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The effect of middle school athletic participation on California common assessment tests

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THE EFFECT OF MIDDLE SCHOOL ATHLETIC PARTICIPATION ON CALIFORNIA COMMON ASSESSMENT TESTS

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DEDICATION

To my beautiful and astonishing wife, Jessica, who has motivated me to make myself a better person and has shown me what a best friend and life partner is. You are an amazing person and I know that with our love we can truly do anything imaginable. I wake up every morning knowing that life just can't get any better. It really is quite simple, I promise always to do one thing, to love you.

To my Mom and Dad, I am at a loss of words. Your unconditional love, support, and way that you raised me are truly something that I feel blessed to have. Without you both I am not sure where I would be; I know not even close to where I am now. Thank you and I love you both.

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Last, to all my friends and family who have helped and supported me through this time, thank you.

ABSTRACT

The purpose of this study is to examine the correlation between participation in middle school athletics and academic achievement and how this relationship may be impacted by gender and ethnicity. Scores from the cumulative California Standards Tests of 6th thru 8th graders were gathered and evaluated. The data used were from past years' scores that the school district provided for the researcher. The hypotheses formed were that a positive relationship could be found between middle school athletics participation and academic success. The participants in the study were students in 1 California middle schools located in Southern California. A literature review was completed on the history of athletics, those who support participation of students in school athletic programs, and others who have found a negative correlation between the two. An analysis of variance of a specified sample was completed using SPSS. A positive relationship between test scores and participation in school athletics would allow for schools and parents to take these results into account when considering scheduling, finances, and curriculum development.

Chapter 1: History of Athletics

Athletics are a constructive way for people to increase their mastery of nature and the environment (Managan, 2002); they are as old as the life of people in society and date back as far as 20,000 years ago. Through athletics we learn a great deal about social changes throughout the world and athletics have aided in the development of human skills.

Native Americans took part in athletic competitions and still their courts and fields are used for athletic games and sports venues. Activities were demonstrated in ancient times as a necessary source for food and survival. Those games and play evolved into athletics over the years. These types of activities were performed for pleasure and then developed into competition.

The history of athletics in the United States began with baseball, established in the Northeast. Rules were created in 1840 and shortly after the Civil War, where both football and baseball became popular as they migrated down the East Coast. It was not until the 1870s that athletics split into amateur and professional leagues. Additionally, at the beginning of the 20th century, women began to be permitted to compete in athletics, but it was not until 1972 that women were given the same opportunities in athletics as men (Sage, 1981). Title IX later became a large influence on the rights for women's athletics and equivalency for the sexes.

Participating in athletic programs may provide students with structure in their lives that can lead them to success (Sallis & Prochaska, 1999). Encouraging and motivating students effectively in the classroom is a challenging task that many teachers work on each day throughout class time. This is a widespread problem that many teachers

find when trying to maintain an efficient classroom that motivates students to learn. Although attending school is obligatory, learning is certainly not. It is incumbent upon the students to choose to make a conscious effort in learning. Students have to want to learn, which require, in most cases, a good amount of work and effort. For these specific students, motivation is a key factor in driving students to work hard (Weiss & Petlichkoff, 1989). Students who are bored by school and often do put forth effort in academics often find motivation in playing athletics. It is common that students attend school on a daily basis all for competing in school athletics programs.

The state not only mandates (via the California High School Exit Exam) students be proficient in reading, writing, and mathematics before graduating from high school, but the state requires students to be physically fit. The health and physical education curricula are no longer a priority in schools, as greater emphasis is focused on core classes such as Math, English, Science, and Social Studies (National Association for Sport and Physical Education, 2002).

As the literature revealed, how students perform academically may correlate with how physically fit they are (Arrington, 2007; Ratey, 2008). It is apparent the relationship between athletics and academic achievement was not considered and the potential price of cutting athletic programs nationwide were not thoroughly examined. Arrington (2007) reports, “Academic performance may be positively affected through added physical activity time in a school” (p. 36). Arrington also points out, “Studies strongly suggest the direct relationship between physical fitness and achievement” (p. 34).

Research has shown that extracurricular activities and athletic programs compel students to attain a certain level of motivational drive (Martens, 1987). Athletes may also

be highly motivated individuals who are able to balance athletics and academics. In determining the correlation between athletic involvement and student success in the classroom, several studies show a positive relationship. The research still continues on the connections among academic achievement, motivation, and athletic participation at schools.

This study focuses on students' academic achievement related to school athletic participation at the middle school level. It is integral to view the attitudes of educators and others about issues concerning the influence of school athletics on student behavior. Critics of school athletics believe that students view academics as insignificant and athletics as an essential part of their academic experience (Soltz, 1986). Some of these commentators have labeled student-athletes as incapable of being successful academically (Foltz, 1992). Student-athletes are often labeled as being less intelligent and are often named jocks. This term leads one to think that the student-athlete is narrow-minded and more highly focused on athletics than academics.

Students with outstanding athletic abilities who struggle to attain proficient grades in the classroom often have to defend themselves to those who doubt the authenticity of their passing grades. Opponents view athletics as interference in the academic success of student-athletes (Ryska, 2003). Those who oppose athletics state that the demands off the field deter student-athletes from learning and putting in the essential hours to become better students.

Supporters feel that school athletics are a motivating factor in student-athletes' academic achievement. Coaches, teachers, and fellow teammates also inspire those

student-athletes to maintain passing grades and sustain adequate behaviors in the classroom (Holloway, 2002).

Across the nation, approximately 7 million young people between the ages of 5 and 17 participate in sponsored athletic programs such as the Little League (Stryer, Tofler, & Lapchick, 1998) and another 14 million engage in other recreational athletic programs (Rasmussen, 1999) which is higher numbers than previous years. Based on these rising numbers, the importance of school athletic participation and achievement of school-age students should not be misjudged or overlooked. School athletic participation may have both a positive and negative impact on student achievement. According to Spady (1970), "extracurricular activities can develop in students a broad range of physical skills, intrapersonal and intellectual skills, and also their capacity to be a strong leader" (p. 120).

According to Foltz (1992), coaches, administrators, and supporters have been responsible for the emphasis of athletics over academics. Athletes are utilized to create successful athletic programs for the school but are often not prepared academically, as many have below-average grades. In these instances, the student's' athletic skills taking priority over academics emanate from coaches and administrators. Some participants were "used and exploited for their commercial value, and when they were used up, they were discarded without the education they had been promised" (p. 31). These unfortunate events seem to happen often in college for athletes. One example of this brings to mind the Dexter Manley. Manley was a professional football player who played for the Washington Redskins in the National Football League. Dexter attended Oklahoma State University for 4 years and was still unable to read; therefore, it was necessary for him to

enroll in an adult literacy program (McMillien, 1991). Regrettably, these same practices transpire at the high school and middle school level to this day.

Supporters of school athletics recognize that they are an essential part of the educational experience (Broh, 2002). In 1985, the National Association of Secondary School Principals, the National Federation of State High School Associations, and Indiana University completed a national survey of more than 7,000 high school students and principals that queried opinions on the impact of extracurricular activities and school athletic programs on students and academic success.

This study showed that 90% of high school principals believed extracurricular activities and school athletic programs are a necessary part in creating a well-rounded learner (Morton, Richardson, & Vizoso, 1994). The majority of high school principals interviewed also listed these types of programs as "valuable educational tools that promote citizenship and form a positive school spirit" (Morton et al., 1994, p. 4) In addition to these benefits, 75% of the principals stated that student-athletes did not suffer from unwarranted demands caused by participating in extracurricular activities and school athletics. These athletes also received support from their families and surrounding community for the work outside the classroom that they completed. The research also showed that those students surveyed felt as though the supplementary activities provided an optimistic and positive element to their school life that was uplifting and motivating.

According to O'Brien and Rollefson (1995), a large majority of high schools in the United States offer extracurricular activities such as athletic programs and other activities. In recent years, "the concentration has been focused on student academic achievement, and the level of extracurricular activity programs and student participation

in such activities has not diminished since the launch of these federal educational programs" (NCES, 1994, p.150). Middle school athletic participation and its impact on academic achievement for student athletes has been rising in recent research. Extracurricular activities, including athletic programs, add force to classroom lessons. According to Ratey (2005) research showed a correlation between exercise and athletics, with increased student academic achievement and other physical and mental benefits. Participation in school athletics and other extracurricular activities may augment a student's sense of belonging, which can result in a lessening feeling of failure in the classroom (Finn, 1993).

The Office of Educational Research and Improvement (1986) found that consistent attendance, academic success, and ambitions for obtaining higher educational degrees were signs of a positively motivated student. These believers put forward a positive correlation between extracurricular activities and academic success. Students, who participated in extracurricular activities, including school athletic programs, were more commonly found to have a grade point average of 3.0 or higher and more likely to perform in the top quartile on a composite math and reading assessment as compared to nonparticipants.

Additionally, researchers Coakley (2003) and Foltz (1992) found that athletes also tended to have higher grade point averages than nonathletes. Brown and Steinberg (1991) investigated the relationship between school athletic participation and positive school outcomes. Their conclusions show that students involved in athletics or other extracurricular activities at the school have better time management and, in turn, achieved higher grade point averages (Brown & Steinberg, 1991). Conflicting research from

Coakley (2003) and Foltz (1992) indicated that student-athletes, who participated in the "glory sports" (p. 24) such as baseball, basketball, and football, were less likely to achieve high grade point averages than their peers who participated in other athletic programs. Ratey (2008) conducted research on school physical education programs and their direct link to improvement on academic success. The research indicated exercise and movement provided through "athletic offerings" (p. 102) improved academic success. Because of contradictory research in this area, further inquiry is needed to establish the positive or negative effect athletic participation has on student success.

It is necessary for administrators, teachers, coaches, and other leaders to identify how school athletics influence student academics in order for school systems to build on ways that can promote increased student achievement. Most students, depending on the area in which they live, are given ample opportunities to participate in extracurricular activities as early as elementary school. "School systems throughout the country offer these opportunities for skill development, physical fitness, companionship, individual challenges, and also just for fun" (Chambers, 1991, p.33).

In a time when society is highly focused on student academic achievement in schools, extracurricular activities, especially at the middle school level, are under scrutiny. There is a focus on determining whether participation in such activities at school impedes or assists in student success.

Many middle school students are pressured to underachieve academically by their peers, as there is a stigma for performing well in class. Athletics can be one way to stop this culture and to promote wellness in the body and the mind. The National Middle School Association compiled 14 qualities that show an effective and collaborative middle

school culture. This program calls for an organizational structure that builds and fosters relationships, along with promoting a school-wide effort to improve health, wellness, and safety (National Middle School Association, 1997).

Secondary schools established interscholastic athletics in order to create an environment of improved mental and physical health. However, especially in California, there is a debilitating economic crisis under which many schools face dwindling budgets that can barely supply pens and pencils to the classroom. Many teachers are being laid off and classroom sizes all over the United States are forced to their maximum limits. Many states and local school systems struggle with severe funding losses in all categories, including academics and athletics. Unfortunately, elementary and secondary schools are the first to be impacted by the budget and one of the first areas to be cut are extracurricular activities and athletics. Related classes, which include physical education, art, and music, are also highly impacted by the budget crises (Kaufman, 2002).

These are the same classes and activities that motivate many just to come to school each day and to perform well in other classes. Often students know that it is vital to received better grades so they can participate and make the grades needed for athletic teams (Holloway, 2002). Once the programs are cut, there are no other supplementary activities offered to the students that can motivate and inspire them to do well.

A national longitudinal study was conducted by the NCES (1992) and "revealed that 99.8% of public high school seniors stated extracurricular activities were available at their schools" (NCES, 1992, p.48). However, at the middle school level, statistics showed that extracurricular participation and programs started to become limited starting at the

10th grade level. Within the last 5 years, there has been a decline in middle school intramural programs and athletics.

McEwin, Dickinson, and Jenkins (1996) reported that the opportunity for extracurricular activities also decreased at the sixth, seventh, and eighth grade levels. This study also found that the upper middle school grades were less likely to participate in intramural offerings because of unknown reasons. Although intramural programs are not offered at the middle school level, interscholastic athletic programs are still widely prevalent there. The researchers reported that "approximately 80% of middle schools offer competitive, interscholastic sports programs. By 1993, 25% of middle schools offered interscholastic sports programs for sixth grade students, 77% of schools offered interscholastic sports for seventh grade students, and 79% provided interscholastic athletics for eighth grade students" (McEwin, Dickinson and Jenkins, 1996, p.49). Two other studies observed other middle school athletic participation. The studies examined "570 middle schools and revealed that 89% offered interscholastic programs for seventh grade students, and 92% offered such programs for eighth grade students" (Valentine, Clark, Irvin, Keefe, & Melton, 1993, p.98). The National Education Longitudinal Study reported that 48% of eighth grade students participated in school interscholastic sports, and 43% participated in intramural sports (NCES, 1994, p. 22) If there were a positive correlation between academics and school athletic participation, the numbers of students taking part in these interscholastic programs would certainly rise.

President Ronald Reagan endorsed *A Nation at Risk* to emphasize the importance of student achievement in schools. From the time of this report, there has been a huge push to improve academic marks in all public schools across the nation. In addition to *A*

Nation at Risk (Gardner, 1983), a separate federal education scheme was introduced by President George W. Bush (No Child Left Behind), which mandated schools be held to a higher accountability for meeting the standards of student achievement. Under the No Child Left Behind Act (U.S. Department of Education, 2001), schools need to show that every student meets or exceeds proficient academic standards by the year 2014.

Because of the No Child Left Behind Act (U.S. Department of Education, 2001) mandatory objectives, the public's interest has focused narrowly on student achievement, leaving teachers and administrators to believe in "teaching to the test" (p. 78) in order to meet academic standards and less concerned with creative or collaborative teaching strategies. Teachers often compete against each other and strive to outdo others at their school site. Many school systems have reduced and cut extracurricular activities so that they can provide the resources needed to develop programs of greater academic concentration (i.e., the elimination of physical education classes to add more time with mathematics and sciences). Classroom sizes have increased, and many teachers are expected to raise academic achievement but are faced with oversized class sized and little to no money for materials or supplies.

Some suggest that board members, administration, and teachers should examine other routes in executing the budget cuts before they eliminate school athletic programs. Discovering the importance of extracurricular activities, such as school athletic programs, are essential to assist in guiding the students to at least proficient marks on state exams. If athletes can motivate students to maintain passing grades, attend school on a regular basis, and increase success in the classroom, then school athletic programs and Physical Education classes are too vital to eliminate (Ratey, 2008).

