophy, “aggressive behavior is not only present in athletic competition, but it is taught and encouraged” (p. 216).

Paetsch and Bertrand (1997) revealed in their study of junior and high school students in Calgary and Alberta, Canada that students with a low level of involvement in sports were more likely to report no involvement in delinquent behavior than those

reporting a high to moderate level of involvement in sports.

Though these studies did raise concerns about a possible relationship between participation in sports and deviant behavior, Eitle and Eitle (2002) found it difficult to “disentangle the correlation between sport and delinquency from the class and cultural variables known to select individuals into playing sports in the first place” (p. 140). Evidence suggested that there were additional deviant indicators such as education, income, and social capital that were difficult to separate within research samples.

### *Substance Abuse*

Based on highly publicized incidents of drug use among professional athletes, much attention was given to concerns over the relationship between sports participation and substance abuse. However research suggested that participation in interscholastic sports may yield a different result.

In one study of drug use and adolescent athletes Elder, Leaver-Dunn, Nagy, and Leeper (2000) identified the use of smoking tobacco as a gateway to use of other illicit drugs. Their study of athletes revealed that adolescents who participated in school sports were less likely to use smoking tobacco and subsequent illicit drugs than those who did not participate in school sports; and that, while athletes follow the same path to drug use as nonathletes, participation in their respective sports programs make them less likely to use illicit drugs.

In a related study of high school athletes Naylor, Gardner, and Zaichtowsky (2001) explored the issue of whether participation in high school athletics related to decreased use of recreational drugs and ergogenic aids. Using survey results of 1,515

participants, researchers reported that athletes were significantly less likely to use cocaine and psychedelics, and were less likely to smoke cigarettes compared to nonathletes. While athletes were more likely to use nutritional supplements to enhance performance, there was no statistical difference in the use of anabolic steroids between the two groups.

Alcohol use and abuse were also of concern when examining interscholastic athletes. An examination of the 1990-1992 National Educational Longitudinal Study (NELS) revealed a correlation between participation in high school athletics and alcohol use among teens. Hoffman's (2006) findings revealed that, "athletic involvement—particularly among males—is associated with more alcohol use, even as it is associated with less frequent use of drugs such as marijuana and cocaine" (p. 285). In a related study Rhea and Lantz (2004) reported that female athletes in rural communities were more likely to drink alcohol and drive than their nonathlete peers.

### *Physical Stressors*

LaSpina (2010) avowed that participation in a rigorous interscholastic athletics program led to increased rates of injury among students. Particularly in the adolescent age range, students faced "rapid growth of bones, traits such as awkwardness, poor coordination, and clumsiness which made physical activity especially taxing" (para. 4).

Though participation in sports undoubtedly helped to promote a healthy lifestyle among athletes through physical activity, those who participated were prone to specific sports-related injuries. According to Comstock, Knox, Yard, and Gilchrist (2006) high school athletes accounted for an estimated two million injuries, 500,000 doctor visits,

and 30,000 hospitalizations annually. This corresponded to a rate of 2.4 injuries per 1,000 athlete exposures.

Knee injuries, the most costly of sports injuries, were the leading cause of sports-related surgeries (“High school knee,” 2008). Athletic trainers feared that “without effective interventions, the burden of knee surgeries and rehabilitation will continue to escalate as the number of high school athletes continues to grow” (para. 3). However the trainers further point out that “the long term negative health effects of a sedentary lifestyle far outweigh those of the vast majority of sports injuries” (para. 5).

With increased attention on head trauma among professional athletes, schools have turned attention to head trauma among school athletes. Satcher (2010) reported “concern was heightened following a study published in the *Journal of Neuropathology & Experimental Neurology* examining the link between head and brain injuries and dementia and cognitive decline in NFL players who develop symptoms of amyotrophic lateral sclerosis, or ALS (‘Lou Gehrig’s Disease’) later in life” (para. 2). In response the Atlanta Journal-Constitution published highlights of new concussion rules issued for high school players (Satcher, 2010).

### *Physical Fitness and Learning*

Approximately 50 years of research has been done to determine what, if any relationship physical fitness has to learning success in the classroom. Results suggest a weak relationship between the two. Some have advocated that not necessarily physical education but physical activity and fitness are related to cognitive performance and achievement (Dustman, Emmerson, & Shearer, 1994). However the fact that any



relationship exists at all has led to the idea that healthy children are more successful learners. Because committed participation in quality interscholastic athletic programs promotes physical activity, the correlation between fitness and learning is worth exploring.

Martin and Chalmers published a 2007 study among students in grades 3, 5, 6, and 8 in 46 elementary schools, nine middle schools, and five alternative schools in the Seattle School District taken during the 200-2001 academic year. Students were given a battery of fitness tests and an academic achievement test during the school year. The purpose of the study was to determine the relationship between the students' performance on the President's Physical Fitness Challenge and academic achievement on the Iowa tests of Basic Skills. Results, while showing a slight positive correlation, were not conclusive leaving the authors to leave determination of a positive relationship "up to the reader" and lead the researchers to "question the conclusion that there is solid evidence that healthy children learn better" (p. 219).

Dwyer, Sallis, Blizzard, Lazarus, and Dean (2001) conducted a similar study among 7,961 nationally representative Australian schoolchildren ages 7-15. Researchers hypothesized that a positive relationship would exist between ratings of scholastic ability on a five-point scale and physical activity and fitness measures. While no relationship appeared to exist between academic performance and physical work capacity, a strong relationship did exist between academic performance and physical skills ability. In this study results were concordant with the hypothesis that physical activity enhances academic performance; however, the nature of the observations gave reason to question whether the associations were due to measurement bias or residual

confounding.

### *The Obesity Stigma in Schools*

When cross-examining the relationship between academic achievement and physical fitness with self-esteem, results were again weak at best. An examination of data collected from 6,923 Canadian 12-year-olds in 2000 exhibited a negative relationship between physical activity and body-mass index, a positive relationship with self-esteem, and a trivial negative relationship with academic achievement (Tremblay, Inman, & Willms, 2000). Results of the study suggested that physical fitness may be indirectly related to academic performance by improving self-esteem.

Crosnoe and Muller (2004) supported this indirect relationship in a related study that examined the educational experiences of adolescents at risk of obesity and the relationship between body mass index, academic achievement, and school context. Researchers compared youth at risk and not at risk of obesity in terms of their socio-demographic profile, academic achievement, and school environment. Examination of the results indicated that at-risk youth had more problems at school and a higher average BMI; thus, the statistics support expectations that adolescents at risk of obesity would have lower academic achievement. Further analysis indicated that negative academic consequences of being at risk of obesity were greater in schools where a lower BMI existed and thus were more likely to increase stigmatization of risk of obesity.

The self-esteem relationship to physical fitness and academics is even more significant among girls. A study of gender, obesity, and education revealed obese girls were less likely to enter college after high school than were the nonobese peers,

especially when they attended schools in which obesity was relatively uncommon (Crosnoe, 2007). Additional analysis revealed that academic disengagement explained about one third of all obese girls' lower odds of college enrollment. Conversely in the same context, obese boys did not differ significantly from their peers.

## CHAPTER 3

### RESEARCH METHODOLOGY

#### *Introduction*

This study was conducted to determine the relationship between participation in interscholastic athletics at the elementary level and academic performance as measured by standardized tests. Rosters of elementary athletic teams were collected for 11 elementary schools in an East Tennessee school system of approximately 10,000 students. The scores of those students on the Tennessee Comprehensive Assessment Program were examined in relation to the general population and other demographic groups in order to observe potential trends. Given that school leaders must seek to maintain a successful academic program while incorporating quality extracurricular programs, such a study can be used to formulate policy and aid in decision-making when developing school athletic programs. This chapter includes Research Design, Research Questions and Null Hypotheses, Population, Instrumentation, Data Collection, and Data Analysis.

Several studies have been conducted to determine if such a relationship exists among athletes at the high school and college level. These studies have rendered mixed results as it pertains to the effect of athletic participation on academic performance. However, relatively few studies examining data at the elementary level have been conducted.

This study used a quantitative method of inquiry to examine the potential relationship between participation in elementary interscholastic athletics and academic

performance as measured by standardized tests. An ex post facto design was selected because the data already existed and collection of additional data was not necessary.

### *Research Questions and Null Hypotheses*

The purpose of this study was to investigate the impact of participating in interscholastic sports on the elementary student. The following research questions and corresponding null hypotheses guided this investigation:

#### *Research Question #1*

Is there a significant difference in the academic performance of elementary students who participate in interscholastic athletics and the academic performance of elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

H<sub>0</sub>1a: There is no significant difference in the Reading/Language Arts academic performance of elementary students who participate in interscholastic athletics and the Reading/Language Arts academic performance of elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

H<sub>0</sub>1b: There is no significant difference in the Math academic performance of elementary students who participate in interscholastic athletics and the Math academic performance of elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

## *Research Question #2*

Is there a significant difference in academic performance of elementary male and female students who participate in interscholastic athletics and the academic performance of male and female students who do not participate in interscholastic athletics as evidenced by standardized test scores.

H<sub>0</sub>2a: There is no significant difference in the Reading/Language Arts academic performance of male elementary students who participate in interscholastic athletics and the Reading/Language Arts academic performance of male elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

H<sub>0</sub>2b: There is no significant difference in the Math academic performance of male elementary students who participate in interscholastic athletics and the Math academic performance of male elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

H<sub>0</sub>2c: There is no significant difference in the Reading/Language Arts academic performance of female elementary students who participate in interscholastic athletics and the Reading/Language Arts academic performance of female elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

H<sub>0</sub>2d: There is no significant difference in the Math academic performance of female elementary students who participate in interscholastic athletics and the Math academic performance of female elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

### *Research Question #3*

Is there a significant difference in the academic performance of Caucasian, African American, Asian and Latino elementary students who participate in interscholastic athletics and the academic performance of Caucasian, African American, Asian and Latino elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

H<sub>0</sub>3a: There is no significant difference in the Reading/Language Arts academic performance of Caucasian elementary students who participate in interscholastic athletics and the Reading/Language Arts academic performance of Caucasian elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

H<sub>0</sub>3b: There is no significant difference in the Math academic performance of Caucasian elementary students who participate in interscholastic athletics and the Math academic performance of Caucasian elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

H<sub>0</sub>3c: There is no significant difference in the Reading/Language Arts academic performance of African American, Asian, and Latino elementary students who participate in interscholastic athletics and the Reading/Language Arts academic performance of African American, Asian, and Latino elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

H<sub>0</sub>3d: There is no significant difference in the Math academic performance of African American, Asian, and Latino elementary students who participate in interscholastic athletics and the Math academic performance of African American,

Asian, and Latino elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

#### *Research Question #4*

Is there a significant difference in the absences of elementary students who participate in interscholastic athletics and the absences of those who do not participate?