Coaches have ample opportunities similar to those who teach in the classroom to improve student academic achievement and inspire youth to do better both off and on the field and court. In addition, there are an abundant number of lessons that athletics and extracurricular activities present to the students that they cannot gain from the classroom. It is vital that students know what to do when they leave the classroom and not just know what to do while sitting in the classroom (Young & Sowa, 1992).

Statement of the Problem

There is a stigma among American educators that continues to surface that shows that many students are not challenged in the classrooms and an equal number are not motivated or inspired to want to come to school (Weiss & Petlichoff, 1989). According to Carlson (1993), the only reason that many students attend school is to be on the athletic field and to compete in an athletic competition. Although chances are slim that they participate in team athletics in college and after, many still aspire to play at high school and junior high levels.

Many schools throughout the United States have overlooked academics and placed a narrow filter on athletics, and, as an effect, academics have diminished. Furthermore, the success of athletic teams has been credited to coaches. The coaches often push students to their limits to produce excellence, as many classroom teachers solely teach to achieve higher standardized state test scores (Carlson, 1993). On this note, it is important to study the correlation between school athletic participation and student achievement to create programs that can help students succeed.

There is research that supports and denies the correlation between school athletic participation and academic achievement. Study has not indicated the outcome that

eradicating athletic programs will have on the overall school climate, particularly on student academics (Ratey, 2008), attendance (Landers & Landers, 1978), classroom motivation (Jergovic, 2001), and behavior (McNeal, 1998). Administrators, school board members, teachers, and coaches must establish whether there is a relationship between athletics and academic achievement and what impact it has on students.

Purpose of the Study

The purpose of this study is to determine whether there is a significant relationship between school athletic participation and academic achievement, considering gender, ethnicity, school sponsored athletic participation, and state standardized test scores at the middle school level. If a relationship exists, the study's purpose will determine whether students who participate in school athletics programs at a particular middle school perform higher on the California Standards Tests (CST) than those who do not participate. If there is a relationship between school athletic participation and academic achievement, then this finding may be used to promote participation in athletics.

Significance of the Study

Athletics are a common after-school activity throughout schools nationwide. It is imperative to determine if a relationship exists between school athletic participation and student achievement for students. The majority of research investigating this relationship between school athletics and student achievement concentrates mostly on high school and collegiate levels and less at the middle school level.

According to Hawkins, Royster, and Braddock (1992), research that was conducted on the relationship between athletes and nonathletes only focused on the

athletic participation of Caucasian and African American males. Socioeconomic status was also examined, but only discussed as it related to males (Howley & Huang, 1991). Many researchers have not yet centralized the focus on the academic aspects that school athletics can offer students. Most of the concern is with the social development it provides student-athletes (Holland & Andre, 1987).

The revenue sports, also known as the glory sports, such as football, basketball, and baseball, are regularly looked at but without much consideration to individual athletics and the connection that they have with student academic success rates (Brown & Steinberg, 1991). Researchers have measured academic success by examining the Ameican College Testing (ACT), Scholastic Assessment Test, and grade point averages; however, CST scores have not been investigated in the secondary schools. This study is important because it focuses on middle school students in California and utilizes the CST as the instrument of measurement for student academic achievement as well as other constructed survey instruments and grades.

This study could assist administrators, school system officials, and community leaders in making decisions about school athletics and the importance of keeping extracurricular activities in the school system, even at a time when monies are scant. Statistically, the research will show whether those students who participated in a school athletic program throughout the school year had higher state exam scores.

A school district in Orange County California highly promotes school athletic programs and allows all students to be part of a team, no matter their skill level. This is one example where education officials view the importance of school athletic programs to develop a balanced and focused student. Other school systems throughout the nation

could benefit from this study if there is a relationship between school athletic participation and student achievement in schools.

Research Questions

1. Is there a statistical significant relationship between type of student (athletics participant versus non-participant) and academic performance as measured by the CST English Language Arts (ELA) scores?
2. After controlling for student demographics (gender, grade level, and race/ethnicity), is there a statistically significant relationship between type of student (athletics participant versus non-participant) and academic performance as measured by the CST ELA scores?

Research Hypothesis

This study hypothesized that:

1. The purpose of the study was to examine the differences in achievement between student athletes and nonathletes. The following are research questions that guided this study: There is a statistically significant relationship between type of student (athletics participant versus non-participant) and academic performance as measured by the CST ELA scores?
2. After controlling for student demographics (gender, grade level, and race/ethnicity), there is a statistically significant relationship between type of student (athletics participant versus non-participant) and academic performance as measured by the CST ELA scores?

Limitations of Study

This study will determine the influences that affect student achievement on state test exams through middle school athletic programs. The sample will be from an Orange County middle school in the city of Huntington Beach, California. There may be confounding variables that are not analyzed in the study, for example socioeconomic status and the level of parental involvement, which may affect the results. The Orange County middle school that is being studied is composed predominantly of Caucasian students. The study of this middle school uses all students from a school year and there may not be an equal distribution of males and females. The qualification of being an athlete will be limited to a student who is chosen for one or more school sponsored athletic teams at the researched school site. The study does not include students being marked as athletes who participate in athletics programs that are not school sponsored.

Definition of Terms

Absence: Any school day in which the student has missed more than half of the instructional hours (Whitley, 1999).

Attendance: The number of days a student is present for an academic school year.

Academic achievement: A level of student scholastic performance measured by individual student CST scores.

Extracurricular activities: Athletic programs offered at the middle school, which are less competitive than interscholastic sports and open to all students (Crawford, 2005, p. 22).

Glory sports: Sports including basketball, football, and baseball (Brown & Steinberg, 1991, p. 42).

Grade Point Average: Measured on a 4-point scale ranging from 0.0 to 4.0, with the following numbers representing each letter grade: 4.0 = A; 3.0 = B; 2.0 = C; 1.0 = D; and 0.0 = F (Camp, 1990, p. 56).

Interscholastic sports: Any structured competitive sports program played between grade schools (Silliker & Quirk, 1997, p. 112).

Middle school: Refers to a public learning institution composed of Grades 6, 7, and 8 (Mizell, 2004, p. 24).

Student athletes: Those students who participate in one or more interscholastic athletic activities offered at the studied school (Stephens & Schaben, 2002, p. 11).

Student nonathletes: Those students who participate in no interscholastic athletics offered at the school (Stephens & Schaben, 2002, p. 10).

CST score: A state-mandated California criterion-referenced competency test in the areas of Reading, Language Arts, Mathematics, and Science (California Department of Education [CDE], 2002, p. 302).

Chapter 2: Review of Related Literature

The purpose of this chapter is to review the literature related to and supporting the topic of school athletic participation and the positive effect or relationship it has on student academic achievement. The review is composed of the following sections: (a) Historical Perspective, (b) Supporters of Athletics Increasing Student Achievement, (c) Other Factors Affecting Academic Achievement, (d) Opponents of Athletics Increasing Student Achievement, (e) Interscholastic Athletic Participation and Schools, (f) California State Code for Interscholastic Athletic Programs, and (f) Summary.

Historical Perspective

Athletics have been around for thousands of years in different areas of the world. They have taught men different ways to associate to education as a form of competition (Managan, 2002). The ancient era demonstrated the first signs of extracurricular student activities as athletics. Robbins and Williams (1969) traced athletic activities in education to schools established during the Homeric, Platonic, and Hellenistic periods. In these eras, the concept was to develop both a strong mind and strong body and students were encouraged to participate in games and activities.

Dewey (1915), an early educational scholar on this topic, wrote about athletics and other extracurricular activities. Dewey considered these activities to be a reward from the rigor and boredom of typical school work. According to Dewey, activities considered as extracurricular could be implemented into the regular educational program. The student must be engaged on various levels that allow one to be better rounded and connect school to home life.

Dewey also believed that education should not be solely the preparation for the future; rather education should be used as a process for living and life afterwards. By integrating athletics and other activities within the school setting, in addition to the core curriculum areas, Dewey felt schools would better serve students and better meet individual needs, as each learner is undoubtedly different than the next. Through his educational research, Dewey (1938) provided a supporting argument in favor of student activities by claiming that experiences that increase student curiosity, strengthen student initiative, or increase students' desire to be considered in the activities should be offered at all school sites.

One of the most common extracurricular activity offerings at American public schools is athletic programs (Coleman, 1961). Extracurricular activity programs such as interscholastic athletics have become increasingly prevalent at the middle school level. There has been controversy related to whether students at this age should participate in organized athletics. Injuries that did and could occur among junior high age students became a main focal point of educators (Marsh & Kleitman, 2003). In 1938, the American Association of Health, Physical Education, Recreation, and Dance recommended that interscholastic athletics be eliminated at the junior high school level. However, a survey of junior high school principals conducted 20 years later revealed that 85% of the respondents offered interscholastic athletic programs within their schools (McEwin, 1981).

Gholson's (1985) research found that extracurricular activities at the junior high school level have become increasingly widespread. Programs, clubs, athletics, and events offered for students outside the regular program of study commonly exist at many middle

schools and high schools across the nation (Shann, 2001). The impact of activities on student development and achievement in academics and other educational outcomes is the topic of ongoing debate.

Athletics participation in schools has been a major facet in American education for a long time (Theokas, 2009). Over the last centuries interest in athletics-related activities resulted in the establishment of organized clubs that supported and controlled athletic participation, limiting membership to only wealthy students at those schools (Coakley, 2003). These early teams and clubs were viewed solely as recreational events. By the turn of the 19th century, educators began to realize that recreation could be a vital component in educating the whole child (Burnett, 2000). For the first time, athletics were viewed as a way to impact behavior positively, build character, create national loyalty, and structure unity and togetherness (Coakley, 2003).

In the early 1900s, the purpose of American education gradually began to shift from preparing the most competent students for leadership roles to preparing the general population for togetherness and positive behavior (Gutowski, 1988). The National Committee on Physical Education was founded and advocated that physical education and athletic programs be adopted in the nation's' public schools. From 1919 through 1921, 17 states implemented physical education requirements; by 1930, 36 states required physical education to be part of the secondary curriculum. Athletic programs also gained strength and followers as this shift toward being active occurred.

In the 19th century, middle class Americans had been preoccupied with limitations on recreation, but in the 20th century, a shift toward athletics occurred. Several researchers cited the beneficial role of child's play. Piaget believed that play offers a

relaxed, pleasurable way for a child to develop by providing an arena in which skills can be learned. On the other hand, Freud and Erickson argued that play provides an environment in which a child can work through past emotions and find a safe outlet for their emotions (as cited in Jergovic, 2001). Play for those at the middle school level can include participation in school athletic programs, which can provide the outlet that Jergovic described.

Interscholastic athletic programs also provide various roles that an adolescent may explore. Learning how to play different positions and a variety of different types of athletics teach the adolescent to lead as well as to follow, which can influence an adolescent's formation of self (Kleiber & Kershnit, 1991). Athletics can present an influential environment in which to learn new skills, have fun, cooperate with others, and make friends (Pipher, 1994). Researchers (Jackson & Marsch, 1986; Richman & Schaffer, 2000) found that athletic participation develops proportions of self-perception involving physical competence and body image, which in turn, increase self-worth.

Summary

In addition to offering school athletic programs that can develop a student, American schools provide the basis of an education for students and much more. They are a source of civic pride, a major place of political socialization, and the location for an unlimited number of extracurricular activities, including, for many schools, athletic programs. The American public educational system is an example of an organization that pursues multiple and often differing opportunities (Tyack, 1974). R. Lapchick (1990) estimated that 7 million children between the ages of 5 and 17 in the United States alone

participate in an organized athletic program. According to Meier (2004). American schools do more than provide a core education curriculum, they provide lifelong lessons.

Supporters of Athletic Participation Increasing Student Achievement

There are only a small amount of published and recent studies on the effects of athletic participation on cognition, learning, and/or academic achievement (Grisson, 2003; Smith & Lounsbery, 2009). A milestone study completed by a member of the CDE, which examined the relationship between athletics and academics, is drawing interest in literature and from the National Association for Sport and Physical Education (Blakemore, 2004; National Association for Sport and Physical Education, 2002; Smith & Lounsbery, 2009).

Martin and Chalmers (2007) conducted a study comparing academic achievement scores on the Iowa Test of Basic Skills and participation in school athletic programs. The study included students from the Seattle School District, Grades 6 through 8, and used a Pearson coefficient of correlation to match up to scores averaged on the exams. While the study did determine a statistically significant correlation ($p < .05$), the correlation was considered to be small. The researchers further suggested that enhancing quality athletic programs for the attainment of motor skills and health benefits might be more justified than utilizing them as a method for improving academic achievement. The study showed support for athletic programs in schools but not yet to the level that researchers hoped.

Another study examined the relationship between participation on cross-country and other running teams and academic achievement measured by the Northwest Assessment-Measures of Academic Progress (Arrington, 2007). The study used 100 eighth-grade students. Pearson's correlation coefficients were used to measure the

relationship between the two variables and at the completion of the study, it was revealed that there was no direct statistical relationship between cardiovascular fitness and academic achievement on standardized tests. Arrington reported that in qualitative data collected from interviews of students, the most considerable effects gained were peer influence and their physical feelings. White (2005) quantitative study suggested that 29 students who participated in interscholastic sports not only had higher GPAs than non-participants, but they also were more inclined to take college preparatory courses. The research again shows support for athletic programs as they can increase student achievement, even at a small amount.

Two further studies hoping to establish a relationship between school athletics and academic achievement, using state standardized tests, have achieved some levels of success, with statistically small positive correlations being revealed in both studies (CDE, 2002; Castelli, 2005). Research has examined the impact of exercise on the cognitive performances of school students in the Trois-Rivieres study (Shepard & Trudeau, 2005). The Trois-Rivieres participants included 564 primary school children, who were either assigned to an additional 5 hours of physical fitness per week or, in the control group, minimal physical fitness. Academic data collected backed the positive impact on academic achievement despite a 14% reduction in academic time allotment. The data was now more convincing for support on how athletic programs increased student achievement.

Derri, Aggeloussis, and Petraki (2004) assessed 40 children using experimental and control groups, ages 10 to 12, and the Fitness Gram test battery. The 20 participants in the experimental group were exposed to additional health and nutrition education after

school for approximately 3 hours per week. Both cardio respiratory endurance and abdominal strength were shown to have improved after the 8-week study and it found "components of health-related physical fitness, in combination with nutrition education, positively affected the fitness and dietary habits of elementary school children" (p. 4). The results of these studies have shown positive correlations and noted improved performances in student achievement. These studies strongly suggest the direct relationship between physical fitness and achievement.

Research has shown that students who participate in athletic programs and after-school activities are more likely to succeed academically than nonparticipating students (Finn, 1993). For instance, in a study conducted by the Office of Educational Research and Improvement (1986), it was determined that those students who were engaged in after-school activities were more likely to achieve success within their academic classes (Finch, 1998).

Through integrating language arts, philosophy, social studies, psychology and physical education, the research project Promoting Achievement in the School Through Sport discovered that participation positively influenced students' GPAs. During the 3-year study, 58% of the participants increased their GPA a full point or more. Halpern's (1992) research indicated that participation gave students greater confidence in their abilities and provided an opportunity to develop positive, school-related, attachments.

Sage's (1981) research has indicated that the athletes' focus on continuing to participate in current athletics, as well as continual participation in future athletic careers, is a reason they strive to do well in school. It is argued that some athletes are motivated to get good grades because of eligibility requirements for certain athletics, and the lure of a

college career in athletics causes some athletes to strive for passing and above-average grades. There is also another way that has been found to increase academic achievement for students.

Several articles also compared the number of activities a student participated in and its affect on academics (Kaufmann, 2002). Most studies found that the number of activities that a student participated in positively correlated to academic success. For example, Brown and Steinberg (1991) found that the more extracurricular activities a student participated in, the higher his or her GPA. Feltz and Weiss (1984) found that when girls participated in five or more extracurricular activities, it positively affected their ACT scores. Therefore, students who were not active in school were less likely to produce high-test scores. In addition to looking at ACT scores, there have been other studies that looked at standardized test scores at the middle school level.

Numerous studies have focused on both athletic and nonathletic activities and their relationships to variables such as educational attainment and standardized test scores at the middle school level (Holland & Andre, 1987). Spady (1970) reported that boys who participated in both athletic and service activities had the highest educational aspirations and attainments. Supporters of interscholastic programs have argued that athletic participation improves grades, keeps students in school, and raises students' educational aspirations (Melnick, Sabo, & Vanfossen, 1992).

Stephens and Schaben's (2002) research revealed the relationship between team athletics and academic achievement at the middle school level. The research indicated that the academic performance of students participating in school athletics was enhanced and that these athletes seemed to be more engaged in classes than nonathletes.

Furthermore, team sports increased athletic competence. The results were backed by higher state standardized test scores and interviews with teachers and coaches.

In a study by Branch (2003), 1,100 students participated to determine the relationship between school athletic involvement and academic achievement using student cumulative GPAs. Data was obtained from student questionnaires, athletic rosters, and grade reports from school personnel. This researcher found that students who participated in athletic programs outperformed those students who did not participate and the group that did not participate had a lower GPA. Athletic participants carried an average GPA of 3.02, while non-participators had an overall GPA of 2.72. Branch concluded that there was a significant difference in academic performance between students who participated in school-sponsored athletic programs and students who did not participate, with these athletes having higher academic achievement than the non-athletes.

Brown (2007) examined the relationship between levels of student engagement in extracurricular activities and student academic achievement. Data was collected both quantitatively and qualitatively. Surveys and in-depth interviews were administered and collected from students, coaches/sponsors, and other adult faculty members. This study showed a positive correlation between the academic achievement levels of students involved in extracurricular activities, such as school athletic programs, and those students who were not involved. The researcher concluded that participation in school-sponsored athletic activities plays a vital role in the educational process.

A further study determined the relationship between academic achievement, career success, civic responsibility, and a student's participation in team sports was

explored, researchers found that those high school students who participated in sports for two or more years achieved greater success than those who participated in sports for one year or less (Gardner, Roth, & Brooks-Gunn, 2008).

The majority of studies from the past 2 decades supported that students involved in school athletics tend to do well in the classroom. An analysis by the U.S. Department of Education showed that students who participated in extracurricular activities outside of school time were three times more likely to have a grade point average of 3.0 or better, which indicated above-average work (as cited in Mihoces, 1996).

Kaufman (2002) examined the relationship between athletic participation and academic performance in terms of student GPAs, attendance, highest level of mathematics achieved, and ACT scores. Data was collected from two suburban high schools via school records over a five-year span. The athletes at School A had an average GPA of 2.84, while non-athletes had a 2.32 overall GPA. In School B, athletes carried a 3.16 GPA and non-athletes held a GPA of 2.73. With both schools combined, those students that participated in athletics had a 3.07 GPA, while non-athletes had a 2.62.

Participation in after-school athletics also has been shown to impact the achievement of minority students. A study by R. Lapchick (1990) discovered that minority students who participated in athletics had higher GPAs than minorities who were nonparticipating. In a similar study conducted by Smith (1994), the relationship between the grades of minority students and their school participation was closely examined. Minority students who participated in athletics were more likely to achieve academically, and more likely to graduate.

According to Parham (1993), student-athletes face exceptional challenges that nonathletes do not. Athletes tend to be more sociable at a young age. The student-athletes' atmosphere provides a set of challenges and obstacles that the nonathletes do not face. The student-athletes must balance academics and athletic responsibilities to comply with both teachers and coaches.

The current literature also revealed a positive relationship between student achievement and motivation (CDE, 2002; Chen & Ennis, 2004) as well as correlations between fitness and achievement measured by standardized tests. The extent or strength of these relationships has not been firmly established, and no causal relationship has been cited. The relationships between physical fitness and cognitive performance on standardized tests has increased significant interest for those in closely associated entities such as recreation, state departments of education, and fitness researchers (CDE, 2002, 2004; Elford, 2002; Johnson, Bryan, & Solmon, 2004; Lau, Yu, & Lee, 2004).

Lau, Yu, & Lee (2004) studied the relationship between physical fitness, and the academic performance of 464 Chinese students from Primary 1 to Primary 6 ($M = 9.23$, $SD = 2.04$). A self-administered 7-day recall questionnaire was given to students and parents to determine physical activity levels outside of the school setting using the Physical Activity Questionnaire for older children. The findings revealed no positive or negative effects of physical fitness on academic and conduct performance, but did show a significant difference between males and females on both physical fitness and academic performance. These results refute the notion that physical activity takes away from academic performance. The academic relationship between male and female participants was found to be a result of different societal values within the Chinese culture. This

study's results support an argument to increase physical activity for children and physical education in the public schools.

In research focusing on the relationship between participation in school athletics and the development of students in Grades 5, 6, and 7, Zarrett (2009) concluded that participation in school athletics had a positive relationship on the students' development, where motivation levels increased and scores according to grade point average had a higher average. The more time the students spent partaking in athletic activities, the more helpful it was to the students' development. This study provides support for a positive correlation between middle school athletics and academic achievement. Studies show that the academic performance of middle school students is improved when students participate in team athletics or other physical activities (Fox, Barr-Anderson, Neumark-Sztainer, & Wall, 2010). Similarly, when drawing connections that underperforming high school students should merely join an athletic team or partake in athletic activities, McNeal (1998) found that many of the more beneficial activities (athletics, cheerleading, and fine arts) are difficult to begin during high school. The students who established the most academic benefits from these activities were the students who involved themselves in these prior to starting high school.

Busseri, Rose-Krasnor, Willoughby, and Chalmers (2006) explored the concept that involvement in interscholastic athletics was a sign of positive growth among grade school students. There was a connection between the positive development of the students and the level and intensity of participation in athletics. The research conclusion noted that the greater the intensity of athletic participation, the more academic success

was seen in students in their middle school, high school years, and beyond, according to higher state exam scores.

When the connections among academic achievement, career success, and a student's participation in team athletics was investigated, researchers found that those students who participated in athletics for 2 or more years reached greater success in academics than those who participated in athletics for 1 year or less (Gardner et al., 2008). The more involved the students were in athletics, the more they thrived academically and in their careers.

Steinberg (1988) explained that student-athletes who participated in individual athletics, for instance swimming, maintained higher academic scores based on grade point average than those athletes who participated in team athletics such as football and basketball. Additional research indicates that interscholastic athletics have more benefits than intramural athletics when looking at the effect participation in school athletics has on academic achievement and success.

Summary

It is common to hear that athletes performed better academically because they bounded themselves with more academically focused acquaintances that helped lead them to academic achievement. Athletes were also acknowledged as having higher self-esteem than their colleagues who did not participate in athletics. Researchers have recently just begun to focus their research on identifying whether certain athletics or activities make a larger impact on academic achievement than other athletics (Zarrett, 2009). Schools are a source for these athletic programs that are offered to students. For most schools, athletics have become their main priority instead of academics (Coleman,

1961). With large amounts of students across the nation, the impact and importance of athletic participation upon the academic performance of school-age students should not be taken lightly. There is much research to show positive impacts of athletic participation on student achievement and this is a topic not to be overlooked.

Other Factors Affecting Academic Achievement

According to Jergovic (2001), athletic activities build character and teamwork on the field of play and increase academic success in the classrooms. Investigation into the idea that athletic participation has a positive impact in the athlete's educational ambition might stem from the idea that participation may increase contact with achievement-oriented peers, teachers, coaches, and parents (Sage, 1981).

It has also been found that extracurricular activities increase attendance and have a positive effect in decreasing the number of students dropping out of school because of connections to teachers and coaches (Holland & Andre, 1987). It is very difficult for classroom teachers to reach expected state levels in academic standards and to also teach character values such as commitment, respect, and teamwork (Gillis & Howard, 2006). Traditionally, parents and students turn to athletics and after school programs to help instill the values that supplement academic endeavors. Many researchers, including those cited, provide research to support school athletics and the positive affect it offers to student academic achievement.

A considerable body of research indicates that student participation in extracurricular activities such as athletics minimizes delinquency, mitigates dropping outs, and has a positive effect on student achievement (Rehberg & Schafer, 1968).

Studies show that the academic performance of middle school students is enhanced when students participate in team athletics or other physical activities (Fox et al., 2010).

Additional research indicates that students who participate in athletics learn that when they set goals and strive toward them, persistence and attention to detail will result in better performance and attainment of goals (Roberts & Treasure, 1992). Studies find that students engaged in extracurricular activities, including athletics, are less likely to drop out of school and have an improved attitude about daily attendance (Mohoney & Cairns, 1997).

Similarly Taras (2005) reveals, "Physical activity improves general circulation, increases blood flow to the brain, and raises levels of norepinephrine and endorphins — all of which reduce stress, improve mood, induce a calming effect after exercise, and perhaps as a result improve academic achievement" (p.214).

At the national level, the U.S. Department of Education's National Center for Educational Statistics (2002) noted that extracurricular activities may positively impact the academic performance of students, their social development, and their attachment to school. The report further indicated that these extracurricular activities provide opportunities for students to learn the value of teamwork, provide a channel for reinforcing skills, and provide students the opportunity to apply academic skills in other areas as part of a well-rounded education.

Athletic participation teaches the rules and regulations of the sports, which makes athletes more compliant to authority figures and the policies and procedures in the schools (Jergovic, 2001). Finn (1993) suggested that school athletic programs reinforce lessons in the classrooms. Furthermore, adolescents participating in school athletics learn

that they posses both physical and cognitive skills. Empirical research (Danish, 1983) supports this notion that the increase in academic achievement and the development of life skills can be tied to participation in athletics.

The National Federation of State High School Association (2002) stated that students who participate in athletic programs are more likely to have higher grade point averages, better attendance, lower dropout rates, and less disciplinary problems than those students who are not athletically involved. It was also determined that these activities provide valuable lessons for academic and future success. The qualities of teamwork, sportsmanship, winning and losing, hard work, self-discipline, self-confidence, and handling competitive situations are all learned through athletic programs and will help students to, not only achieve on the playing field, but also in the classroom and real world.

As more research draws the same conclusions, there is a push for more student participation and school-based athletic programs (Barroso et al., 2009). Barroso et al. studied the implementation of Senate Bill 42 that required mandatory inclusion of 30-minutes of physical activity for all middle school students. The objective of the bill was to provide students with an opportunity to participate in physical activity on a regular basis (Barroso et al., 2009). It was shown that students reported their physical well-being had improved due to said classes.

Athletes often find, to be successful, they must set goals, make decisions, plan a variety of approaches, seek instruction, and manage their competitive qualities. Van Raalte and Brewer's (1996) research reinforced the belief that these skills are easily transferable to other aspects of maturity. Involvement in extracurricular activities can also

indirectly increase self-esteem and positive social networks by increasing a sense of connectedness to the school and by helping to build student strengths.

Current research focuses on finding whether information based on the correlation between participation in school athletics and academic achievement is impacted by such variables as parental support. For example, Bois, Sarrazin, Brustad, Trouilloud, and Cury (2005) found that the mother's participation in her child's physical activity increased the time the child spent in physical activities. The beliefs of the child's father directly related to the child's behavior, which then increased time spent on physical activities.

Ullrich-French and Smith (2009) looked at the relationship of parental and peer support on the inspiration of young soccer players. Results showed that parental and peer support had a direct correlation on motivation levels of the soccer players. There was a connection between higher engagement and a longing to continue participating in soccer. Another study surveyed 182 parents to find the possible relationships between parental involvement and children's academic performance (Tan & Goldberg, 2009). Parental involvement was noted as a parent's presence in the school, supporting with homework help, extracurricular activities, and communication skills. The data was correlated to their children's grades and good welfare. The results were interesting, as the mothers and fathers had different impacts on their children's academic performance. A boy's academic performance was tied to the level of his father's association, and it was found boy's grade point averages were higher compared with the mother's involvement, with which the grade point averages were found to be lower. Not only was parental involvement found to have a difference, but also gender.

Stegman (2000) discovered that most student athletes performed better academically, but there were differences between the two genders. Females gained more positive impacts from their involvement in school athletics than males. Marsh and Kleitman (2003) found that females took part in more extracurricular activities in general, but ultimately dedicated less time to these activities. The question that arises for females is: What leads to their academic achievement? Is it the time they give to participate in athletics or is it the number of activities that the females are involved with that determines their academic success? Certain evidence shows that the answer may be neither. McCarthy (2000) found that participation in athletics leads to better attendance records, which then correlate to higher academic achievement.

Researchers have looked at whether ethnicity takes a part in whether a student participated in an extracurricular activity. McNeal (1998) found that except for vocational extracurricular activities, the probability of partaking in extracurricular activities was similar for all ethnicities. Regardless of race and ethnicity, students who took part in extracurricular activities on average had higher GPAs and better attendance records (McCarthy, 2000).

Miller (2005) explored the relationship between school athletics involvement and academic performance in adolescents. Research focused on gender and race-specific differences among athletes' school grades and conduct. The findings indicate that participation in extracurricular activities such as school athletics has the same positive impact in spite of ethnicity. McNeal (1998) did point out that school-based extracurricular activities such as athletics offered opportunities for ethnic minorities to

access paths that would be a factor in their academic success. Such findings show that socioeconomic status may also contribute greatly to academic success.