H<sub>0</sub>4: There is not a significant difference in the absences of elementary students who participate in interscholastic athletics and the absences of elementary students who do not participate.

#### *Population*

The selected population of this study consisted of fourth and fifth grade students in an East Tennessee school system. The system includes 11 elementary schools that span grades pre-kindergarten through 5, four middle schools that serve grades 6 through 8, and two high schools that include grades 10 through 12. Median household income in the district is approximately \$39,000. Students come from many different home situations: single-parent, two-parent, and nonparental (guardian) homes. Current enrollment for the system is 9,810 students with 76.3% of student white, 6.7% black, 15.1% Hispanic, 0.6% Native American, 1.2% Asian/Pacific Islander. Due to the limited number of blacks, Hispanics, Native Americans, and Asian/Pacific Islander these subgroups have been combined for this study. Approximately 63.3% of the students served qualify for free and reduced lunch (Tennessee Department of Education, 2011).

The data were collected from the 11 elementary schools within this East



Tennessee school system. The students who were participated completed fourth and fifth grade during the 2010 – 2011 school year and where administered the TCAP test in spring 2011. All elementary schools abided by the rules and regulations set by the Hamblen County School Board Policy Manuel that all students must maintain an overall “C” average in order to participate in interscholastic athletics. Official sports offered at all elementary schools include boys’ basketball, girls’ basketball, and cheerleading. All elementary schools taught Reading/Language Arts, Math, Science, and Social Studies as proposed by the Tennessee state standards.

### *Instrumentation*

Academic achievement between the students who participated in interscholastic athletics and those students who did not participate in interscholastic athletics were compared through the use of the Tennessee Comprehensive Assessment Program (TCAP). The test used multiple-choice questions and had set time limits for completion. All students were administered the test during the same testing window, which was mandated by the district office personnel. The subject areas chosen for comparison were Reading/Language Arts and Math.

“TCAP assessments are used to sample a student’s knowledge of subject-related concepts as specified in the Tennessee curriculum standards and to provide a global estimate of the student’s mastery of the material in a particular content area. The test is valid and reliable in that it is aligned to the curriculum standards and measures mastery of those standards, skills and concepts” (Tennessee Education Association, 2011, para. 6). There are 4 categories of achievement called “proficiency levels” that

are determined by precalculated cut scores for each subject area and grade: advanced, proficient, basic, and below basic. Students will be assigned a level depending upon their scores in each subject area. In addition these tests are scored professionally and require strict codes of conduct for test administrators.

### *Data Collection*

Data were collected on fourth and fifth graders in a school district in East Tennessee using the Pearson Power School computerized data program. These data rendered several elements of information critical to the comparisons in this study including: grade level, race, gender, attendance, Reading Language Arts scale score, and Mathematics scale score on the Tennessee Comprehensive Assessment Program (TCAP) Achievement test in 2010. Through cooperation with local elementary school principals and the school systems technology department, rosters from each elementary school were collected for boys' basketball, girls' basketball, and cheerleading for grades 4 and 5.

The school systems technology department maintained student confidentiality by providing coded rosters for the athletes' academic performance scores and attendance rates to the researcher. The research findings will not allow anyone the opportunity to identify a particular individual school athlete or school. No names were used in the study, and no identifying information was present. With such considerations in place, the study meets all ethical standards.

The scores of these student athletes were cross-referenced with scores from the general population as well as other subgroup indicators including gender, race and

attendance for the purpose of examining any possible evidence of differentiation among student athlete scores and those of other populations.

### *Data Analysis*

Descriptive statistics, including means and standard deviations, were calculated to provide a profile of the population being studied. Data used for this study came from the TCAP. For statistical analysis a value of 0 was assigned to below basic scores, a value of 1 was assigned to basic scores, a value of 2 was assigned to proficient scores, and a value of 3 was assigned to advanced scores. The Statistical Program for the Social Sciences (SPSS) was used to analyze data. A series of *t*-tests for independent groups were conducted to determine if there were Reading/Language Arts and Math achievement differences between interscholastic athletes and nonathletes for the 2011-2012 school year. Independent *t*-tests for each group were analyzed to determine if there were gender or race differences between interscholastic athletes and nonathletes. Differences in attendance rates for students who participate in interscholastic athletics and those who do not participate in athletics were also analyzed. All statistical tests were conducted using a preset alpha level of .05 to determine if statistical differences existed in academic achievement between interscholastic athletes and nonathletes in the East Tennessee public school system.

## CHAPTER 4

### ANALYSIS OF DATA

The purpose of this study was to determine if students who participated in interscholastic athletics were more academically successful than students who did not participate in interscholastic athletics in an East Tennessee School District as evidenced by scores from the 2011-2012 TCAP. Student success was determined by the proficiency rate in Reading/Language Arts and Math on the TCAP and number of days absent from school. Eleven elementary schools serving grades kindergarten through fifth were selected for this study. The schools are located in a rural setting that has a county population of about 60,000. Data were collected in grades 4 and 5 during the 2011-2012 school year. No data were included for kindergarten through third grade as students were not permitted to participate in interscholastic sports until fourth grade.

In this chapter data were presented and analyzed to answer four research questions and 11 null hypotheses. Data were collected about students who participated in interscholastic athletics and about students who did not participate in interscholastic athletics. Two data measures for both groups of students were analyzed: proficiency levels on fourth and fifth grade Reading/Language Arts and Math TCAP and days absent from school. Data were retrieved from the local school system's director, curriculum specialist, data and statistics specialist, student data management system, and school level administrators.

## *Analysis of Research Questions*

### *Research Question 1*

Is there a significant difference in the academic performance of elementary students who participate in interscholastic athletics and the academic performance of elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

H<sub>0</sub>1a: There is no significant difference in the Reading/Language Arts academic performance of elementary students who participate in interscholastic athletics and the Reading/Language Arts academic performance of elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

An independent-samples t test was performed to compare the mean Reading/Language Arts proficiency level scores of students who participated in interscholastic athletics and those who did not participate in interscholastic athletics. The students who participated in interscholastic athletics ( $M = 1.81$ ,  $SD = .76$ ,  $N = 356$ ) scored significantly higher on proficiency levels than the students who did not participate in interscholastic athletics ( $M = 1.57$ ,  $SD = .77$ ,  $N = 1,082$ ),  $t(1,436) = 5.106$ ,  $p < .001$ , two-tailed. The 95% confidence interval for the difference between the group means was .148 to .332. The Cohen's d index of .05 indicated a small effect size. H<sub>0</sub>1a that students in fourth and fifth grade who participate in interscholastic athletics do not score at a higher proficiency rate in Reading/Language Arts than students in the fourth and fifth grade who did not participate in interscholastic athletics was rejected. Figure 1 shows that students who participated in interscholastic athletics tended to score significantly higher academically on standardized tests in Reading/Language Arts than

those who did not participate in interscholastic athletics.

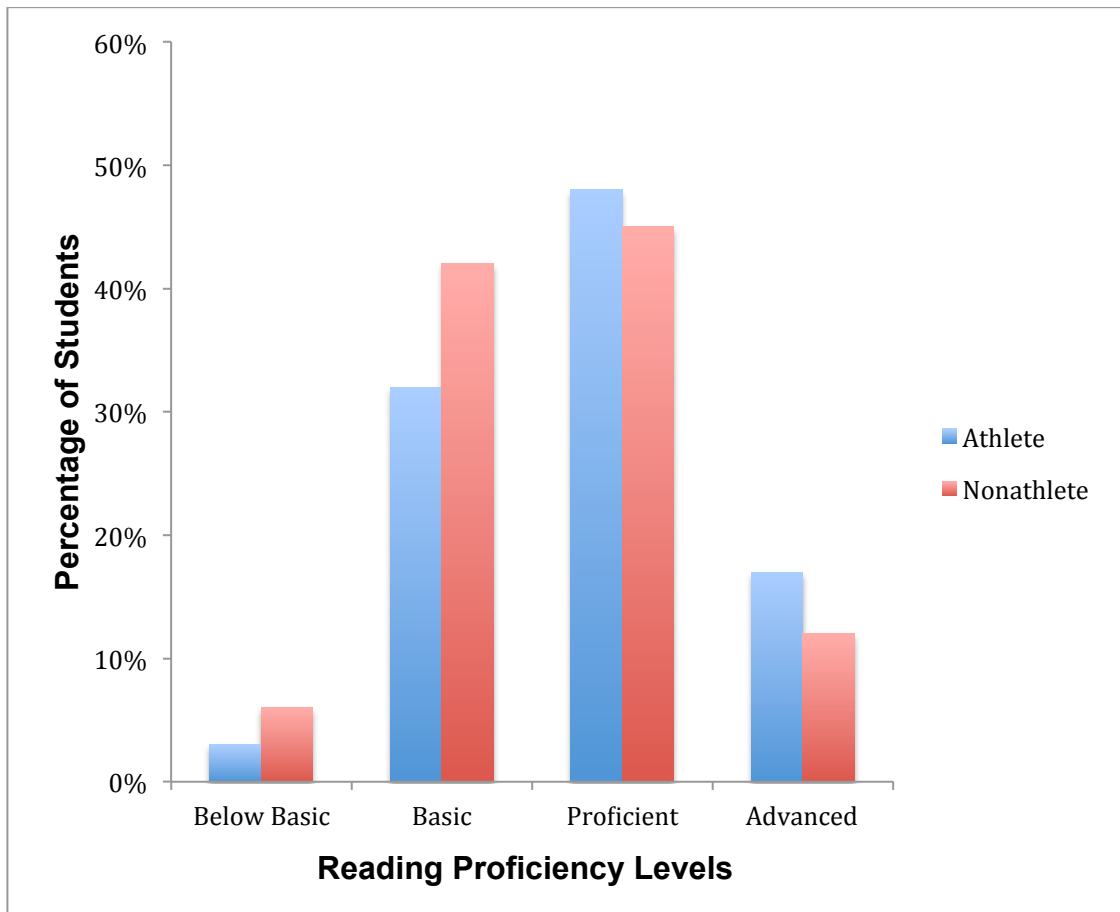


Figure 1. Athletes vs. Nonathletes in Reading

H<sub>0</sub>1b: There is no significant difference in the Math academic performance of elementary students who participate in interscholastic athletics and the Math academic performance of elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

An independent-samples t test was performed to compare the mean Math proficiency level scores of students who participated in interscholastic athletics and those that did not participate in interscholastic athletics. The students who participated

in interscholastic athletics ( $M = 1.85$ ,  $SD = .84$ ,  $N = 356$ ) scored significantly higher on proficiency levels than the students who did not participate in interscholastic athletics ( $M = 1.59$ ,  $SD = .86$ ,  $N = 1,082$ ),  $t(1436) = 5.007$ ,  $p < .001$ , two-tailed. The 95% confidence interval for the difference between the group means was .160 to .365. The Cohen's  $d$  index of .05 indicated a small effect size.  $H_0$ 1a that students in 4<sup>th</sup> and 5<sup>th</sup> grade who participated in interscholastic athletics do not score at a higher proficiency rate in Math than students in the 4<sup>th</sup> and 5<sup>th</sup> grade who did not participate in interscholastic athletics was rejected. Figure 2 shows that students who participated in interscholastic athletics tended to score higher academically on standardized tests in Math than those who did not participate in interscholastic athletics.