Research indicates that students with higher socioeconomic status are generally more involved in athletics and have more time to contribute to these tasks than their lower socioeconomic counterparts (McNeal, 1998). The data show that students who have a lower socioeconomic status attain the most benefits from participation in extracurricular activities (Marsh & Kleitman, 2003). Evidence indicates that participation in extracurricular activities such as school athletic programs has a substantial impact on the Scholastic Aptitude Test scores of minority and socioeconomically disadvantaged students (Everson & Millsap, 2005). These students were more likely to have higher scores than nonathlete participants. Overall, the data from the research note that participation in school athletics benefits students academically.

McNeal (1998) found that extracurricular activities in the middle and high school levels had a major impact on whether these school students dropped out or stayed in school. McNeal explained that not all activities were created equal. High school athletics had the greatest impact on retaining high school students in school. High school students were 1.7 times less likely to drop out of high school if they participated in athletics. These positive effects did not relate to nonathletic participants. It was determined that nonathletic participation increased the chances of a high school student dropping out of school. When all other activities were controlled, only involvement in athletics had a noteworthy role in lessening the dropout rate of high school students.

Researchers must be certain to define athletic activities in a clear and concise manner. For example, researchers need to differentiate between intramurals,

interscholastic athletics, team athletics, and individual athletic programs. The term athletic activity has been used as a general term, creating a category that is very large and broad for all physical activity. On the other hand, some researchers have divided athletic activity into various categories. Researchers need to define specifically and isolate all key variables if the expectation is to find more reliable and credible data. It is important for researchers to know that it may not be just one variable that plays a role in an athlete's academic accomplishment. Academic success may be attributed to a combination of variables including gender (McNeal, 1998).

A number of studies that have looked into the correlation between participation in athletics and academic achievement have also considered how the relationship may vary among males and females. With a major focus on athletics, schools, educators, and researchers started to uncover that many student-athletes were not prepared for the next step of education: institutions of higher learning (Foltz, 1992). Dilley-Knoles, Burnett, and Peak (2010) researched how students who participated in school athletics did not have the vital skills to achieve academically in high school and beyond. The researchers found that many institutions were trying to solve the issue by offering services such as tutors and additional classroom support to student-athletes that would help in their academic process. However, the findings concluded that academic support programs greatly improved the GPAs of female student athletes, but failed to have the same effects on male student athletes. The data collected concluded that female athletic teams outperformed their male counterparts when academic achievement was determined by grade point average.

While it is not correct to overgeneralize when matching up the two genders, three distinctive patterns have come up in the research (Hartmann, 2008). The first distinction is that males are more likely to participate in sports. Researchers should be attentive to this, as this is important when studying the differences between the genders in athletic participation, and they should amend their research methods appropriately. There has been opposing evidence that with the passing of Title IX, the participation in athletics among males and females is beginning to equalize. The second distinction, which is more pertinent to this literature review, is that participation in athletics seems to impact positively females more than males (Crosnoe 2001; Hansen & Krauss, 1998).

A Troutman and Dufur (2007) study found that females who participated in grade-school sports had increased chances of finishing college compared with girls who did not participate in sports. Another study noted that, on average, females academically outperform males in spite of sports participation (Hartmann, 2008). Regardless of these findings, other data indicate that these conclusions are not so clear-cut. The 2007 mean state test scores for Alameda County, California demonstrated that 1lth grade females as a group outperformed males by 10.8 points on the English portion of the CST. However, males and females performed similarly in entry-level math courses such as Algebra and Geometry. In higher math courses such as Algebra II and Calculus, males outperformed females.

The last gender difference worth noting is the disparity in juvenile delinquency and deviance. In regard to engaging in risky behaviors such as drinking, drug abuse, and other delinquent behavior, girls and boys are negatively impacted by participation in sports (Hartmann, 2008). However, additional research concludes that male athletes are

more likely to partake in deviant and delinquent behaviors than their female counterparts (Gardner et al., 2008). A variety of reasons are given for this discrepancy, including peer pressure and inclination for risky behaviors, but overall this area of research continues to be open to doubt as the studies were inconclusive.

Data support the belief that athletic participation offers a proactive and reactive method of preventing poor social or personal behaviors (Eppright, Sanfacon, Beck, & Bradley, 1997). Societal ills such as gang activity, crime, drug abuse, and teen pregnancies are reduced when athletics play an important role in the community because of they become an outlet for behavior. Law enforcement officials continuously support the push for additional structured after-school activities for juveniles. Juvenile crime rates rise around 3 p.m., the time when many children are released from school with nothing to do in an unsupervised setting (Fox, 1999). Nearly 90% of middle school students watch television for at least 1 hour after school, 70% watch for 2 hours or more, and 30% watch for 4 hours or more. These statistics further support a need for structured after-school activities (Shann, 2001). There are other behaviors that athletics can change within young adults.

Issues such as depression, stress, and low self-esteem have also been correlated to athletics (Agnew & Peterson, 1989; Eppright et al., 1997). Researchers explain this effect simply: If adolescents are offered healthy alternatives, they will not adopt, or will cease to continue, negative and unhealthy problem behaviors. Participation in athletics is believed to provide the best outlet for the frustrations and emotional upsets cited by Freud and Erikson (as cited in Jergovic, 2001) and thus facilitate development.

Summary

There is a high level of interest from researchers regarding the connection between participation in high school athletics and academic achievement. There is also a need to look at middle school athletics, as this feeds to programs at the high school level. Many of the studies are tied to research results on the data taken from the National Educational Longitudinal Study, which was conducted in the late 1980s (National Center for Education Statistics, 1994). For years, this study has been the focus for much of the research conducted. Although at one time praised for its depth and design, the information enclosed in the study is no longer considered reliable. The data in the study is outdated, as new information needs to be collected on students in the 21st century. Present research looks at additional variables that may impact the results. For research to be justifiable as well as consistent, research must take into account variables such as gender, ethnicity, and physical fitness exams. Certain researchers have already produced results looking into these variables for relationships. The research provided in this paper will contribute to the information regarding the connection of middle school athletic participation and student achievement in the classroom.

Opponents of Athletic Participation Increasing Student Achievement

Although much of the related research offers evidence supporting extracurricular activities as a way to advance positive educational outcomes, other research shows questions concerning these findings along with evidence suggesting off-putting effects related to participation in extracurricular activities. Some studies have created unpredictable findings in their attempt to link sports participation to educational aspirations, academic self-esteem, and school-related achievement (Ryska, 2003). Broh's

(2002) research found that participation in interscholastic athletic activities was by and large unrelated to academic achievement, with the exception of just a few products and subgroups.

According to Coakley, (2003) it is difficult for researchers to separate the effects of athletic participation from the effects of social class, family background, support from friends, and other factors related to educational attitudes, performance, and grades. Coakley's belief is that not only athletic participation but other factors determine student attitudes, performance, and academic success. Therefore, it would be very difficult to determine if there is a positive correlation between participation in school athletics and academic achievement.

A Leaderman (1990) study contradicted a positive correlation to academics and athletics and found student-athletes performed at a lower level academically when comparing GPAs to student nonathletes. This study also worked with students from 1980-1982 at a Tennessee junior high school and concluded student-athletes obtained lower grade point averages of 2.46 on a 4.0 scale than did student nonathletes, who had an average of 2.64. Football players recorded the lowest GPA of 2.29 and the basketball team averaged a 2.48, including female basketball players.

Research was conducted on school athletes in middle and high schools that examined the connection between the students' participation in extracurricular activities, such as school athletics, and academic and psychological modification after high school (Fredericks & Eccles, 2006). Findings revealed that there was a parallel between athletics and drug use and the consumption of alcohol.

Another study examined the role of setting and attaining goals in adolescent students who played organized team athletics (Whitehead, Andree, & Lee, 2004). The researchers understood that a poor perception of one's abilities and comparative achievement was associated with maladaptive behaviors toward youth athletics. The results concluded that students marked as having a poor awareness of their abilities and those who compared themselves to others benefited from school athletics less than other students. It was also concluded that the amount of involvement, leadership, student-to-adult ratio, and drive was not reliant on the student's developmental experience in planned activities. These factors did not relate to negative experiences. On the other hand, students reported greater participation in these activities if they enjoyed them and had some type of leadership role.

It was initially thought that there was no distinction between those who participated in school athletics and those who did not when dealing with academic success. The research originally reported that athletics were an impediment and that participating in sports had an unconstructive impact on academic performance (Steinberg, 1988). One study completed with elementary students determined there was a negative correlation between physical fitness and academic achievement (Eveland-Sayers, 2009). The participants were obligated to complete the one-mile run and to do curl-ups and sit and reach exercises. Scores from school-wide achievement tests on middle and high school students were used to find academic achievement. Eveland-Sayers et al. exposed a negative correlation between running times and math scores.

Similarly, Din (2005) looked at the relationship between school athletics involvement and academic achievement. High school students from rural high schools

were studied. The students' academic grades from before and after the athletic season were compared and the researchers defined their athletic participation in terms of the amount of time and the level of participation. The researchers noted there was no difference in students' grades pre- and postseason, which specified that taking part in high school athletics had no impact on academic grades.

Broh (2002) concluded that athletics negatively impacted academic achievement. The negative effect of intramural athletics is three times greater than the positive connection between interscholastic athletics on academic success. These results point out that the structure of interscholastic athletics and the high stress put on student athletes does play a role in the academic success of the student athletes.

McCarthy, Jones, and Clark-Carter (2008) proved that adolescents enjoyed participating in athletics since it gave them a sense of accomplishment and a position of capability. In general, on the status pyramid, athletes are at the top. It is thought that the confidence student athletes receive from playing athletics then applies to how they act in the classroom. This confidence in the classroom creates a building block for academic success.

Researchers have questioned whether the amount of physical activity has a relationship with academic achievement. Taras (2005) noted that most research regarding participation in athletic programs and academic success only describes a weak correlation between the two. Research suggests there are other potential variables that can cause a positive correlation between school sports participation and academic achievement.

Shulruf, Tumen, and Tolley (2008) looked to establish a connection between participation in extracurricular activities, such as school athletics, and an improvement in

academic achievement. The study used a methodological approach that calculated whether participation in extracurricular activities improved academic achievement. Unfortunately, the results from the study did not support Shulruf's et al. postulation. The level of involvement of adolescents in athletics is a key factor in the development outcomes of academic ability, poise, connections, integrity, and compassion. The findings of the study revealed that participation in athletics was only related to positive results. However, the positive outcomes linked with participation in sports depended upon the level of involvement. If a student is not immensely involved in athletics, the higher the likelihood of negative outcomes associated with the participation.

A Fejgin (1994) study revealed a different aspect of the relationship between athletic participation and academic achievement. It was found that credible data on athletic participation are challenging when trying to find causal relationships because the students who participate in athletics generally come from more educated and fortunate families as compared to students who do not participate in athletics (Hartmann, 2008). These aspects play a part in academic success when considered alone. Taking this into account, the result is a possible "selection problem" (Crosnoe, 2001, p. 34) or a "self-selection bias" (p. 34) issue. After removing the student athletes' family variable, there is indication that student participation in athletics may have a negative relationship on academics performance when based on grade point averages.

Another study conducted by Tamela and David Eitle (as cited in Hartmann, 2008) found African American boys participated to a greater extent than their white counterparts in football and basketball. The researchers found that white males were more likely than African American males to participate in athletics. When the researchers

controlled for all other factors, African American males were more than two times more likely to play football and more than five times more likely to play basketball than white males.

The results are important to note because research has indicated that participation in athletics such as basketball and football appear to have a lesser impact on academic success than other athletic programs. Research indicates that these designated athletic programs might even have a negative impact on academic achievement. Participation in all other athletics in which white students have a propensity to participate, is where many of the positive relationships with academic achievement have been noted (as cited in Hartmann, 2008).

According to Roberts (1986), participation in athletics is actually a hindrance to successful development. He maintained that adolescents overstress these activities to the detriment of more constructive activities, such as academic pursuits. However, in Feltz and Weiss's (1984) study, high school senior female students who were involved in school athletics, service clubs, athletics and service clubs, or no activities at all were found to have no significant differences in standardized test scores.

Other researchers found negative correlations between the effects athletics have on student success (Suggs, 2000). Foltz (1992) stated that the opponents of athletics believed that athletics were more important to student-athletes than their academics. These opponents have labeled these student-athletes as incapable of attaining academic success. In a study investigated by Cosden, Morrison, Gutierrez, and Brown (2004), the researchers found that participation in too many extracurricular activities could undermine academic work. According to Meier (2004), nonathletes might be offended by

attention paid to athletes and feel separated. If athletics compete with the school tradition, then school athletic programs might have a negative impact on the school's academic standards.

McMillen (1991) explained that one athlete who had graduated from a major university still could not read. He was forced to register for an adult literacy program after graduation. These same issues are found at the high school and middle school levels. Critics blame the problem on the schools and the distortion of athletics. Top athletes who deserve failing grades receive passing grades because of their athletic capability instead of their academic performance. This results from the unremitting pressure from parents, administrators, and coaches. Factors that contribute to the development of students also play a major role in the educational process. Coaches of athletic teams are just as valuable to the educational system as teachers (Emma, 2009).

Sage (1981) argued that student-athletes were graded more leniently because teachers viewed student-athletes as exceptional or more praiseworthy. Student-athletes received more help on their class work from the teachers, parents, and classmates. Athletes who participated in basketball, baseball, and football, which are known as the glory sports, had lower grade point averages than those who played a part in leadership activities and clubs (Brown & Steinberg, 1991). It could be that the participation in athletics took priority over school work and any academic intentions of students.

In a Wempe (2001) study, athletes performed below average on state-mandated tests and were found to be uninterested in academics. Most student-athletes' motivation for attending a school was for athletic opportunities. Funk (1991) explained that a student-athlete's top priority was athletics and not academics. In other research, student-

athletes were treated differently than nonathletes, which could support their motivation to spend more time on athletics. In certain institutions, financial aid opportunities were better for athletes, academic support from teachers was more accessible, and athletes' class choices were more flexible (Wempe, 2001).

Summary

Some researchers contended that athletic participation is an impediment to successful development (Braddock, 1991; Weiss & Petlichkoff, 1989). These researchers suggested that athletes overinvest themselves in athletics. Furthermore, they stated that athletics create competition, which is assumed to be a stressor. Some see athletics as a win-at-all-cost activity. With this type of viewpoint, athletes tend to be pressured into corrupt and unsportsmanlike behavior, which leads to heartlessness in other realms of the athlete's life (Braddock, 1991). Although there are opponents to athletic participation, there is data that supports that students who participate in athletic programs at their schools do reap academic achievement benefits.

Interscholastic Participation and Academic Performance

Education scholars have long debated the controversy regarding the role of athletic activities within the school setting. Prior to 1900, many scholars viewed participation in athletic activities as a distraction from the focus of the academic curriculum. As a result, public schools limited extracurricular activity opportunities for students. A shift in thinking occurred from 1900 to 1920, and educators began to regard extracurricular activities as a way to enhance and promote academic achievement. This perspective has gained momentum in the decades since, to the point that extracurricular activities are widely offered in U.S. schools (Gholson, 1985).

Athletics is the most common form of extracurricular activity. Holland and Andre (1987) performed an extensive review of studies examining extracurricular activities and school outcomes. Their study found that the majority of research available on the topic pertains to the relationship between athletic participation and academic achievement. According to Ballantine's (1981) review of 20 years of research on athletics and academic achievement, a positive correlation was found between the two.

Camp (1990) conducted another benchmark study examining the relationship between participation in extracurricular activities and student achievement. The focus was on the academic grades of participants versus nonparticipants. As indicated by Camp's research, participation in athletics and other extracurricular activities positively affected student grades. In a Marsh (1992) study comparing participants and nonparticipants, students involved in extracurricular activities were three times more likely to have grade point averages of 3.0 or higher.

Mixon and Trevino (2005) noted in an earlier study that the grades of student-athletes in a Colorado school district were consistently higher than students who were not involved in school athletics. They reported that of the participants in their study, the athletes' mean grade point average was 2.67 compared with a 2.12 grade point average for non-athletes.

Van Raalte and Brewer's (1996) study documented that the most integral skills to be learned during adolescence can be taught through athletics and that these skills are what develop the successful conversion from childhood to adulthood. They also proposed that athletic participation enhanced physical, cognitive, social, and psychological development. These significant skills learned through athletic participation included the

ability to perform under pressure, problem solving, meeting deadlines and challenges, setting goals, communicating, dealing with success and failure, working with a team and within a system, and receiving and profiting from feedback.

Stephens and Schaben (2002) conducted additional research at the middle school level supporting positive connections between school athletics and academics for younger students. Their investigation examined one urban middle school and found that school athletics participants performed better academically than those students not occupied in such programs. Although these results were based on grade point averages, other studies looked at supplementary factors. Stegman (2000) evaluated participants' and nonparticipants' grade point averages, class rank, and math grade point averages. School athletics participants outperformed those who were not involved in all three categories that were evaluated.

Silliker and Quirk (1997) conducted a study focused solely on soccer participation. This research analyzed the grade point averages of soccer players from five different rural high schools in New York. They found that participants had higher grade point averages in season compared with the off season. Silliker and Quirk concluded that academic performance has a possibility to enhance athletic participation.

Gerber (1996) found that athletics were the top extracurricular activities when examining the relationship between extracurricular activities and academic achievement. Gerber discovered that the degree of athletics participation was drastically associated with academic achievement and positively had an impact on math, reading, and science achievement in athletes.

Participation in athletics has been found to influence positively a wide variety of other educational outcomes. Marsh (1993) observed more than 10,000 high school sophomores and seniors who participated in a variety of extracurricular activities. Marsh discovered that this level of participation was correlated with an array of school outcomes, prompting Marsh to advise that schools that promoted extracurricular student activities would see drastic improvement in many areas, including student self-awareness, educational objectives, homework management, school attendance, and other educational outcomes (Landers & Landers, 1978).

According to Sellers and Kuperminc (1997), an aspiration to graduate from high school and attend college was connected to the involvement in both middle school and high school athletics. Spady (1970) studied a group of male senior high school students and determined that students who were participants in athletics and service organizations held the highest motivation to attend college. Braddock (1991) also found a direct positive relationship between athletic participation and educational attainment. Sellers and Kuperminc (1997) found a positive correlation between athletic participation and college matriculation. There were other impacts that athletics were found to have beyond academic performance.

Marsh (1993) recognized that athletic participation improved students' academic self-concept, which would then positively influence academic performance. Marsh stated that what the athletes gained socially was also worth noting. Students who are involved in these extracurricular activities encourage friendships. Creating and maintaining these new relationships increased self-esteem. When students exhibit high levels of self-esteem, they seem to perform better academically. Students who are occupied in school tend to

have more positive attitudes toward class work, teachers, and peers. According to Osterman (2000), students who take part in extracurricular activities were more likely to relate to both peers and teachers in collective ways. They were found to be more encouraging to others and also participated more often in classroom discussions, as noted in interviews with teachers. Teachers also noted an improvement in academic grades on state-mandated tests taken by the students. The coaches were also given credit as a reason for the students performing better in the classroom.

Students who participate in school sponsored athletics are given the opportunity to learn and to grow in many different ways when they are exposed to athletics by a coach who is willing to foster skills that apply to the student's life (Intrator & Siegel, 2008). Using these life skills supports the concept of interscholastic athletics as being beneficial to both the athlete and society. Rosewater (2009) discussed the many benefits students attain when playing athletics. Athletics is the largest after school activity for students and in the skills students learn while playing athletics effects how they learn, interact with others, and also their emotional and physical development (Rosewater, 2009).

Maloney and McCormick (1993) studied the impact of school athletic participation and how it relates to academic performance at a public educational institution. The study looked at various athletic programs and determined what influence the playing and practice season had on students' academic data. The study was completed throughout a 4-year period and it discussed student information, including previous standardized test scores and their rank in the class. There were 594 student-athletes, with a majority of them taking part on a football team. Throughout the same period of time,

1985–1988, the total population of athletes' grades was lower than the general student population.

In particular, the average GPA for student-athletes was 2.37, while the general student population was 2.68 (Maloney & McCormick, 1993). On the other hand, only two women's programs scored higher in their grade point average than the general student body: The women's swimming team and volleyball team both had higher grades than the overall student body, with grade point averages of 2.84 and 2.88 respectively.

Maloney and McCormick (1993) noted that the overall data does not "tell us whether the act of involving yourself in athletics helps a student's academic performance. There are too many other unaccounted for reasons" (p. 24). Maloney and McCormick noted that student-athletes do not do as well as the general student body in the classroom and that students in certain "revenue producing" (p. 68) programs do the worst. In addition, the time students spend on their sport had a direct correlation to their grades. Athletes in nonrevenue sports showed no "grading differential connecting the on and off seasons" (p. 88).

The study concluded that student-athletes take the same types of courses both in-season and out-of-season, confirming, the "grades they receive in-season are not driven by choice of course difficulty" (Maloney & McCormick, 1993, p. 568). The authors concluded that student-athletes do not receive as high scores in the classroom as their nonathletic counterparts. Maloney and McCormick declared that a strong academic background is essential to academic achievement throughout an educational program.

Many times when one reads about a school in the newspaper, the topic involves athletics. Jones (2007) described junior high and high school athletics as being the most

publicized part of a school district. High school athletic events can generate a community's sense of pride and is where the most involvement takes place. An effective athletic program will bring media exposure through various outlets on a weekly basis. This exposure occurs more often than a school's typical academic success release, including Scholastic Aptitude Test scores, graduation rates, and state testing results.

Jones (2007) also stated that it is more common to read about the successes and failures of the athletic teams than it is to read about the successes and failures of the school's academic programs. Jones mentioned how athletics and academics can play a role in helping each area or a student improve. Knowing which students are playing athletics and how it affects their health, self-esteem, and posthigh school plans can help to play a role in balancing the athletics and academics within the school. Jones further states that a good athletic program can gain exposure that will also promote the academic success of the students.

Stephens and Schaben (2002) noted that as school athletic involvement increased, student's grade point averages also improved. Furthermore, Stephens and Schaben concluded that students who were involved in athletics excelled in the classroom and had higher grade point averages than students who were not involved in athletic programs. Stephens and Schaban reported the following aspects of athletics and academics. Student-athletes reportedly excelled during their season of competition. High participation student-athletes (at least one sport each year) performed better than low participant student-athletes in class rank, overall grade point average, and math grade point average. Both female and male student-athletes outperformed their corresponding peers.

Outperforming student nonathletes in the past 2 decades included different aspects. The first factor was the potential benefits to a coach if his or her players achieved certain academic achievements. Cronin (2003) reported that at certain high schools, the coaches were offered a large financial bonus should his or her team could attain a grade point average that was higher than 2.3 out of a possible 4.0. If a coach was lured with money to have his or her players rank above a certain grade point average, the student-athletes would be motivated and encouraged to study more often by the coach than a student nonathlete would be pushed.

Hoch (2009) writes about research done on education-based athletics. Hoch studied the educational components for athletics and stated athletics are not just about the winning. Hoch wrote common outcomes include that athletes learn sportsmanship to win humbly and graciously and lose with dignity, model integrity by playing by the rules, reach out to assist teammates, which translates into helping others around them in life and contributing to the community. Athletes also incorporate goal-setting learned through athletics into their approach to life, and develop a solid work ethic that emphasizes preparation and effort. Hoch showed the importance of athletics in the educational picture.

When looking at GPAs and other measurable academic indicators, Stephens and Schaban (2002) indicated that participation in athletics improved the student-athletes' academic performance, even with the heavier workload placed on them. In addition, Bryant and Clifton (1990) found that student athletes who enrolled in significantly fewer credit hours in-season than out-of season still performed at a higher academic level in-

season. Bryant and Clifton noted there was merit in some people thinking the increased academic performance was directly related to the amount of credit hours taken in-season.

Hollis' (2002) assumption determined the demands of athletics in-season (practice time, travel, games, etc.) accounted for the fewer credit hours taken. Hollis (2002) concluded student-athletes involved in football did not vary in academic performance when compared to their student nonathlete counterparts. In addition, Hollis found no significant difference in GPA, mean English grade, mean semester credit hours, or the average number of courses retaken or from which students withdrew.

Mahoney, Cairns & Farmer (2003) conducted a longitudinal study regarding the long-term effects of participation in extracurricular activities. The study looked at consistent participation in extracurricular athletics as a provider of long-term educational success. Participants were 695 boys and girls who were interviewed annually to the end of high school and again at the age of 20. They found that consistent extracurricular activity participation throughout adolescence and high school is associated with high educational status in young adulthood, which included college attendance. Mahoney and Cairns also found that extracurricular participation led to interpersonal competence and higher educational aspirations.

Mahoney and Stattin (2000) characterized highly structured activities as those including "regular participation schedules, rule-guided engagement, direction by one or more adult activity leaders, an emphasis on skill development that is constantly increasing in complexity and challenge, activity performance that requires sustained active attention, and clear feedback on performance" (p. 114). Extracurricular activities such as athletics, student publications, radio stations, and performing arts are considered

to be highly structured activities. According to Darling (2005), extracurricular activities are seen as a way of offering academically gifted students a way of excelling within the school environment, a way for academically challenged students to reach goals within the school setting, and a way of creating a sense of shared community within educational sites. Certain schools use the term cocurricular because extracurricular activities complement student learning (Kezar & Moriarty, 2000; Wren, 1997). As O'Bryan, Braddock, and Dawkins (2006) stated, research demonstrated that participation in school extracurricular activities is related to educational attainment and student achievement.

Everson and Millsap (2004) contended that students who participate in extracurricular or cocurricular activities show high levels of achievement in areas other than grades. The research of Everson and Millsap shed light on the relative importance of extracurricular activities with high-stakes tests. Their study provided compelling evidence from the Scholastic Aptitude Test that "participating in extracurricular activities provides all students, including students from disadvantaged backgrounds, minorities, and those with otherwise less-than-distinguished academic achievements in high school, a measurable and meaningful gain in their college admission test scores" (p. 170). Everson and Millsaps (2004) further stated that the important reasoning abilities measured by these tests were developed inside and outside the classroom. Moreover, Everson and Millsaps stated, "Participating in extracurricular activities in school appeared to be one of the few interventions that may have benefited disadvantaged students, those less well served by traditional educational programs as much or more than their advantaged peers" (p. 170).

Numerous authors, educators, and administrators have argued that important skills and qualities are developed through athletics that cannot be developed within academic programs alone. Athletic programs have been lauded for their ability to facilitate social mobility of individuals from lower socioeconomic backgrounds. Still, there are other reports that participation in athletics relates positively to developing interpersonal skills, peer relationships, leadership abilities, and to students' personal and social well-being (Cantor & Prentice, 1996). When precollege differences are controlled for, athletic participation can be linked to satisfaction with the school experience, and increased motivation to persist (Braxton, 2002). Athletic programs have also been described as organizations that create communal bonds among students, faculty, and alumni despite race or ethnicity, social class, or geographic background (Wolfe-Wendell, Toma, & Morphew, 2001).

Physical fitness associated with participation in athletics has been found to have a direct correlation on academic potential. Dustman (1994) and others have shown that cognitive function improved with physical activity and fitness in adults (Teasdale, 1992). A connection has also been made between psychomotor training and cognitive performance (Hollmann, 1996). In a study examining the relationship between academic performance and physical activity, Linder (2002) found that perceived academic performance and potential tended to be higher for students with more participation time in physical activity.

A study conducted in Australia with 7,961 school children aged 7 to 15 years, comparing scholastic ability and physical fitness indices, found a significant association between fitness and academic performance (Shephard, 1997). Most recently, Coe,

Pivarnik, Womack, Reeves, and Malina (2006) conducted an investigation of 214 sixth-grade students examining the influence of athletic participation on academic achievement scores. They found students involved in vigorous physical activity earned higher academic achievement scores, measured from four core classes and standardized test scores. The authors contend that athletic participation meets the threshold level for physical activity that is essential to produce desirable effects on academic performance.

The influence of physical activity on academic achievement may be linked to physiological adaptations to exercise such as increased cerebral blood flow (Rogers, Schroeder, Secher, & Mitchell, 1990). In addition, an alteration of arousal and associated neurohormonal balance has been found with exercise that stimulates increased serotonin levels in the brain, leading to calmness in the classroom (Cook, 1988; Hollman, 1996; Kuperman, 1987) High levels of physical activity have also been found to lead to greater intake of nutrients and enhanced nutritional status. This leads to stimulation of growth in interneuronal connections and cognitive functioning (Benton, 1992); Nelson, 1992).

In his book, SPARK – The Revolutionary New Science of Exercise and the Brain, Dr. John Ratey addresses "how physical activity influences the brain" (Ratey, 2008, p. 33). The books premise stems from the belief that "physical activity sparks biological changes that encourage brain cells to bind to one another" and that "exercise provides an unparalleled stimulus, creating an environment in which the brain is ready, willing, and able to learn" (p. 10).