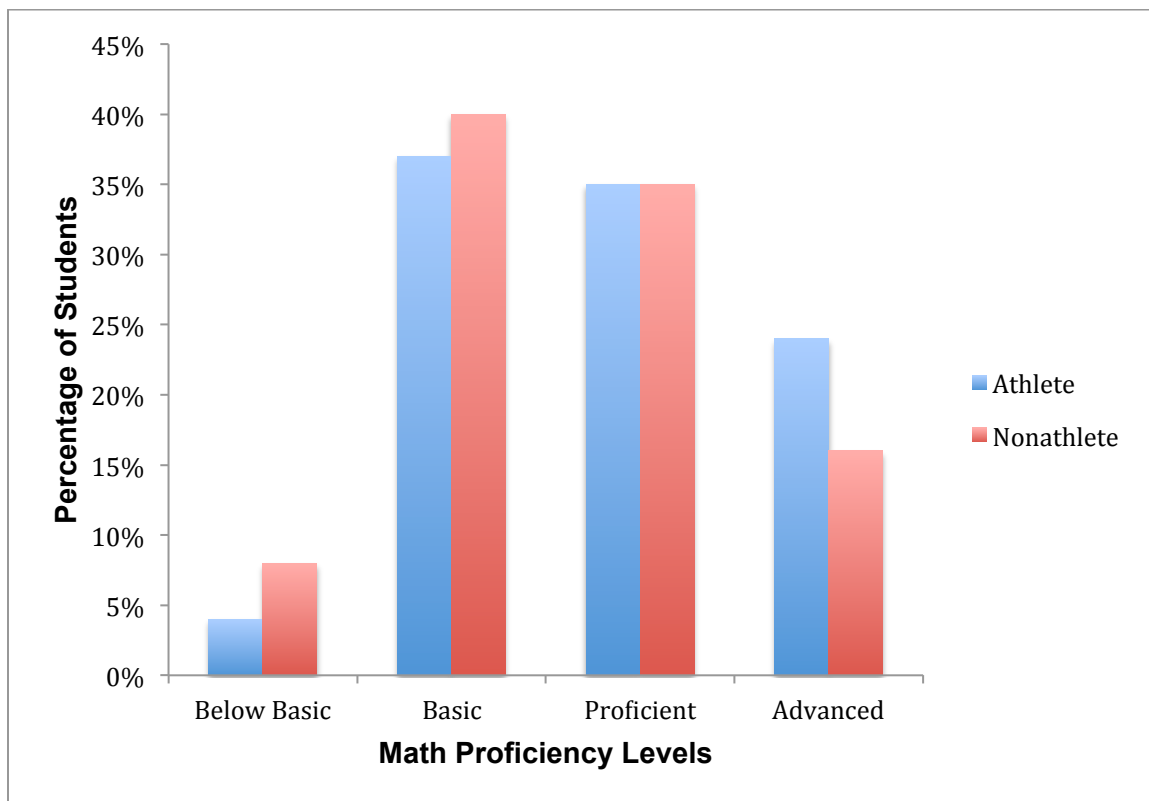


Figure 2. Athletes vs. Nonathletes in Math

The means and standard deviations of the variables (Reading/Language Arts proficiency scores and math proficiency scores) between students who participated in interscholastic athletics and students who did not participate in interscholastic athletics are shown in Table 1.

Table 1

*Means and Standard Deviations of Measures Between Students Who Participated in Interscholastic Athletics and Students Who Did Not Participate in Interscholastic Athletics*

<i>Variable</i>	Student Athletes		<i>SD</i>	<i>p</i>
	<i>N</i>	<i>M</i>		
TCAP Reading	356	1.81	.757	.001
Proficiency Levels	(1,082)	(1.57)	(.772)	
TCAP Math	356	1.85	.839	.001
Proficiency Levels	(1,082)	(1.59)	(.864)	

*Research Question #2*

Is there a significant difference in academic performance of elementary male and female students who participate in interscholastic athletics and the academic performance of male and female students who do not participate in interscholastic athletics as evidenced by standardized test scores.

H<sub>0</sub>2a: There is no significant difference in the Reading/Language Arts academic performance of male elementary students who participate in interscholastic athletics and the Reading/Language Arts academic performance of male elementary students



who do not participate in interscholastic athletics as evidenced by standardized test scores.

An independent-samples t test was performed to compare the mean Reading/Language Arts proficiency level scores of male students who participated in interscholastic athletics and males that did not participate in interscholastic athletics. The male students who participated in interscholastic athletics ( $M = 1.77$ ,  $SD = .72$ ,  $N = 173$ ) scored significantly higher on proficiency levels than the male students who did not participate in interscholastic athletics ( $M = 1.58$ ,  $SD = .80$ ,  $N = 515$ ),  $t(686) = 2.750$ ,  $p = .006$ , two-tailed. The 95% confidence interval for the difference between the group means was .054 to .323. The Cohen's d index of .07 indicated a small effect size.  $H_02a$  that male students who participate in interscholastic athletics do not score at a higher proficiency rate in Reading/Language Arts than male students who did not participate in interscholastic athletics was rejected. Figure 3 shows that male students who participated in interscholastic athletics tended to score significantly higher academically on standardized tests in Reading/Language Arts than male students who did not participate in interscholastic athletics.

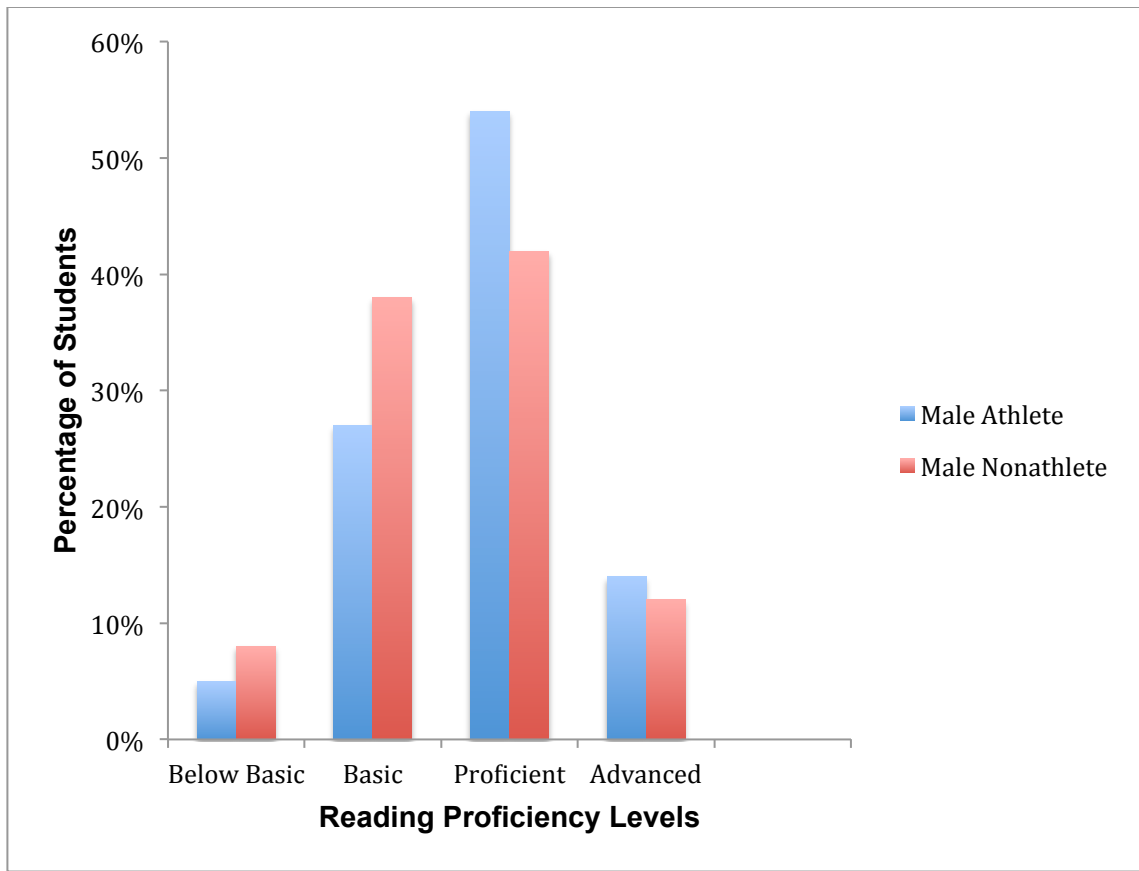


Figure 3. Male Athletes vs. Male Nonathletes in Reading

H<sub>0</sub>2b: There is no significant difference in the Math academic performance of male elementary students who participate in interscholastic athletics and the Math academic performance of male elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

An independent-samples t test was performed to compare the mean Math proficiency level scores of male students who participated in interscholastic athletics and males that did not participate in interscholastic athletics. The male students who participated in interscholastic athletics (M = 1.84, SD = .87, N = 173) scored significantly higher on proficiency levels than the male students who did not participate in

interscholastic athletics ( $M = 1.56$ ,  $SD = .87$ ,  $N = 515$ ),  $t(686) = 3.719$ ,  $p < .001$ , two-tailed. The 95% confidence interval for the difference between the group means was .133 to .432. The Cohen's  $d$  index of .08 indicated a small effect size.  $H_{02b}$  that male students who participated in interscholastic athletics did not score at a higher proficiency rate in Math than male students who did not participate in interscholastic athletics was rejected. Figure 4 shows that male students who participated in interscholastic athletics tended to score higher academically on standardized tests in Math than male students who did not participate in interscholastic athletics.