Although there are many more physiologic responses to exercise that could influence cognitive function, the nature and extent of this line of inquiry is well beyond

the scope of this research; therefore, this area of study will not be examined in any further depth in this paper.

Summary

Student involvement in interscholastic athletic programs does not necessarily mean the student is going to have greater academic achievement or automatic success in life. The participation needs to go beyond the surface, applying to the athlete's academics and life in general. Academic achievement will increase when the athlete applies the skills he or she is learning in athletic participation to everyday life. It was revealed that participation in athletics could help students build discipline, set goals, organize time, and develop self-confidence. These skills have been transferred by athletes to their academics and are seen in areas beyond the classroom walls, gymnasium floors, and athletic fields. Not only have sports taught athletes to shift the skills they have learned by participating in sports to use in the classroom, but they also enabled athletes to become better equipped for the social world (Marsh, 1992).

California State Code for Interscholastic Athletic Programs

There is state policy relating to interscholastic athletics as adopted into the state code of California. This policy covers a wide range of issues pursuant to middle school athletics (CDE, 2010). The state policy regulating interscholastic athletics at the middle schools in California maintains that its purpose is to support the offerings of athletic programs at the middle school levels. The policy mandates that this participation in athletic programs must be subject to rules so that it does not interfere with any students' academic achievement.

The state code also sets forth time and seasonal restrictions. All interscholastic activities must take place outside the regular instructional school hours. In addition, school personnel are prohibited from influencing students to participate in any athletic program at the site. Furthermore, students may not be deprived the benefits of participation for any athletic offerings based on gender (CDOE, 2010). The following is an excerpt from the education code for the state of California that pertains to school athletic programs: (a) Each school district governing board shall have general control of, and be responsible for, all aspects of the interscholastic athletic policies, programs, and activities in its district, including, but not limited to, eligibility, season of sport, number of sports, personnel, and sports facilities. In addition, the board shall ensure that all interscholastic policies, programs, and activities in its district are in compliance with state and federal law (b) Governing boards may enter into associations or consortia with other boards for the purpose of governing regional or statewide interscholastic athletic programs by permitting the public schools under their jurisdictions to enter into a voluntary association with other schools for the purpose of enacting and enforcing rules relating to eligibility for, and participation in, interscholastic athletic programs among and between schools (c) Each governing board, or its designee, shall represent the individual schools located within its jurisdiction in any voluntary association of schools formed or maintained pursuant to this section (d) Notwithstanding any other provision of law, no voluntary interscholastic athletic association shall deny a school from participating in interscholastic athletic activities because of the religious tenets of the school, regardless of whether that school is directly controlled by a religious organization (e) Interscholastic athletics is defined as those policies, programs, and activities that are

formulated or executed in conjunction with, or in contemplation of, athletic contests between two or more schools, either public or private (CDE, 2010).

Summary

Since the mid-1900s, the research that has been completed supports the notion that participation in extracurricular activities, specifically athletic participation, is positively connected with academic achievement and that such activities maintain the task of educational institutions (Soltz, 1986). The research that exists, as summarized above, suggests that participation in athletic activities can positively impact academic achievement, school engagement, drop-out rates, student discipline, self-esteem, and educational aspirations of students (Landers & Landers, 1978).

Athletic participation is crucial in child development. American youth spend ample time participating in extracurricular athletics and only slightly less time compared to family, school, and television (Braddock, 1991). The researchers look into an underlying theory that athletic participation assists in the academic achievement of students. On the other hand, whether the impact of athletic participation is favorable or unhelpful is a matter of widespread debate.

Without doubt, some researchers challenge the belief that athletic participation is an obstacle to successful development. Those researchers who support this "sport-as-impediment" (Soltz, 1986, p. 24) hypothesis suggest that adolescents tend to overallocate themselves in athletics and therefore give much less attention to their functioning in academics. However, studies have shown that involvement in athletic activities is connected with school engagement and achievement (Cooper, Valentin, Nye & Lindsey, 1999; Gerber, 1996; Mohoney & Cairns, 1997).

In spite of budgetary limitations facing many public schools in the United States and an increase in the emphasis on school accountability and test scores, athletic activities remain widely available at high schools and middle schools. When budget cuts threaten the existence of interscholastic athletic programs, administrators, counselors, teachers, parents, and students can negotiate or even weaken the effects of these proposed budget cuts with the data indicating the academic benefits of such programs to emphasize their necessity (Meier et al., 2004). Data indicates that athletes have better attendance records and higher grade point averages than nonathletes, particularly when their sport is in season (Braddock et al.1991).

Although it is not viable to determine with conviction whether extracurricular activity participation at the middle school level will continue to increase, it is noted that all of these programs must be planned with care. Adolescent students go through rapid physical, social, emotional, and intellectual growth and change. Extracurricular activities at the middle grade levels must also take into account the wants and needs of the middle grades learner. There are significant discrepancies in the research on the correlation between athletic participation increasing student achievement. This research effort is an attempt to further the investigation into the effects athletic participation has on student achievement. There is positive evidence that concludes athletics create physical, interpersonal, intellectual, and leadership skills in athletes and that athletics improves academic achievement (Spady, 1970).

Critics view athletics as taking the students away from the more important and useful academics (Foltz, 1992). However, Jergovic (2001) stated that athletes were more well-rounded individuals who balanced the demands of education, society, and athletics.

Research and statistics make a convincing argument that athletic participation does have a direct positive correlation to student achievement. Though critics will always find negative correlations between the two variables, the school systems need to investigate the importance of athletics for increasing student academic achievement. This in-depth look at athletics can suggest that more extracurricular activities be developed and implemented in schools for the years to come.

Chapter 3: Methodology

The purpose of this study is to determine if there is a significant relationship between school athletic participation and academic achievement, studying gender, ethnicity, participation, and test scores at the middle school level (Grades 6–8). The study's purpose is to determine if middle school students who participate in school-sponsored athletics perform higher on the CST subtests than those who do not participate in school-sponsored athletic programs.

Many people have researched athletics and the different impact athletic participation plays on academics; however, there has been no research on the effect of athletic participation and performance on the CST exams, specifically in Orange County at a middle school.

Academic achievement was defined as scores on the various subtests of the CST that are taken at the end of each school year by all students in all grades. Specifically, the effect participation in school sports has on the CST scores was examined. Research involving athletic participation, CST scores, athletic participation, ethnicity, and gender was looked at throughout this study.

The research conducted shows if there is a positive correlation between school athletic participation and CST scores for students at the studied Orange County middle school. The significance of the results is that administrators have data to prove that school athletic participation is important to student learning and that it does enhance academic achievement.

The procedures and methods of this study are described under the following topics: (a) Description of the research methodology, (b) Participants, (c) Definition of

data gathering instrumentation, (d) Reliability of data gathering instrument and data gathering procedures, (e) Description of proposed data analysis process, (f) Purpose of study, (g) Independent and dependent variables, (h) Assumptions and methodological limitations, (i) Sample tables for proposed data analysis, (j) Plans for the Institutional Review Board (IRB), and (k) Summary.

Description of the Research Methodology

The main characteristic of the research design is that both the experimental and control groups were selected after the experimental variable was set up. This approach does away with the possibility that participants will be influenced by any consciousness thought that they are being tested (Dillion, Madden, & Firtle, 1994). This research design is suitable for this study because the students took the CST tests before the participants were chosen for the study. This way there was no possibility that the students might be influenced to perform differently on the CST. When gathering data about participants in athletics, the school has records and checks to show and prove who participated in the school athletic program, and these data were also collected in a systematic manner. The study used data from previous years so that all names and scores were kept confidential and only the researcher knows the past students' identities.

Participants

The participants involved in this study were all the persons attending one of the Orange County middle schools during the school year of 2009–2010. Participants chosen for this study included nonathletes and student-athletes who were required to participate in the state standardized testing that year at the school site. The total population of 1,244 students was analyzed for the 2009–2010 school year. The scores were taken from the

CST results provided to the school approximately 2 years after the test was given. The gender, ethnicity, and participation served as the independent variables in the study.

Definition of Data Gathering Instruments

The CST is a state-mandated, criterion-referenced, statewide, standardized test. The criteria are performance levels of students in grade levels and subject areas. The scales are equal-interval scores that span all grade levels and measure growth in strengths and weaknesses in a school year. The CST was used to determine the academic achievement differences among any nonathletes compared with student-athletes.

This standardized test includes areas in math, reading, social studies, and science. The results from these tests are used to inform principals, parents, and teachers of the strengths and weaknesses of every student and to create new programs to assist and develop ways to help students achieve success in the classroom. The 2009–2010 standardized test scores for the state of California wee obtained from the Huntington Beach School District Board of Education and used for this study.

Specifically, the variable for student academic performance was his or her academic achievement on the CST. There are five performance levels a student can achieve: Advanced, Proficient, Basic, Below Basic, and Far Below Basic. There is a given quantification for each performance level such as Advanced and Proficient = 3, Basic = 2 and Below Basic-Far Below Basic= 1. The CST is a statewide testing system adopted by the State of California with uniform quantifications for all using the test. The numbers correlated with each level also form a scale that can be submitted to parametric tests such as SPSS and ANOVA (Mitchell & Jolley, 2004). The researcher had no control

over the scores the participants received on the CST exams or their partaking in a school sport; they were simply collected from past school data for analysis.

Reliability of Data Gathering Instrument and Data Gathering Procedures

The data were obtained from the Huntington Beach City School District Board of Education testing department. A letter was written to the site principal as well as the superintendent of the school system to receive permission to obtain the scores. The school board voted on determining if the dissertation study was granted the right to use the data.

For this research project, all grade middle school athletes and nonathlete students' state achievement scores for 2009–2010 were obtained. The population consisted of what have been defined as nonathletes and student-athletes in one middle school from the Huntington Beach City School District in Orange County, California.

The district's assistant superintendent and her colleague were in charge of collecting the data for the state test scores on all the students. After the data collection method, an Excel spreadsheet was created. The school's athletic director and assistant superintendent met to cross-reference the athletic rosters with the information obtained from previous years. The athletic director checked to see all data were correct with district office records of who participated in school athletics programs in that year.

Description of Proposed Data Analysis Process

This quantitative correlation research explores the relationship between those participating in school athletics programs and academic achievement and how this relationship may be impacted by gender and ethnicity of the students examined. Previous research centered on factors such as extracurricular activities, leadership, athletics, and

how community work would help improve upon a student's learning process (Eccles & Barber, 1999). Spreitzer (1994) recognized that all the above listed aspects developed skills and talents that regular classes and traditional subjects did not. Recent research has been used to determine which of the factors relates most to a student's academic achievement.

To determine whether a relationship exists between participation in middle school athletics and the students' academic achievement, the researcher collected participants' CST scores for math, English, science, and history as well as their cumulative scores on the state-mandated exam. The CST reports student achievement on five performance levels: Advanced, Proficient, Basic, Below Basic, and Far Below Basic (CDE, 2010). Individual student scores on the CST are determined by calculating and comparing them with mean scores for their grade level. These mean scaled scores signify the average of the scaled scores for all students at a certain grade level who took content-specific CST exams without any modifications.

The CST scores for each grade and subject area range from 150 to 600. Students who score 150 are considered on the low end, and those scoring around 600 are on the higher end. California strives to have students score at a proficient level (350 or higher) in every aspect tested (CDE, 2010). The researcher collected the scores and compared them to the students' gender, ethnicity, and participation in a school sport.

In this study, participation in a school athletic program is treated as the independent variable and the students' CST scores, genders, and ethnicities are treated as dependent variables. The collected data were compared using a test of multiple regression as well as an ANOVA analysis. The use of these tests show if the variables cause an

impact on academic achievement as the students participated in one, two, or three school-sponsored athletic teams.

Correlational studies determine the strength of the relationship between two or more related or nonrelated variables. They do not determine causality, but they do establish whether one variable is connected to another variable, and show the relationship as positive, negative, or having no correlation (Freedman, Pisani, Parues, & Adhikari, 1997).

SPSS was used to find the correlation between participating in middle school athletic programs and academic achievement, while the ANOVA assisted in describing whether other variables began to influence students' academic achievement in a positive or negative manner.

The remainder of this chapter depicts the methodology the researcher used to make a connection on whether a correlation exists between participation in middle school sports and academic achievement. This chapter also explains the path and design of the research used in the study, the research questions, hypothesis presented, the population of this study, and the projected statistical analysis to be executed to address sufficiently the intention of this study.

Purpose of Study

The intent of this study was to determine the relationship between participating in middle school athletic programs and its impact on the students' academic achievement as based on the CST scores. The findings of this study assist administrators in learning about their schools' athletic programs and where money should be used even in a time of budget restraint.

In addition, this study helps provide data to parents about involving their children in athletic programs not only as a way to improve health, but also academic achievement. The study can show whether taking part in athletics does allow the student to improve achievement academically if he or she spends time throughout the day in athletics.

An important aspect of this study is that it helps in the design and implementation of middle school athletics programs. The results of this study aid school officials in making certain that middle school sports programs positively relate to student academic achievement. Schools often put more emphasis on academics and ignore the possible positive impacts that athletics can bring to students. There have often been studies of older students who are in high school and beyond to show the impact athletics have on academics. This study aids in showing the importance that athletics has even at a younger age for students.

This study correlated the relationship between participating in middle school athletics and academic achievement. The results and conclusions of this study add to the knowledge on the connection between academic achievement and athletic contribution as well as assist in the development of programs and involvement that stress the role of middle school athletics has on academic achievement. The study provides data for the statement that athletic participation has an affirmative relationship to students' academic achievement.

Captive and purposive sampling methods are generally used in qualitative studies. These methods provide detailed and easy ways of finding the most fitting participants or respondents for the study (Mitchell & Jolley, 2004). Since this study only used the

student information from the school district, the sampling method was captive, albeit in a secondary form. There was no interaction between the researcher and the participants.

The sample used in this study was all students in middle Grades 6 through 8 who were enrolled at a certain school site for the 2009–2010 school year. There is no way that the participants to know about the study since it was completed long after the students completed their CST exams.

Independent and Dependent Variables

In this quantitative study, the variables were the student's gender, ethnicity, and academic achievement. Using the quantitative method, figures were collected and evaluated to determine the correlation that participation in middle school sports had on the academic achievement of sixth through eighth grade students in one California middle school. The variables in this study were whether a student participated in one, two, or three school athletic teams, and his or her gender and ethnicity. These items were the independent variables in this study, while academic achievement was the dependent variable.