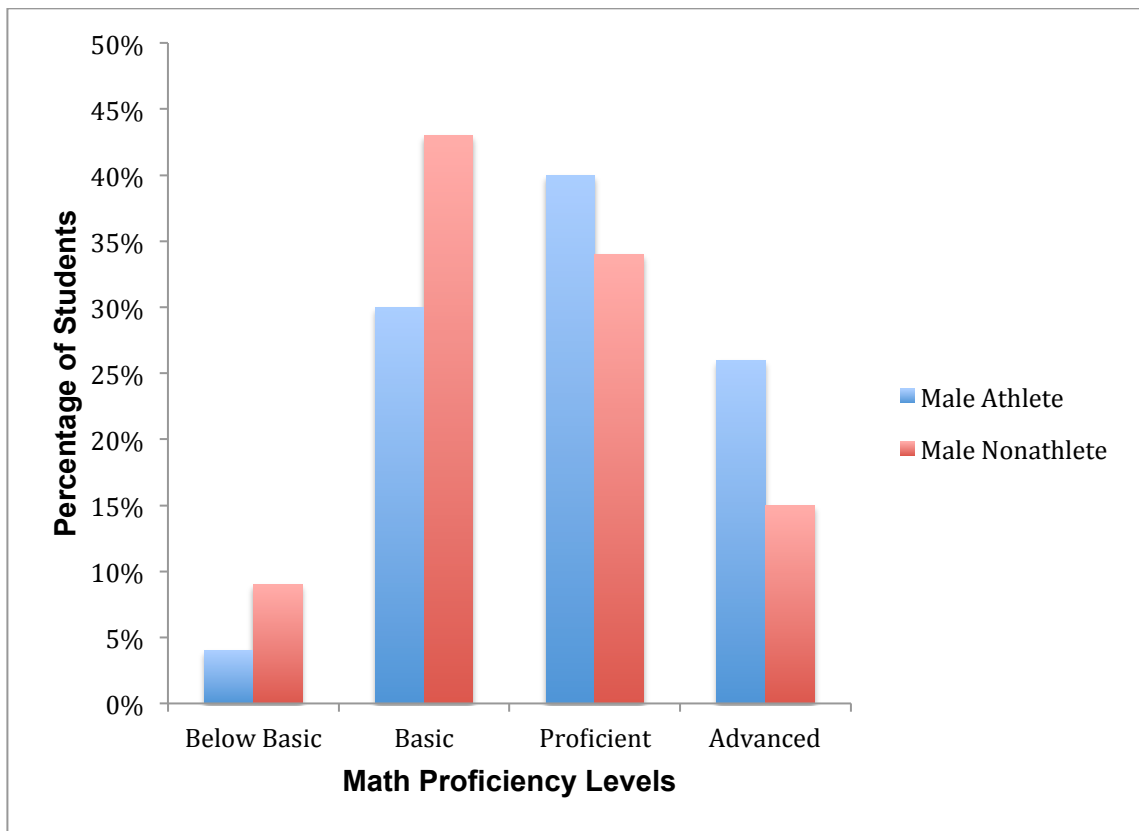


Figure 4. Male Athletes vs. Male Nonathletes in Math

The means and standard deviations of the variables (Reading/Language Arts proficiency scores and math proficiency scores) between male students who participated in interscholastic athletics and male students who did not participate in interscholastic athletics are shown in Table 2.

Table 2

*Means and Standard Deviations of Measures Between Male Students Who Participated in Interscholastic Athletics and Male Students Who Did Not Participate in Interscholastic Athletics*

	Male Student Athletes (Male Student Nonathletes)			
<i>Variable</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>p</i>
TCAP Reading Proficiency Levels	173 (515)	1.77 (1.58)	.718 (.798)	.006
TCAP Math Proficiency Levels	173 (515)	1.84 (1.56)	.865 (.865)	.001

H<sub>0</sub>2c: There is no significant difference in the Reading/Language Arts academic performance of female elementary students who participate in interscholastic athletics and the Reading/Language Arts academic performance of female elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

An independent-samples t test was performed to compare the mean Reading/Language Arts proficiency level scores of female students who participated in interscholastic athletics and females who did not participate in interscholastic athletics. The female students who participated in interscholastic athletics (M = 1.84, SD = .79, N

= 183) scored significantly higher on proficiency levels than the female students who did not participate in interscholastic athletics (M = 1.55, SD = .75, N = 566),  $t(747) = 4.444$ ,  $p < .001$ , two-tailed. The 95% confidence interval for the difference between the group means was .160 to .413. The Cohen's d index of .07 indicated a small effect size.  $H_02c$  that female students who participated in interscholastic athletics did not score at a higher proficiency rate in Reading/Language Arts than female students who did not participate in interscholastic athletics was rejected. Female students who participated in interscholastic athletics tended to score higher academically on standardized tests in Reading/Language Arts than female students who did not participate in interscholastic athletics.

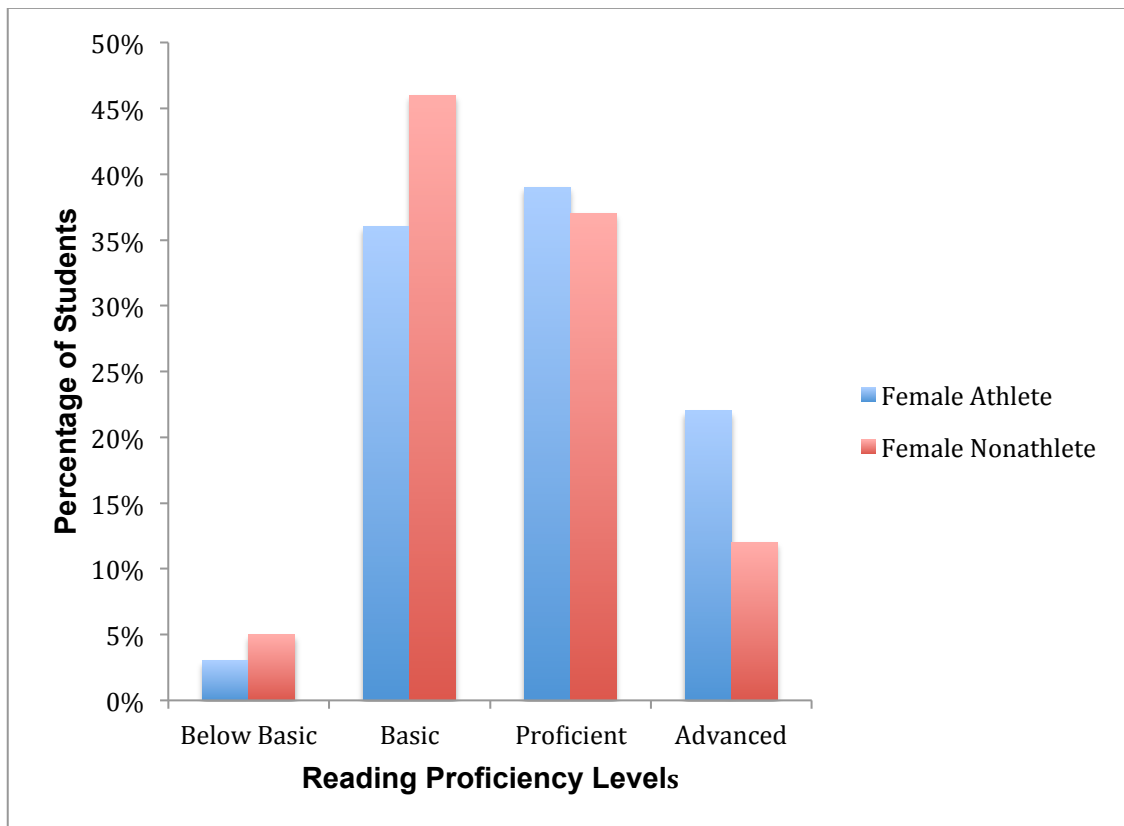
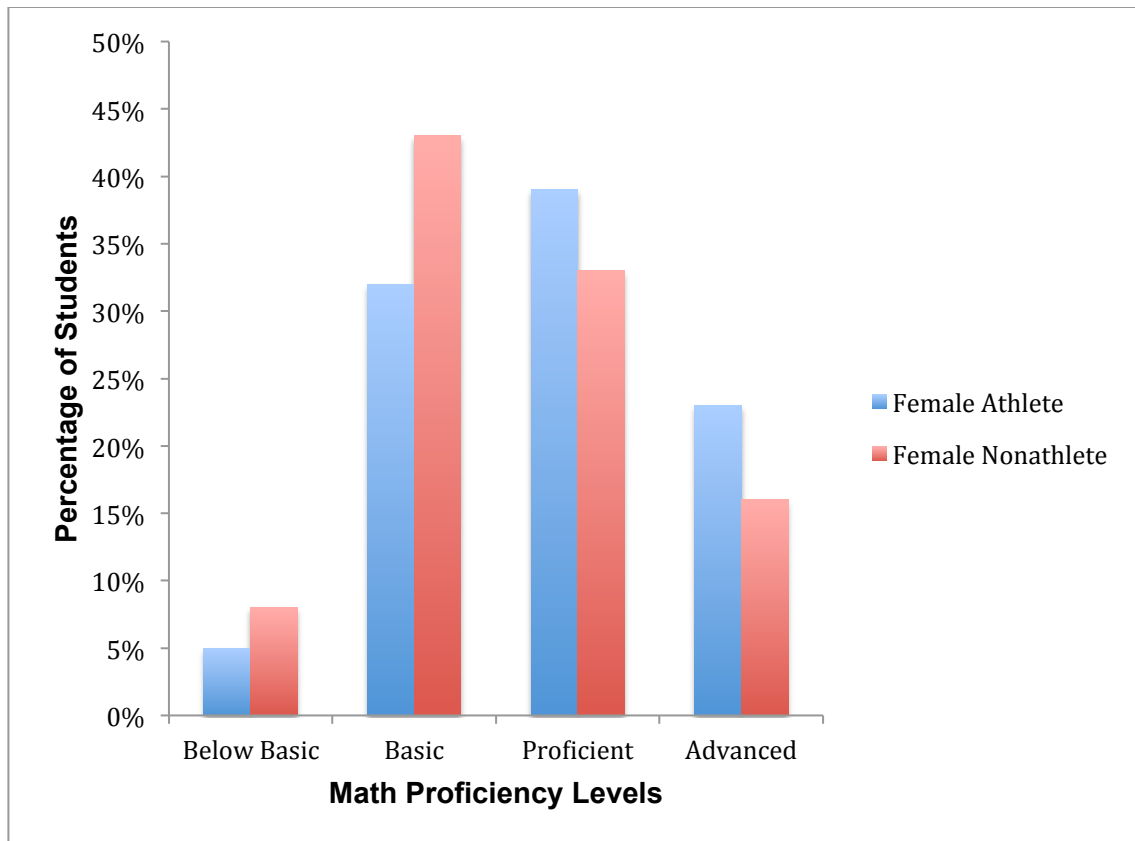


Figure 5. Female Athletes vs. Female Nonathletes in Reading

H<sub>0</sub>2d: There is no significant difference in the Math academic performance of female elementary students who participate in interscholastic athletics and the Math academic performance of female elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

An independent-samples t test was performed to compare the mean Math proficiency level scores of female students who participated in interscholastic athletics and females who did not participate in interscholastic athletics. The female students who participated in interscholastic athletics (M = 1.85, SD = .82, N = 183) scored significantly higher on proficiency levels than the female students who did not participate in interscholastic athletics (M = 1.61, SD = .86, N = 566),  $t(747) = 3.354$ ,  $p < .001$ , two-tailed. The 95% confidence interval for the difference between the group means was .101 to .385. The Cohen's d index of .07 indicated a small effect size. H<sub>0</sub>2d that female students who participated in interscholastic athletics did not score at a higher proficiency rate in Math than female students who did not participate in interscholastic athletics was rejected. Figure 6 shows that female students who participated in interscholastic athletics tended to score higher academically on standardized tests in Math than female students who did not participate in interscholastic athletics.



*Figure 6.* Female Athletes vs. Female Nonathletes in Math

The means and standard deviations of the variables (Reading/Language Arts proficiency scores and math proficiency scores) between female students who participated in interscholastic athletics and female students who did not participate in interscholastic athletics are shown in Table 3.

Table 3

*Means and Standard Deviations of Measures Between Female Students Who Participated in Interscholastic Athletics and Female Students Who Did Not Participate in Interscholastic Athletics*

<i>Variable</i>	Female Student Athletes		<i>SD</i>	<i>p</i>
	<i>N</i>	<i>M</i>		
TCAP Reading	183	1.84	.79	.001
Proficiency Levels	(566)	(1.55)	(.75)	
TCAP Math	183	1.85	.82	.001
Proficiency Levels	(566)	(1.61)	(.86)	

*Research Question #3*

Is there a significant difference in the academic performance of Caucasian, African American, Asian and Latino elementary students who participate in interscholastic athletics and the academic performance of Caucasian, African American, Asian and Latino elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

H<sub>0</sub>3a: There is no significant difference in the Reading/Language Arts academic performance of Caucasian elementary students who participate in interscholastic athletics and the Reading/Language Arts academics performance of Caucasian elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

An independent-samples t test was performed to compare the mean Reading/Language Arts proficiency level scores of Caucasian students who participated



in interscholastic athletics and Caucasian students that did not participate in interscholastic athletics. The Caucasian students who participated in interscholastic athletics ( $M = 1.88$ ,  $SD = .72$ ,  $N = 281$ ) scored significantly higher on proficiency levels than the Caucasian students who did not participate in interscholastic athletics ( $M = 1.63$ ,  $SD = .76$ ,  $N = 763$ ),  $t(1,042) = 4.593$ ,  $p < .001$ , two-tailed. The 95% confidence interval for the difference between the group means was .138 to .344. The Cohen's  $d$  index of .05 indicated a small effect size.  $H_03a$  that Caucasian students who participated in interscholastic athletics did not score at a higher proficiency rate in Reading/Language Arts than Caucasian students who did not participate in interscholastic athletics was rejected. As shown in figure 7 Caucasian students who participated in interscholastic athletics tended to score significantly higher academically on standardized tests in Reading/Language Arts than those who did not participate in interscholastic athletics.

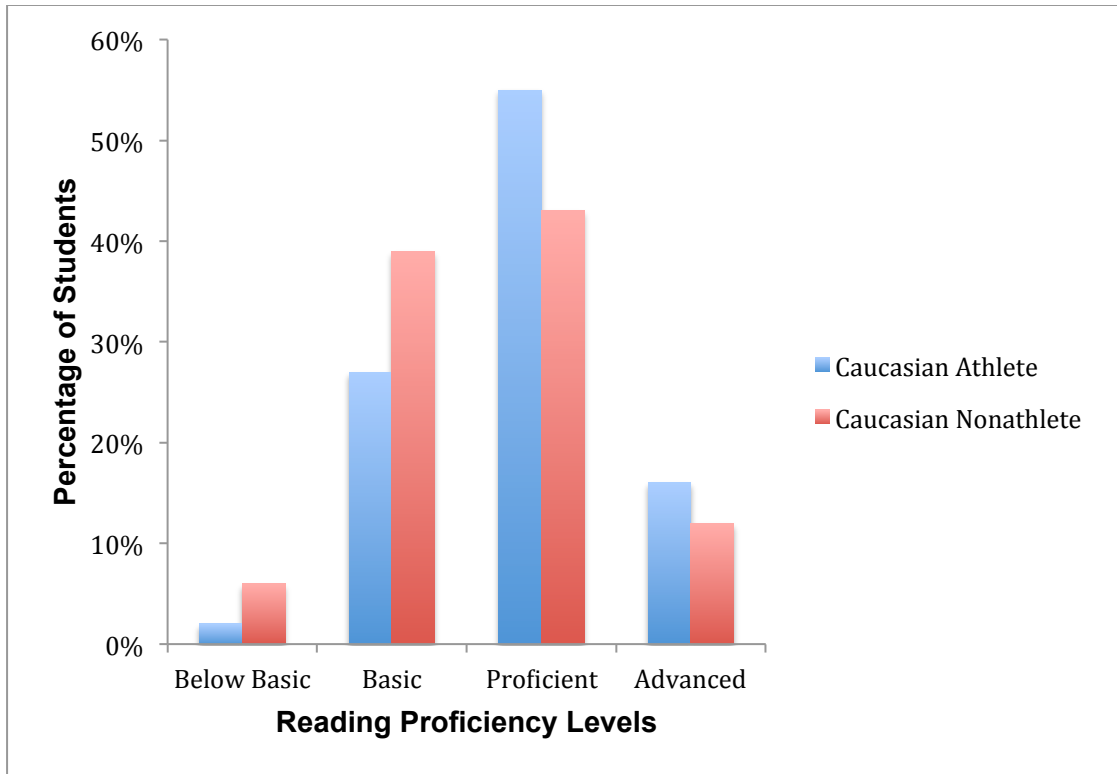


Figure 7. Caucasian Athletes vs. Caucasian Nonathletes in Reading

H<sub>0</sub>3b: There is no significant difference in the Math academic performance of Caucasian elementary students who participate in interscholastic athletics and the Math academic performance of Caucasian elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores.

An independent-samples t test was performed to compare the mean Math proficiency level scores of Caucasian students who participated in interscholastic athletics and those who did not participate in interscholastic athletics. The Caucasian students who participated in interscholastic athletics (M = 1.93, SD = .81, N = 281) scored significantly higher on proficiency levels than the Caucasian students who did not participate in interscholastic athletics (M = 1.64, SD = .89, N = 763),  $t(1,042) =$

4.748,  $p < .001$ , two-tailed. The 95% confidence interval for the difference between the group means was .168 to 405. The Cohen's  $d$  index of .06 indicated a small effect size.  $H_{03b}$  that Caucasian students who participate in interscholastic athletics do not score at a higher proficiency rate in Math than Caucasian students who did not participate in interscholastic athletics was rejected. Figure 8 shows that Caucasian students who participated in interscholastic athletics tended to score significantly higher academically on standardized tests in Math than those who did not participate in interscholastic athletics.

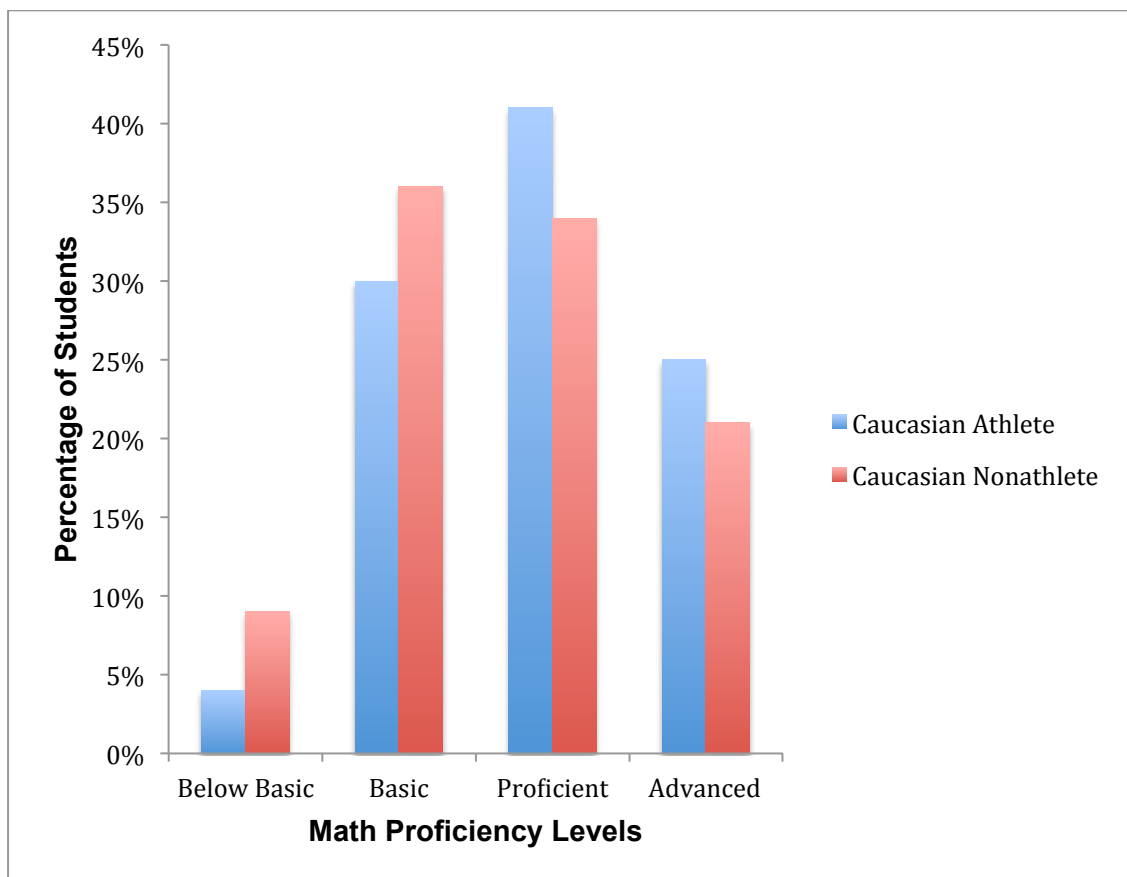


Figure 8. Caucasian Athletes vs. Caucasian Nonathletes in Math

The means and standard deviations of the variables (Reading/Language Arts proficiency scores and Math proficiency scores) between Caucasian students who participated in interscholastic athletics and Caucasian students who did not participate in interscholastic athletics are shown in Table 4.

Table 4

*Means and Standard Deviations of Measures Between Caucasian Students Who Participated in Interscholastic Athletics and Caucasian Students Who Did Not Participate in Interscholastic Athletics*

<i>Variable</i>	Caucasin Student Athletes (Caucasian Student Nonathletes)			
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>p</i>
TCAP Reading Proficiency Levels	281 (763)	1.88 (1.63)	.72 (.76)	.001
TCAP Math Proficiency Levels	281 (763)	1.93 (1.64)	.81 (.89)	.001

H<sub>0</sub>3c: There is no significant difference in the Reading/Language Arts academic performance of African American, Asian, and Latino elementary students who participate in interscholastic athletics and the Reading/Language Arts academic performance in African American, Asian, and Latin students who do not participate in interscholastic athletics as evidenced by standardized test scores.