The scores for determining academic achievement were obtained from students taking the CST. Students' levels of academic achievement on the CST were based on the mean scaled score for the CST. The assistant superintendent given the researcher the scores, as the school district has records of all students who completed the tests for more than 20 years.

Assumptions and Methodological Limitations

The study was as in depth as possible; it is vital to note that the results of this study are not to be generalized because of certain limitations the researcher found. Since

the information was collected for a restricted number of students in a district, the findings may not be pertinent across the student population for California or for any other state. When setting up relationships between variables, it is imperative to determine that there are no impenetrable variables that may have an impact on the variables being used and measured in the study. In this research, one of the limitations is that other variables such as intelligence, economic status, peer pressure, and environment have not been noted, but they can perhaps influence the results of this study (Angrist & Lang, 2004).

The findings of the study may be restricted because data from only one school were looked at in one county in California. There may be many similarities between the students who attend this school because most of them live in the same area of the county and there are a limited number of participants who came from other cities. Similarities the researcher came across are similar ethnic and economic demographics throughout the school.

The study does not look to find whether its research is true for all persons or only specific to the target school. The researcher's employment within the school district and the researcher's background in school athletics may result in biases throughout the study. The researcher acknowledged and identified this limitation.

The findings of this study only look at athletic participation on a school-sanctioned athletic program. It is common for many of the students to participate in outside extracurricular activities that should be considered athletics. Many local programs are only offered outside of school and are similar to what is played at the school site. Many of the students who are marked nonathletes in the study do partake in these outside activities and are often more active than others who do the school-sponsored athletic

programs. Certain students who have rigorous schedules with athletic programs outside of school are often asked by their coaches not to participate in other teams for various reasons.

The school site that was studied has minimum requirements for grade point average and behavioral marks that it accepts in order to place students on an athletic team. This may limit those students who would otherwise be on an athletic team from participating. The minimum grade point average of 2.0 and behavioral conditions restrict multiple athletes during each season from trying out and even playing for the school athletic team.

The use of CST scores as a measure of academic achievement has been scrutinized because these scores cannot fully detail the degree of academic success. For this study, the CST scores are an ideal measure of grade level attainment. The athletic director and district office have detailed lists of which students participated in all of the school sports during the last 10 years. This way of collecting data was more credible, as some adolescents might not truthfully state their participation in school athletics and or might not be aware of their past CST scores. By using the district office support and administration from the school, the information needed for the study is accessible, valid, and comprehensive.

Plans for IRB

The purpose of an IRB review is to assure, both in advance and by periodic review, that appropriate steps are taken to protect the rights and welfare of human beings participating as subjects in a research study. IRB oversight attempts to ensure protection of subjects by reviewing research protocols and related materials. IRB protocol review

assesses the ethics of the research and its methods, promotes fully informed and voluntary participation by prospective subjects capable of making such choices, and strives to maximize the safety of subjects. To gain this permission, all data and paperwork involved in this study were submitted to the IRB. The study used nonliving data, as past scores were studied to look for correlations. The data were submitted to a review board that approved the data collection process before it was submitted to IRB. The researcher's dissertation committee signed off on applications that are approved by Pepperdine University to show that all prerequisites and guidelines are met for the study in order to gain permission from IRB.

Summary

As explained, this quantitative study looks at the relationship between participating in school sponsored athletic programs and academic achievement and how this relationship may be impacted by gender and ethnicity. The study dialogue and results are supported by a statistical analysis performed on the data. The discussion looks for whether there is a connection between the variables of participation and academic achievement and if there is a relationship, what the implications of these relationships might be.

To conclude whether an affiliation exists between participating in school sponsored athletics and academic achievement, the researcher collected participants' CST scores. The researcher collected the same scores and compared them to student participation in athletics at the school. Student participation included taking part in one or more school-sanctioned programs throughout the school year. It was noted whether the students participated in no athletic programs, or one, two, or three school sanctioned

sports during the school year. This study used participation in middle school athletics as an independent variable, and the participants' CST scores, genders, and ethnicities as dependent variables.

The collected data are compared using multiple regression tests and also an ANOVA analysis. The researcher concluded that using a correlation method was the best alternative for this study. Correlational studies show the strength of the relationship between two or more variables that either have a relationship or do not. The findings do not determine causality, but instead determine whether one variable is associated with another variable, as well as point out whether the relationship is positive, negative, or has no relation (Freedman et al., 1997).

The findings from the analysis techniques will be used to reach inferences and make suggestions for additional research. The conclusions and proposals made by the researcher show the rationale of the study and recognize the limitations of the study. Taking into account the restrictions introduced earlier in this chapter, the researcher found a supposition that participation in middle school sports positively relates to academic success. It should be recognized that it is imperative that the propositions of the study be investigated and discussed in the circumstance of middle schools since it is the object of the study.

Chapter 4: Analysis of Data

Description of Data Used

The purpose of this study was to determine if there is a significant relationship between athletic participation and academic achievement, including considering gender, ethnicity, participation, and standardized test scores at the middle school level. Existing data was used on California State Tests (CST) retrieved by the school district's Assistant Superintendent and her assistant. The data is used from students that attended the middle school in the district in the school year of 2009-2010. Each student of the specified middle school, 1,179 male and female students in the grades of 6-8, had their past scores analyzed. The research project has identified any correlations between students that participated in after-school athletic programs and their academic scores on CST exams.

Table 1 displays the frequency counts for selected variables. Student data was collected on three grade levels and recorded under the "Category" section of the table (sixth through eight). The data collected and shown on Table 1 lists all 1,179 students that were enrolled in the educational site during the school year of 2009-2010. Most students (87.4%) did not participate in a school athletic program while some students participated in up to three school athletic programs (1.0%). There were somewhat more males (54.0%) than females (46.0%) that were part of the data set. The school's location is in an affluent neighborhood approximately one mile from the Pacific Ocean. The ethnicity is highly dominated by one classification as about three-quarters of the students (76.8%) are Caucasian (Table 1).

Table 1

Frequency Count for Selected Variables

Variable	Category	*n*	%
Grade level			
	Sixth	365	31.0
	Seventh	420	35.6
	Eight	394	33.4
Number of sports			
	None	1,030	87.4
	One	98	8.3
	Two	39	3.3
	Three	12	1.0
Gender			
	Female	542	46.0
	Male	637	54.0
Race/Ethnicity			
	Caucasian	906	76.8
	Hispanic	96	8.1
	Other	177	15.0

Note. $N = 1{,}179$

Table 2 displays the descriptive statistics for the English Language Arts (ELA) scores. Seventh grade students are the only group that are assigned to take the Written Conventions test as it was not included in Table 2. The results for the Mathematics,

Science and History subjects were not used in the research study as all grades are not mandated to take each test. 6th and 7th grade students do not take the History and Social Science tests. In addition, 8th grade students complete a Mathematics exam but this test differs by student depending on if they completed the California Modified Assessment (CMA) test and also by the course they are currently enrolled in at their school site. With less than the 1,179 students taking these subject tests, the data was not submitted to statistical review as it would not show a correlation for all school athletes versus non-athletes.

For the ELA scaled score, the scores ranged from 225 to 600 (M = 383.39, SD = 51.59). The scaled score is used to equate the CST exams from year to year and to determine the performance levels. Half of the CST questions are changed from year to year, and scaled scores are used to adjust for any differences in the difficulty levels of the tests that result from this question replacement. While the average number of questions answered correctly should not be compared from year to year, scaled scores and the percentage of students scoring at each performance level may be compared within each grade and subject area.

In the table below Five ELA subscale scores were expressed as the percentage correct. Highest scores were for Written Conventions (M = 77.55) and Words Analysis/Vocabulary (M = 77.19) while the lowest subscale score was for Writing Strategies (M = 65.95) (Table 2). The Mean (M)

Table 2

Descriptive Statistics for ELA Scores

ELA Score	*M*	*SD*	Low	High
Scaled Score	383.39	51.59	225.00	600.00
Literary Response/Analysis [a]	71.39	18.04	6.67	100.00
Reading Comprehension [a]	73.96	17.02	11.76	100.00
Word Analysis/Vocabulary [a]	77.19	17.87	0.00	100.00
Writing Strategies [a]	65.95	18.68	10.53	100.00
Written Conventions [a]	77.55	16.64	6.25	100.00

Note. $N = 1{,}179$.

[a] ELA score expressed as percentage correct.

Research Question 1

Research Question One asked, "Is there a statistical significant relationship between type of student (athletics participant versus non-participant) and academic performance as measured by the CST ELA scores?" The related hypothesis predicted that, "There is a statistically significant relationship between type of student (athletics participant versus non-participant) and academic performance as measured by the CST ELA scores." To address this hypothesis, Table 3 displays the Pearson product-moment correlations between the six ELA scores with two measures of athletics participation (number of school sports played and whether the student played at least one school sport [Yes or No]).

The coefficient (ρ) is computed as the ratio of covariance between the variables to the product of their standard deviations. This formulation is advantageous. First, it tells us the direction of relationship. Once the coefficient is computed, $\rho > 0$ will indicate positive relationship, $\rho < 0$ will indicate negative relationship while $\rho = 0$ indicates non existence of any relationship. Second, it ensures (mathematically) that the numerical value of ρ range from -1.0 to +1.0. This enables us to get an idea of the strength of relationship - or rather the strength of linear relationship between the variables. The closer the coefficients are to +1.0 or –1.0, the greater is the strength of the linear relationship.

Significance levels show you how likely a result is due to chance. The most common level that is used to show something is good enough to be believed is .95. This means that the finding has a 95% chance of being true. However, this value is also used in an ambiguous way. No statistical figures will show a "95%" or ".95" to indicate this level. In its place, it will show you ".05," meaning that the finding has a 5 percent chance of not being true. For example, a value of ".01" means that there is a 99 percent chance of it being true. In this table, the high significance level for type of vehicle (.001 or 99.9%) indicates there is a near certain difference in common assessment scores between school athletes and non-athletes in the population from which the sample was drawn. All 12 correlations completed in the research were positive and significant at the $p < .001$ level. This combination of findings provided support to accept this hypothesis.

Research Question 2

Research Question Two asked, “After controlling for student demographics (gender, grade level, and race/ethnicity), is there a statistically significant relationship between type of student (athletics participant versus non-participant) and academic

performance as measured by the CST ELA scores?" The related hypothesis predicted that, "After controlling for student demographics (gender, grade level, and race/ethnicity), there is a statistically significant relationship between type of student (athletics participant versus non-participant) and academic performance as measured by the CST ELA scores?" To address this hypothesis, Table 4 displays the partial correlations controlling for gender, grade level and race/ethnicity for the six ELA scores with the same two measures of sports participation.

Table 3

Pearson Product-Moment Correlations for ELA Scores With Participation in Athletics

ELA Score	Number of Athletics	Athletic Participation [a]
Scaled Score	.32	.34
Literary Response/Analysis	.22	.24
Reading Comprehension [b]	.25	.26
Word Analysis/Vocabulary [b]	.22	.24
Writing Strategies [b]	.25	.28
Written Conventions [b]	.22	.23

Note. N = 1,179. All correlations were significant at the $p < .001$ level.

[a] Participation: 0 = *No* 1 = *Yes*.

[b] ELA score expressed as percentage correct.

Partial correlation is the measure of association between two variables, while controlling or adjusting the effect of one or more additional variables. Partial correlation can be used in many cases, like whether or not the gender or ethnicity of a group is strongly related to the score on the student's common assessment test when the effect of

ethnicity and gender are controlled. If the partial correlation becomes zero, then it can be inferred that the correlation that was computed before is false. When it nears one, it can be determined that there is a strong relationship and that one would believe there is a true linear relationship. All 12 correlations were positive and significant at the $p < .001$ level. This combination of findings provided support to accept this hypothesis.

Table 4

Partial Correlations for ELA Scores With Participation in Athletics Controlling for Gender, Grade Level, and Race-Ethnicity

ELA Score	Number of Athletics	Athletic Participation [a]
Scaled Score	.32	.34
Literary Response/Analysis [b]	.23	.24
Reading Comprehension [b]	.25	.26
Word Analysis/Vocabulary [b]	.23	.24
Writing Strategies [b]	.26	.28
Written Conventions [b]	.22	.23

Note. $N = 1{,}179$. All correlations were significant at the $p < .001$ level.

[a] Participation: 0 = *No* 1 = *Yes*.

[b] ELA score expressed as percentage correct.

Summary of Data

This study examined the role of interscholastic athletics at the middle school level in an effort to determine if there is a significant relationship between athletic participation, leadership and academic achievement, including considering gender, ethnicity, participation, and test scores. This study focused on one specific middle school and the data given for all of the 1,179 students enrolled in the 2009-2010 school year.

Two research questions were analyzed to determine how participation in school athletic programs affects student academic achievement as based on scores from the CST exams. Table 1 summarizes the data as it shows the total students broken down by grade level, gender, race/ethnicity and number of school athletic programs the student participated in that year. The results indicated that slightly more males and a majority of Caucasian students were included in the study based on enrollment that year. The ethnicity break down was also a result of a school located in a highly affluent neighborhood near the Pacific Ocean. There were a large number of students, about 87%, that did not take part in any school athletic program that year. There is most likely a significant amount of students that take part in athletic programs outside of the school but these activities were not included in the data for determining athlete versus non-athlete.

The analysis showed that those students who participated in school athletic programs had higher scores on their ELA subject portion of the CST exams, specifically the "scaled score" section of the results. The students' CST score for the overall test is transformed into a scale score (or scaled score) through an equating process that allows a test (same subject, same grade level, etc.) to represent the same level of difficulty from one year to the next. This is the portion of data that was found to have had the highest level of significance with school athletic participation.

Chapter 5: Summary

This chapter summarizes the research study and consists of the following sections: (a) Summary, (b) Summary of the research findings, (c) Conclusions, (d) Recommendations for practice, and (e) Recommendations for future research.

Summary

In the United States, there are more than 7 million young adults between the ages of 5 and 17 who participate in school-sponsored athletic programs (Stryer et al., 1998), and another 14 million engage in other recreational athletics programs (Rasmussen, 1999). Based on these recorded numbers, the importance of athletic participation on academic achievement of school-age students is growing increasingly important. According to Spady (1970), school athletic programs enable students to develop a broad range of physical, intrapersonal, intellectual, and leadership skills. For the first time, athletics were viewed as a way to impact behavior positively, build character, create national loyalty, and structure unity and togetherness (Coakley, 2003).

The primary purpose of this study was to determine whether a statistically significant difference existed between school athletic participation and academic achievement based on CST scores, while taking into account gender and ethnicity at the middle school level. This study also examined the hypothesis that students who participate in school athletic programs throughout the year perform higher on the CST ELA subtests compared to those who do not participate in any school athletic programs.