An independent-samples t test was performed to compare the mean Reading/Language Arts proficiency level scores of African American, Asian, and Latino students who participated in interscholastic athletics and African American, Asian, and

Latino students who did not participate in interscholastic athletics. The African American, Asian, and Latino students who participated in interscholastic athletics ( $M = 1.55$ ,  $SD = .85$ ,  $N = 73$ ) scored significantly higher on proficiency levels than the African American, Asian, and Latino students who did not participate in interscholastic athletics ( $M = 1.41$ ,  $SD = .76$ ,  $N = 311$ ),  $t(382) = 1.347$ ,  $p = .11$ , two-tailed. The 95% confidence interval for the difference between the group means was .063 to .335. The Cohen's  $d$  index of .10 indicated a small effect size.  $H_03c$  that African American, Asian, and Latino students who participated in interscholastic athletics did not score at a higher proficiency rate in Reading/Language Arts than African American, Asian, and Latino students who did not participate in interscholastic athletics was rejected. Figure 9 shows that African American, Asian, and Latino students who participated in interscholastic athletics tended to score significantly higher on standardized tests in Reading/Language Arts than those who did not participate in interscholastic athletics.

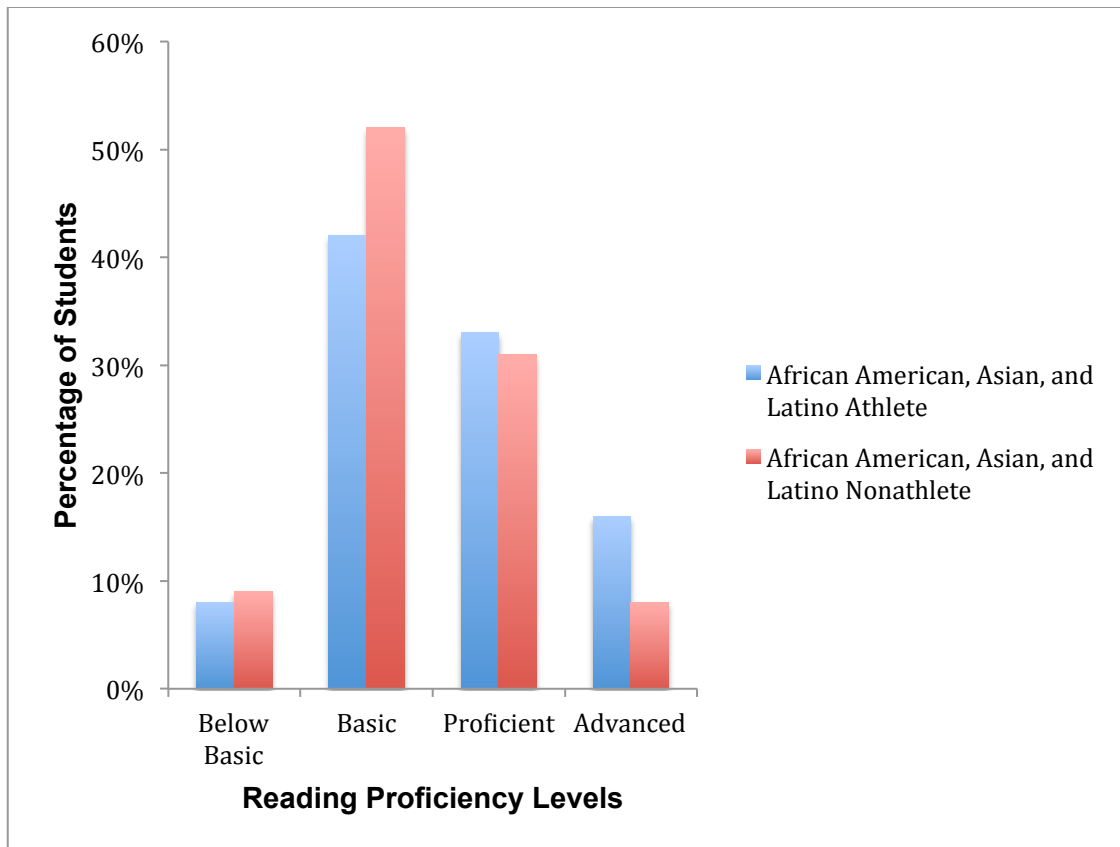
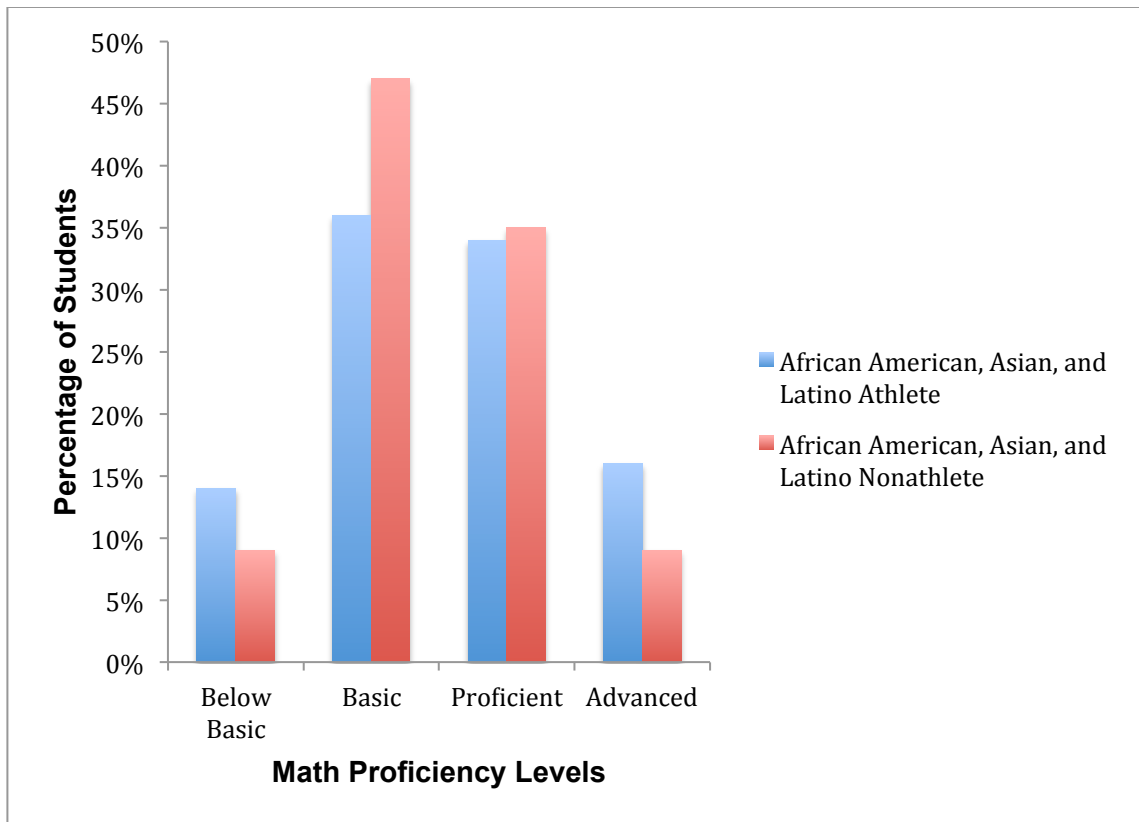


Figure 9. African American, Asian, and Latino Athletes vs. African American, Asian, and Latino Nonathletes in Reading

H<sub>0</sub>3d: There is no significant difference in the Math academic performance of African American, Asian, and Latino elementary students who participate in interscholastic athletics and the Math academic performance of African American, Asian, and Latino students who do not participate in interscholastic athletics as evidenced by standardized test scores.

An independent-samples t test was performed to compare the mean Math proficiency level scores of African American, Asian, and Latino students who participated in interscholastic athletics and African American, Asian, and Latino students who did not participate in interscholastic athletics. The African American, Asian, and

Latino students who participated in interscholastic athletics ( $M = 1.53$ ,  $SD = .90$ ,  $N = 73$ ) scored significantly higher on proficiency levels than the African American, Asian, and Latino students who did not participate in interscholastic athletics ( $M = 1.46$ ,  $SD = .80$ ,  $N = 311$ ),  $t(382) = .730$ ,  $p = .47$ , two-tailed. The 95% confidence interval for the difference between the group means was .131 to .287. The Cohen's  $d$  index of .11 indicated a small effect size.  $H_0$  that African American, Asian, and Latino students who participated in interscholastic athletics did not score at a higher proficiency rate in Math than African American, Asian, and Latino students who did not participate in interscholastic athletics was rejected. Figure 10 shows that African American, Asian, and Latino students who participated in interscholastic athletics tended to score significantly higher on standardized tests in Math than those who did not participate in interscholastic athletics.



*Figure 10. African American, Asian and Latino Athletes vs. African American, Asian, and Latino Nonathletes in Math*

The means and standard deviations of the variables (Reading/Language Arts proficiency scores and math proficiency scores) between African American, Asian, and Latino students who participated in interscholastic athletics and African American, Asian, and Latino students who did not participate in interscholastic athletics are shown in Table 5.



Table 5

*Means and Standard Deviations of Measures Between African American, Asian, and Latino Students Who Participated in Interscholastic Athletics and African American, Asian, and Latino Students Who Did Not Participate in Interscholastic Athletics*

African American, Asian, and Latino Student Athletes (African American, Asian, and Latino Student Nonathletes)				
<i>Variable</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>p</i>
TCAP Reading	73	1.55	.85	.11
Proficiency Levels	(311)	(1.41)	(.76)	
TCAP Math	73	1.53	.90	.47
Proficiency Levels	(311)	(1.46)	(.80)	

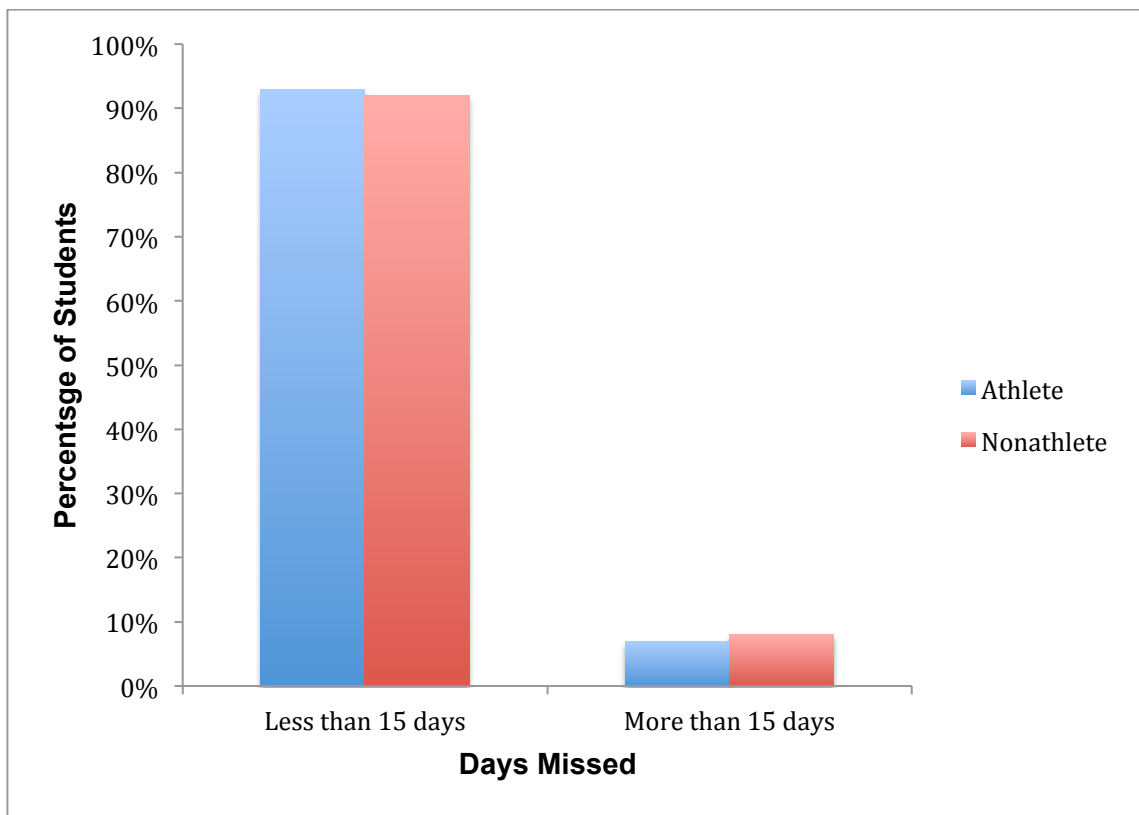
*Research Question #4*

Is there a significant difference in the absences of elementary students who participate in interscholastic athletics and the absences of elementary students who do not participate?

H<sub>04</sub>: There is not a significant difference in the absences of elementary students who participate in interscholastic athletics and the absences of elementary students who do not participate.

An independent-samples t test was performed to compare the mean attendance rate of students who participated in interscholastic athletics and those who did not participate in interscholastic athletics. The students who participated in interscholastic athletics (M = .06, SD = .24, N = 369) had a higher attendance rate than the students who did not participate in interscholastic athletics (M = .07, SD = .259, N = 1,236),  $t(1603) = .640, p = .52$ , two-tailed. The 95% confidence interval for the difference

between the group means was  $-.02$  to  $.04$ . The Cohen's  $d$  index of  $.02$  indicated a small effect size.  $H_{01a}$  that there is not a significant difference in absences of elementary students who participate in interscholastic athletics and those who did not participate in interscholastic athletics was retained. Figure 11 shows that students who participated in interscholastic athletics tended to have about the same attendance rate as those who did not participate in interscholastic athletics.



*Figure 11. Attendance of Athletes vs. Attendance of Nonathletes*

The means and standard deviations of the variables (absences less than 15 days and absences more the 15 days between students who participated in interscholastic athletics and students who did not participate in interscholastic athletics are shown in Table 6.

Table 6

*Means and Standard Deviations of Measures Between Attendance Rates for Students Who Participated in Interscholastic Athletics and Students Who Did Not Participate in Interscholastic Athletics*

<i>Variable</i>	Student Athletes (Student Nonathletes)			
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>p</i>
Days absent	369 (1,236)	.06 (.07)	.24 (.259)	.52

### *Summary*

In this chapter data obtained for students who participated in interscholastic athletics and those who did not participate in athletics were presented and analyzed. The two data measures for both groups analyzed were proficiency levels on fourth and fifth grade Reading/Language Arts and Math TCAP scores and days absent from school. There were four research questions and 11 null hypotheses. An independent samples t-test was conducted for each of the null hypotheses. Data collected were from 11 elementary schools in an East Tennessee school district. Data were obtained from the school system's director, curriculum specialist, data and statistics specialist, student data management system, and school level administrators.

A series of independent-samples t-tests were performed to determine if significant differences in proficiency levels for Reading/Language Arts and Math scores existed between students who participated in interscholastic athletics and students who did not participate in interscholastic athletics. The results showed that typically students

who participated in interscholastic athletics achieved higher academically than students who did not participate in interscholastic athletics. Attendance rates were also analyzed after performing an independent-samples t test to determine if there was a difference in students who participated in interscholastic athletics and students who did not participate in interscholastic athletics. The results showed no significant differences. Chapter 5 is a discussion of conclusions drawn from the results of the study and presents suggestions for further research on this topic.

## CHAPTER 5

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Participation in extracurricular sports has been an essential part of the public school system since the mid-1800s (Sage, 1970). Previous researchers such as Kirkcaldy et al. (2002) found that effective athletic programs instill a sense of self-efficacy and pride in students, characteristics that can carry over to the classroom and nurture academic success as well. Chomitz et al. (2009) have shown a clear, positive correlation between general physical fitness and academic achievement. Conversely, the discussion of the literature showed no clear consensus regarding the effect of participation in elementary school sports on academic performance. While studies by Fox et al. (2010), Broh (2002), and Barber et al. (2001) showed a positive correlation between students' academic performance and participation in athletics, a study by Melnick et al. (1988) showed "no significant effect on grades or standardized test scores in the general student population" (p. 32). Videon (2002) and Holloway (2002) reported that participation in extracurricular activities produce higher levels of achievement in areas such as GPAs and test scores. However Feldman and Matjasko (2005), supported these findings but discovered a gap in the research considering activities other than athletics. Cousins (2004) stated if participating in school-sponsored activities do in fact have a positive benefits for those who take part, then it is the responsibility of researchers to conduct studies of the various elements of the school environment that might influence or might be influenced by the extent of student participation in a school's extracurricular activities program.

The purpose of this study was to provide data regarding the relationship between interscholastic athletics and academic achievement in elementary grades. The objective was to determine if participation in interscholastic athletics had a significant impact on academic achievement and attendance rates for fourth and fifth grade students in an East Tennessee School district. Academic success was defined as higher proficiency scores on TCAP test. The retrieved data for this study were proficiency scores from the TCAP test in Reading/Language Arts and Math, gender, ethnicity, and days absent from school. This chapter contains the findings, conclusions, and recommendations for readers who may want to use the results as a resource when studying the influence that athletics may have on our youth's future.

### *Summary of Results*

This study has been conducted to determine the relationship between participation in interscholastic athletics at the elementary level and academic performance as measured by standardized tests. Rosters of elementary athletic teams were collected for 11 elementary schools in an East Tennessee school system of approximately 10,000 students. The scores of those students on the 2011-2012 Tennessee Comprehensive Assessment Program were examined in relation to the general population and other demographic groups in order to observe potential trends.

The data analyses reported are based upon four hypotheses that were tested at a .05 level of significance. The variables studied included proficiency scores on Reading/Language Arts TCAP scores, proficiency scores on Math TCAP scores, and days of attendance in school. Data were collected from fourth and fifth grade students

in 11 elementary schools located in an East Tennessee school district for the 2011-2012 school year. Data were obtained from the school system's director, curriculum specialist, data and statistics specialist, student data management system, and school level administrators.

### *Research Question #1*

Is there a significant difference in the academic performance of elementary students who participate in interscholastic athletics and elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores?

*Reading/Language Arts Proficiency Scores.* An independent t-test was used to determine if a significant difference exists in Reading/Language Arts proficiency scores between students who participated in interscholastic athletics and students who did not participate in interscholastic athletics. There was a significant difference found in the proficiency scores of athletes and nonathletes. Students who participated in interscholastic athletics were found to have significantly higher proficiency scores in Reading/Language Arts than students who did not participate in interscholastic athletics.

*Math Proficiency Scores.* An independent t-test was used to determine if a significant difference exists in Math proficiency scores between students who participated in interscholastic athletics and students who did not participate in interscholastic athletics. There was a significant difference found in the proficiency scores of athletes and nonathletes. Students who participated in interscholastic athletics were found to have significantly higher proficiency scores in Math than students who did not participate in interscholastic athletics.

## *Research Question #2*

Is there a significant difference in academic performance of elementary male and female students who participate in interscholastic athletics and elementary male and female students who do not participate in interscholastic athletics as evidenced by standardized test scores?

*Male Reading/Language Arts Proficiency Scores.* An independent t-test was used to determine if a significant difference exists in Reading/Language Arts proficiency scores between male students who participated in interscholastic athletics and male students who did not participate in interscholastic athletics. There was a significant difference found in the proficiency scores of male athletes and male nonathletes. Male students who participated in interscholastic athletics were found to have significantly higher proficiency scores in Reading/Language Arts than male students who did not participate in interscholastic athletics.

*Male Math Proficiency Scores.* An independent t-test was used to determine if a significant difference exists in Math proficiency scores between male students who participated in interscholastic athletics and male students who did not participate in interscholastic athletics. There was a significant difference found in the proficiency scores of male athletes and male nonathletes. Male students who participated in interscholastic athletics were found to have significantly higher proficiency scores in Math than male students who did not participate in interscholastic athletics.

*Female Reading/Language Arts Proficiency Scores.* An independent t-test was used to determine if a significant difference exists in Reading/Language Arts proficiency scores between female students who participated in interscholastic athletics and female



students who did not participate in interscholastic athletics. There was a significant difference found in the proficiency scores of female athletes and female nonathletes. Female students who participated in interscholastic athletics were found to have significantly higher proficiency scores in Reading/Language Arts than female students who did not participate in interscholastic athletics.

*Female Math Proficiency Scores.* An independent t-test was used to determine if a significant difference exists in Math proficiency scores between female students who participated in interscholastic athletics and female students who did not participate in interscholastic athletics. There was a significant difference found in the proficiency scores of female athletes and female nonathletes. Female students who participated in interscholastic athletics were found to have significantly higher proficiency scores in Math than female students who did not participate in interscholastic athletics.

### *Research Question #3*

Is there a significant difference in the academic performance of Caucasian, African American, Asian, and Latino elementary students who participate in interscholastic athletics and Caucasian, African American, Asian, and Latino elementary students who do not participate in interscholastic athletics as evidenced by standardized test scores?

*Caucasian Reading/Language Arts Proficiency Scores.* An independent t-test was used to determine if a significant difference exists in Reading/Language Arts proficiency scores between Caucasian students who participated in interscholastic athletics and Caucasian students who did not participate in interscholastic athletics.

There was a significant difference found in the proficiency scores of Caucasian athletes and Caucasian nonathletes. Caucasian students who participated in interscholastic athletics were found to have higher significantly proficiency scores in Reading/Language Arts than Caucasian students who did not participate in interscholastic athletics.