Not only have athletics educated student-athletes in ways they can excel in the classroom, but they have better prepared these students for life outside of school in the social world. Empirical research (Danish, 1983) supported this notion that the increase in

academic achievement and the development of life skills can be tied to participation in school athletics. It is further shown in a study conducted by the Office of Educational Research and Improvement (1986), that those students engaged in school athletics were more likely to achieve success within their academic classes. In addition, Brown's (2007) study showed a positive correlation between the academic achievement levels of students involved in extracurricular activities, such as school athletic programs, as opposed to those students who were not involved. The researcher concluded that participation in school-sponsored athletic activities plays a vital role in the educational process.

Positive evidence in research concludes that athletics create physical, interpersonal, intellectual, and leadership skills in athletes (Spady, 1970). Jergovic (2001) also agreed that athletes were more well-rounded individuals who successfully balance the demands of education, society, and athletics.

Summary of the Research Findings

An ex post facto design was utilized to compare athletes CST scores to nonathletes CST scores, while taking into account gender, ethnicity, and participation. This study employed two null hypotheses, two research hypotheses, and two research questions to determine whether participation in school athletics had an effect on academic performance on the CST ELA subtests at the middle school level. The variables were tested using the MANOVA Test. Findings from the research study revealed the following results.

Null hypothesis 1. There is a statistically significant relationship between type of student (athletics participant versus nonparticipant) and academic performance as measured by the CST ELA scores. The null hypothesis was accepted at the .05 level of

significance. Results of the data analysis concluded that students' participation in school athletics had a statistically significant effect on academic performance on the CST subtests for English Language Arts compared to students who did not participate in any school athletic programs. In addition, students' school athletic participation did statistically affect academic performance on the CST subtest for social studies when compared to students who did not participate in any school athletic program. There are several reasons that can account for this positive correlation between school athletics and academics. While participating in athletics, students are more structured and better with time management, they learn teamwork and skills that are useful in the classroom, and they receive physical and mental benefits from the exercise of completing a school sport.

The literature supports these findings, as Gerber's (1996) study showed that the amount of athletic participation was associated with academic achievement, which positively had an impact on language arts, math, and science achievement in athletes. In addition, the present study revealed that students who participate in school athletic programs scored higher in the area of language arts on the CST standardized test. The Office of Educational Research and Improvement (1986), found that those students who are engaged in after school athletic programs were more likely to achieve success within their academic classes. The results also linked with the research by Jergovic (2001) on extracurricular activities where he stated that school athletic programs increase academic achievement in the classroom based on state achievement test scores. In addition, Managan (2002) concluded that character and teamwork taught on the athletic playing fields has a positive effect on student achievement and increased academic test scores. Roberts and Treasure (1992) added that athletes who participate in school athletics

learned that setting goals, striving for them, and paying attention to detail results in better performance in attaining goals in the classroom.

The present study revealed that students involved in school athletics had higher language art test scores than students who did not take part in athletics. The results of the U.S. Department of Education's NCES (2002) study agreed that school athletic participation may positively affect the academic performance of students, their social developments, and their attachments to school. The report further indicated that these extracurricular activities provide opportunities for students to learn the value of teamwork, to channel and reinforce newly learned skills, and to provide students the opportunity to apply academic skills in other areas as part of a well-rounded education. These opportunities allow the students to stay attentive and disciplined to focus on achievement. This can be attributed to athletes being required to set goals, make decisions, plan a variety of approaches, seek instruction, and manage their competitive qualities. These skills have been transferred by athletes to their academics and seen in areas way beyond the classroom walls, gymnasium floors, and athletic fields.

Not only have athletics taught athletes skills they can use in the classroom, but they have also been provided information to become better prepared for the social world (Gerber, 1996). Other research (Danish, 1983) supported the notion that the increase in academic achievement and the development of life skills can be tied to participation in school athletics. In fact, there is more to athletics than scoring and producing a win. It is further shown in an Office of Educational Research and Improvement (1986) study that those students who are engaged in after school athletic programs were more likely to achieve success within their academic classes.

The present research did agree with Stephens and Schaben (2002) on the relationship between athletics and academic achievement at the middle school level and how the academic performance of students participating in athletics was enhanced as a result of participation in athletics. The more time students spent partaking in athletic activities, the more helpful it was to students' development. This study provides support for a positive correlation between middle school athletics and academic achievement. Studies show that the academic performance of middle school students is improved when students participate in team athletics or other physical activities (Fox et al., 2010). These critical skills learned through school athletic participation include the ability to perform under pressure, problem solving, meeting deadlines and challenges, setting goals, communicating, handling both success and failure, working with a team and within a system, and receiving and benefiting from feedback.

Null hypothesis 2. After controlling for student demographics (gender, grade level, and race-ethnicity), there is a statistically significant relationship between type of student (athletics participant versus nonparticipant) and academic performance as measured by the CST ELA scores. The null hypothesis was retained at the .05 level of significance. Based on the data analyzed, students' gender, grade level, and race-ethnicity did not have a statistically significant effect on students' academic achievement on the CST subtests. In contrast, when students' gender and school athletic participation was analyzed independently, a statistically significant difference was found in reading, and science. The results of this study agreed with the literature according to Feltz and Weiss's (1984) study illustrating no significant differences among the groups in terms of standardized test scores in female middle school students who were involved in athletics,

service clubs, and athletics and service clubs compared with students who participated in no activities. Spady's (1970) research revealed that boys who participated in both athletic and service activities had the highest educational aspirations and attainments.

Research hypothesis 1. There is a statistically significant relationship between type of student (athletics participant versus nonparticipant) and academic performance as measured by the CST ELA scores. It was found that student athletes had higher academic performance on the CST subtests compared to nonathletes. Statistically significant differences were found in language arts achievement between school athlete participants and nonathletes.

Research hypothesis 2. After controlling for student demographics (gender, grade level, and race-ethnicity), there is a statistically significant relationship between type of student (athletics participant versus nonparticipant) and academic performance as measured by the CST ELA scores. It was revealed that students' gender, grade level, and race-ethnicity did not have a statistically significant effect on their academic achievement.

Research question 1. Does student participation in athletics have a relationship to his or her academic performance versus a nonathletic student? The results of the data revealed that student school athletic participants had higher academic performance on the CST ELA subtests versus students who did not participate in school athletics at all.

Research question 2. Do students' gender, grade level, and race-ethnicity have an effect on academic achievement based on CST scores? It was concluded that students' gender, grade level, and race-ethnicity did not have an effect on academic achievement based on CST scores.

Conclusions

After an examination of the data, it was concluded that a majority of the participants in this study were male. The data was used from one school year as any year the gender numbers could change drastically or just slightly. At the studied school there has been more males than females by over 10 % for the last 5 years. In addition, Caucasian participants represented the majority in regard to ethnicity. This can be due to collecting data from one school in a neighborhood that is most lived in by one ethnic group. In addition, the majority of the participants in the study were nonathletes. A major point to note about the research is that only those students that participated in a school sport were considered athletes. Many of the students that were named nonathletes were most likely participants in some outside extracurricular activity that could have included any sports team if it was not a school sponsored team.

In reference to the null hypotheses, it was found that student athletes had higher academic performance on the CST subtests compared to nonathletes in the study. In addition, it was found that when students' gender and athletic participation were combined, it did not statistically affect the performance on the CST subtests among school athletes and nonathletes. The findings revealed that students who participated in school athletic programs had a higher mean score on all subtests, but scored significantly different in three of the four subtests in the areas of math, reading, and science. The findings share results with Jergovic's (2001) research, which states school athletics increase academic achievement in the classroom. These findings are also confirmed in Managan (2002), who stated that character and teamwork taught on the athletic playing fields have a positive effect on student achievement. Roberts and Treasure (1992) added

that athletes who participate in school athletics learned that setting goals, striving for them, and paying attention to detail results in better performance in attaining goals in the classroom. NCES (1994) explained that extracurricular activities, including school athletic programs, might positively affect the academic performance of students, their social developments, and their attachments to school. The report further indicated that these extracurricular activities provide opportunities for students to learn the value of teamwork, provide a channel for reinforcing skills, and provide students the opportunity to apply academic skills in other areas as part of a well-rounded education. Rosewater (2009) discussed the many benefits students attain when playing athletics. Athletics are the largest after school activity for students and the skills students learn while playing athletics affect how they learn, interact with others, and also their emotional and physical development.

This finding, which is in agreement with the study, confirms that because of the reinforcements on the field, students transfer that knowledge into the classroom. This allows the student to stay attentive and disciplined to focus on achievement. This may be attributed to requiring athletes to set goals, make decisions, plan a variety of approaches, seek instruction, and manage their competitive qualities. These skills have been transferred by athletes to their academics and seen in areas beyond the classroom walls, gymnasium floors, and athletic fields. In fact, there is more to athletics than scoring and producing a win.

It is further shown in an Office of Educational Research and Improvement (1986) study that those students engaged in after school athletics were more likely to achieve success within their academic classes. Marsh (1993) indicates that schools that promote

extracurricular student activities, including school athletics, would see drastic improvement in many areas, including student self-awareness, educational objectives, homework management, school attendance, and many several other educational outcomes. A recommendation resulting from the study is that the skills that athletes learn in the athletic arenas should be taught to the entire student body.

According to Marsh (1993), promoting these types of skills would enhance many educational areas. These findings contradict those of researchers who supported that athletic programs are an impediment to learning and academics. This hypothesis is that adolescents tend to overinvest themselves in athletics and do not put as much attention on the mechanism of their lives. In this study and Stephens and Schaben's (2002) research on the relationship between athletics and academic achievement at the middle school level, the academic performance of students participating in school athletics was enhanced, and these athletes seemed to be more engaged in classes than nonathletes.

These critical skills learned through athletic participation include the ability to perform under pressure, problem solving, meeting deadlines and challenges, setting goals, communicating, handling both success and failure, working with a team and within a system, and receiving and benefiting from feedback. The study was also in line with that of Gerber (1996), who discovered that the amount of athletic participation was associated with academic achievement in math, reading, and science achievement in athletes. This research showed that student athletes performed statistically higher in the areas of math, reading, and science. In spite of budgetary constraints facing many public schools in the United States and an increase in the emphasis of high-stakes testing and school accountability, school athletic programs remain available at high schools and, to a

smaller degree, at middle schools throughout the country (NCES, 1994). The students involved in school athletic programs performed better than those who are not involved. This study's findings, as well as the research that examined, reinforced this assertion. When budget cuts threaten the existence of interscholastic athletic programs, administrators, counselors, teachers, parents, and students can emphasize their necessity, negotiate, or even diminish the effects of such proposed budget cuts with the data indicating the academic benefits of such programs (Meier 2004). The National Federation of State High School Associations (2002) stated that students who participate in athletic programs are more likely to have higher grade point averages, better attendance, lower dropout rates, and less disciplinary problems than those students who are not athletically involved. It was also determined that these activities provide valuable lessons for academic and future success. In addition, Jergovic (2001) stated that athletes were more well-rounded individuals who balance the demands of education, society, and athletics. The conclusions of this study showed athletics create a well-rounded individual who learns skills in his or her athletic arena that transfer into the classroom. This skill acquisition permits them to succeed at a higher level than nonparticipatory students.

Recommendations for Practice

This research study determined that middle school athletic participants outperform students who did not participate in school athletic programs. The athletic participants had significantly higher standardized test scores. This study has implications for administrators, teachers, and school board members. Based on the findings of this study and a review of prior research in this area, the following recommendations are suggested:

1. Administrators, parents, school board members, and teachers should encourage more students to participate in school athletic programs.
2. If interscholastic athletics are offered at the middle school level, equal opportunities for participation should be provided to males and females.
3. School officials could be better informed when making decisions relating to eliminating interscholastic middle school athletic programs.
4. When it comes to budget cuts in the school system, superintendents, school board, members, administrators, teachers, and parents need to look into the benefits of school athletic programs and the effects that they have on academic achievement and discover other ways not to cut these programs.
5. It is recommended that many of the skills athletes learn on the field be introduced to the entire student body to help motivate students to focus better on achievement.

Recommendations for Future Research

This research study provides a foundation for future research in the area of middle school athletics. Additional research is needed to investigate more deeply into what such data might show in other areas of middle school athletics. The following recommendations are made for further research in this area:

1. A future study should investigate the benefits of other extracurricular activities offered at the middle school level, including band, chorus, drama, and other clubs identified as extracurricular.

2. A future study should consider including students who are athletes and participate in off-campus athletic programs such as travel and club sport teams.
3. A future study should include students attending private and parochial middle schools to evaluate the benefits of interscholastic athletics upon the educational performance of students in those settings.
4. The study should be replicated in other school systems across the state and nation to determine if these results are applicable to other communities, including, rural, urban, and suburban populations.
5. A future study should examine whether time of participation on interscholastic athletics yields different results as compared to students participating in sports during fall, spring, or winter during the school year.
6. Further research concerning ethnicity between student athletes and nonathletes and males and females is needed.
7. A future study should examine whether participation in the amount of interscholastic athletic programs impacts student academic achievement and if there is a limit to participation that impacts academics

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Appendix A:

Timeline of Data Collection

September 12th, 2011	Request for permission to collect data submitted to school district. The document provided what data would be needed and how it would be used.
October 13th, 2011	Approval granted by school district to collect data for 2009-2010 CST scores of students. Board members passed the approval to collect data after IRB was cleared.
January 31st, 2012	Preliminary oral completed with discussion of data that was needed for study.
February 2nd, 2012	Consultation with professional statistician about what data should be collected for research.
March 19th, 2012	IRB (first draft) packet submitted to Susan Finley for review and editing.
April 1st, 2012	IRB (final draft) expedited application submitted to Jean Kang for official IRB review.
April 12th, 2012	IRB approval granted.
April 12th, 2012	Collection of data from school district and athletic director, collaboration with professional statistician on data and SPSS.
April 13th, 2012	Researcher took leave of absence from work, further revised and edited data and Chapters 4 and 5.
April 15th, 2012	Final collaboration with statistician on data tables and also Chapters 4 and 5.
April 18th, 2012	Submission of dissertation.
April 20th, 2012	Chapters 4 and 5 further revised and edited by the researcher in preparation for the final oral examination.
May 2nd, 2012	Final oral examination successfully completed, with modifications.
May 4th, 2012	Modifications submitted to the committee.

May 9th, 2012	Completed doctoral dissertation submitted to APA clearance.
July 4th, 2012	Doctoral Degree posted.