*Caucasian Math Proficiency Scores.* An independent t-test was used to determine if a significant difference exists in Math proficiency scores between Caucasian students who participated in interscholastic athletics and Caucasian students who did not participate in interscholastic athletics. There was a significant difference found in the proficiency scores of Caucasian athletes and Caucasian nonathletes. Caucasian students who participated in interscholastic athletics were found to have significantly higher proficiency scores in Math than Caucasian students who did not participate in interscholastic athletics.

*African American, Asian, and Latino Reading/Language Arts Proficiency Scores.* An independent t-test was used to determine if a significant difference exists in Reading/Language Arts proficiency scores between African American, Asian, and Latino students who participated in interscholastic athletics and African American, Asian, and Latino students who did not participate in interscholastic athletics. There was a significant difference found in the proficiency scores of African American, Asian, and Latino athletes and African American, Asian, and Latino nonathletes. African American, Asian, and Latino students who participated in interscholastic athletics were found to have significantly higher proficiency scores in Reading/Language Arts than African American, Asian, and Latino students who did not participate in interscholastic

athletics.

*African American, Asian, and Latino Math Proficiency Scores.* An independent t test was used to determine if a significant difference exists in Math proficiency scores between African American, Asian, and Latino students who participated in interscholastic athletics and African American, Asian, and Latino students who did not participate in interscholastic athletics. There was a significant difference found in the proficiency scores of African American, Asian, and Latino athletes and African American, Asian, and Latino nonathletes. African American, Asian, and Latino students who participated in interscholastic athletics were found to have higher significantly proficiency scores in Math than African American, Asian, and Latino students who did not participate in interscholastic athletics.

#### *Research Question #4*

Is there a significant difference in the absences of elementary students who participate in interscholastic athletics and elementary students who do not participate?

*Days Absent From School.* An independent t-test was used to determine if a significant difference exists between the days absent from school for students participating in interscholastic athletics and students who did not participate in interscholastic athletics. There was no significant difference found in days absent from school of students who participated in interscholastic athletics and students who did not participate in interscholastic athletics.

## *Conclusions*

The purpose of this study was to determine if students who participated in school sponsored athletics scored higher academically than students who did not participate in school sponsored athletics at 11 elementary schools in an East Tennessee school district. Student outcome studied were proficiency scores in Reading/Language Arts, proficiency scores in Math and number of days absent from school. The following conclusions are based on the findings of this study.

Significant differences were found in Reading/Language Arts proficiency scores in each part of the study (male, female, Caucasian, African American, Asian and Latino). Students who participated in interscholastic athletics revealed higher proficiency scores in Reading/Language Arts than students who did not participate in interscholastic athletics as evidenced in TCAP scores. The results suggest that student involvement in interscholastic sports had a positive impact on academic achievement in Reading/Language Arts.

Significant differences were found in Math proficiency scores in each part of the study (male, female, Caucasian, African American, Asian and Latino). Students who participated in interscholastic athletics yielded higher proficiency scores in Math than students who did not participate in interscholastic athletics as evidenced in TCAP scores. The results suggest that student involvement in interscholastic sports had a positive impact on academic achievement in Math.

No significant difference was found in attendance rate for students who participated in interscholastic athletics when compared to students who did not participate in interscholastic athletics. The results suggest that student involvement in

interscholastic sports has little or no impact on attendance rate.

### *Recommendations for Practice*

School improvement practices in Tennessee public school systems will continue to focus on higher academic success and greater accountability. System and school administrators must be attentive to extra-curricular activities in which students have the opportunity to participate. In times of changing standards and pressures to perform at the highest academic level it is important for all school officials to consider the following.

1. Administration and teachers should seek to determine how athletics fit into the overall academic program. They should continue learning about child development and experiences that are safe, healthy, and challenging for all ages.
2. Administration and teachers should consider implementing team-like activities within the classroom to promote positive competitions and feelings of belonging.
3. Administration and teachers should be made well aware of the importance of athletics and the impact an efficient program can have on academic achievement.

### *Recommendations for Future Research*

As a result of this study it has enabled the researcher to identify the following recommendations for future research for those interested in the outcome of interscholastic athletics on academic achievement:

1. Conduct longitudinal studies that include ACT scores and graduation rates of students who continue participating in interscholastic athletics through their senior year.
2. Conduct research on extra-curricular activities other than basketball and cheerleading to determine if they have an impact on academic achievement.
3. Conduct research on athletes and their competitiveness. Consider questions such as: Is this the reason they are academically successful? Is competitiveness found only in athletes? Does competitiveness grow stronger or diminish over the years of competition?
4. Use qualitative research to further investigate social behaviors such as self-esteem, social acceptance, and attitudes toward school.
5. Conduct research to compare the academic growth of students who participate in interscholastic athletics and students who do not participate in interscholastic athletics as related to their socioeconomic status.
6. Investigate the negative impact that athletics could have on students. (Drug abuse, discipline referrals, sense of entitlement, stress, anxiety, eating disorders, poor sportsmanship, and injury.)
7. Conduct research on a larger population and more diverse demographic group.

8. Conduct further quantitative studies to expand research concerning the effectiveness of interscholastic athletics using data measurements other than TCAP scores. (The use of GPA, end-of-course tests, ThinkLink tests, Writing Assessments, and Constructed Response tests).
9. Consider the use of qualitative studies to compare the satisfaction of parents, students, teachers and administrators of academic success of student athletes.
10. Conduct further studies on the impact that family has on student athletes. What role does the family play in the academic success of athletes?
11. Conduct research on the academic effects recreational sports has on academic achievement and compare the findings to interscholastic sports effects on academic achievement.

### *Summary*

School officials will continue to make policy and implement changes in curriculum and extra curricular activities to increase the success of students. It is imperative that this administration understand the academic effect of interscholastic athletics for the purpose of academic achievement goals and school structures. Hopefully, the results of this study will help administrators expand programs within their schools to further increase academic achievement.

This study was conducted to help determine if there was an academic impact on students who participated in interscholastic athletics as compared to students who did not participate in interscholastic athletics. This research study consists of five chapters. Chapter 1, introduction to the study, provides background information. It is composed

of the statement of the problem, research questions, significance of the study, definition of terms, limitations and delimitations, and an overview of the study. Chapter 2, review of literature, gives detail to the historical perspective of the development of interscholastic athletics, benefits of overall sports participation, athletics and academics, athletics and self-perception, class and cultural effects of athletic participation, and effects beyond school age. It also includes detrimental effects of overall athletic participation including psychological and physical stressors, behavioral, and substance abuse. In addition, Chapter 2 reviews physical fitness and learning and the obesity stigma in schools. Chapter 3 describes the methodology used in selecting participants and data collection, population, research questions with null-hypotheses, instrumentation, data collection, and data analysis. Chapter 4 contains an analysis of the collected data and a summary of the results of the study. The final chapter reviews the assumptions underlying the study and the limitations of the study. It also provides a summary of how the findings supported the research questions and offers suggestions and recommendations for further research on this topic.

There was a significant difference in the overall findings in the support of interscholastic athletics increasing academic achievement in Reading/Language Arts and Math proficiency scores. There was not a significant difference in the attendance rates of students that participated in interscholastic athletics when compared to students who did participate in interscholastic athletics. The results support the idea that interscholastic athletics positively impacts academic achievement in elementary students.



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APPENDIX A

Request for Permission to Conduct Research

REQUEST FOR PERMISSION TO CONDUCT RESEARCH  
IN HAMBLÉN COUNTY SCHOOLS

1. Name and mailing address of the researcher(s):  
Kimberly Dyke  
5179 Aspen Ave.  
Morristown, TN 37813
2. Telephone number where the researcher(s) can be reached in the daytime:  
423-586-3332      423-587-4541
3. Position(s) of the principal researcher:  
 undergraduate student, graduate student, college professor  
(circle one and specify institution) \_\_\_\_\_  
 Hamblen County employee (specify job and location)  
Principal, Alpha Elementary  
 other (specify occupation and affiliated institution, if any) \_\_\_\_\_
4. Exact title of the proposed study:  
Academic Achievement of Elementary Athletes: A Comparison Study
5. Attach the following items: of Student Athletes versus Nonathletes
  - A. Brief description of the proposed study which is not limited to, but must include, (1) purpose; (2) targeted population--who and how many; (3) data collection procedures; (4) estimated time required by Hamblen County Schools participants; and (5) projected value of the study to Hamblen County Schools, if any
  - B. Single copies of all questionnaires, surveys, tests, answer sheets, structured interviews, or other instruments that will be used by Hamblen County Schools participants
  - C. Single copies of cover letters, copies of instructions, parent permission statements (for student participation), etc.
6. Approximate proposed times for beginning and ending the study:  
Summer 2012 - Fall 2012

Above material should be sent to:

Dr. Dale P. Lynch, Director  
Hamblen County Schools  
210 East Morris Boulevard  
Morristown, TN 37813  
Phone: (423)586-7700  
Fax: (423)586-7747

APPROVED\*:  DATE: 4-20-12  
Director, Hamblen County Schools

\*Prior to approval, a personal interview may be required to clarify information provided.

NOTE: Participation will be at the discretion of the principal and voluntary on the part of students and parents.

Form 68

APPENDIX B

IRB Approval



East Tennessee State University

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

April 10, 2012

Kimberly Renee Capshaw-Dyke

Dear Kimberly,

Thank you for recently submitting information regarding your proposed project "Academic Achievement of Elementary Athletes: A Comparison Study of Athletes versus Non-Athletes".

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

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

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

Thank you for your commitment to excellence.

Sincerely,  
Chris Ayres Chair,  
ETSUIRB



*Accredited Since December 2005*

## VITA

### KIMBERLY RENEE' DYKE

Personal Data:           Date of Birth: August 24, 1972  
                              Place of Birth: Morristown, TN  
                              Marital Status: Married

Education:                East Tennessee State University: Johnson City, Tennessee  
                              Educational Leadership, Ed.D.  
                              2013

                              Lincoln Memorial University: Harrogate, Kentucky  
                              Supervision and Administration, Ed.S.  
                              1999

                              East Tennessee State University: Johnson City, Tennessee  
                              Curriculum and Instruction, MAT  
                              1997

                              University of Tennessee: Knoxville, Tennessee  
                              Kinesiology, BS  
                              1994

Professional Experience:

                              Principal, Alpha Elementary School, Morristown, Tennessee  
                              2011-present

                              Principal, John Hay Elementary School, Morristown,  
                              Tennessee  
                              2007-2011

                              Assistant Principal, Lincoln Heights Middle School, Morristown,  
                              Tennessee  
                              2005-2007

                              Teacher, West View Middle School, Morristown, Tennessee  
                              2002-2005

                              Teacher, Lincoln Heights Middle School, Morristown,  
                              Tennessee  
                              1997-2002