IN-SEASON VS. OUT-OF-SEASON: THE EFFECTS OF ATHLETIC PARTICIPATION ON MIDDLE SCHOOL STUDENTS' CORE CURRICULAR GRADES, SCHOOL ATTENDANCE, AND IN-SCHOOL BEHAVIOR

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ABSTRACT OF THE DISSERTATION:

In-Season Vs. Out-Of-Season: The Effects Of Athletic Participation On Middle School Students' Core Curricular Grades, School Attendance, And In-School Behavior

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This study examined middle school student-athletes over a three year time period, and had three key purposes. Those purposes were to reveal any differences that may exist in students' core-curricular grades, school attendance, and in-school behavior as a result of being out-of-season from a middle school sport. The study examined ninety student-athletes, and compared the mentioned data of student-athletes while they were in-season with the same data from the marking period immediately following the conclusion of their seasons of competition. The central research questions were: (1) Is there a difference in student-athletes' core curricular grades in-season vs. out-of-season? (2) Do student-athletes have better attendance records during their season of competition? (3) Do student-athletes have better disciplinary records during their season of competition?

Three main findings resulted from this study. First, middle school student-athletes obtain significantly higher core-curricular grades during their season of competition. Second, middle school student-athletes have significantly better attendance records while their sport is in-season. Finally, middle school student-athletes have significantly better disciplinary records when their sport is in-season. These findings challenge previous research (Emmons, 1994) who found no significant differences of student-athletes' in-season vs. out-of-season core-curricular grades. This investigation

also compliments the research done by Siegenthaler (2001) who found that student-athletes had significantly better attendance records during their season of competition. This study affords educators and administrators the opportunity to understand how valuable athletic participation can be in the classroom as well as on the playing field.

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CHAPTER I

Statement of the Problem

Recent difficult financial times in our country, and state, have led to a reduced budget in all public schools, which has in turn limited the funding in every department, especially the athletic department (Ahmad, 2002). Despite the recent recession, there is research to support the provision of balanced education that includes extracurricular participation as equally important as academic subjects (Rose, 2000). However, educational reformers often overlook the role that these activities can and do play in achieving the desirable goals (Ahmad, 2002). In response, some have claimed that standards-based reform and the narrowing of the curriculum caused by NCLB are threats to all extracurricular activities (Quiroz, 2000). Further research is necessary to inform educational administrators' decisions regarding the future of these activities in our schools.

This study investigated the impact of extracurricular activities on student performance outcomes. Measuring the impact of specific curricular or extracurricular activities on student achievement is difficult. For example, student effects might not be evident immediately. For extracurricular activities in particular, effects might not show themselves until later in adult, work, or civic life (Broh, 2002). Variations between schools are unable to explain why students achieve more or less than their counterparts (Holland & Andre, 1987). However, if extracurricular activities have even a small impact on student learning, educational administrators and policy makers would have reasons to carefully examine all options before rushing into any decisions that would negatively affect extracurricular activities.

School administrators have searched for other methods to provide extracurricular activities, especially school athletics, in response to budget pressures (Gehrman, 2003). These efforts to attract corporate sponsorship or volunteers are based on the belief that athletic participation provides students the chance to lead each other as well as their peers who do not participate in these activities, while simultaneously allowing teachers the chance to be coaches/advisors, in an effort to get to know students on a more personal level, and possibly make a bigger impact in their students' lives (Gehrman, 2003). This study investigated whether and to what extent students involved in these activities achieved better grades, displayed better attendance records, and had fewer disciplinary issues with in school during their respective seasons of competition.

Background of the Study

The issue of extracurricular activities and their place in schools is not a new topic in the field of education. Since the beginning of the twentieth century, philosophers, educators, and school administrators have argued that good schools are those that provide ample opportunities for students to gain and improve life skills, as well as cognitive ability, through the language of educating the whole child. Federal documents, such as the Amendments to the Elementary and Secondary Education Act of 1965, state, "academics alone cannot ensure that all children will reach high standards, other needs of children that affect learning are frequently unmet" (Elementary and Secondary Education Act of 1965, Title 1, Section 1001 c 10). The No Child Left Behind Act of 2001 is the most recent revision of the Elementary and Secondary Education Act of 1965. The No Child Left Behind Act has established strict and detailed requirements for K-12 education in an attempt to improve the educational experience for all students. Some of the requirements mandated by this Act are that all students will be taught by highly qualified teachers, reach a level of proficiency or better in core academic areas, and that all students entering schools with limited English proficiency will become proficient in English. There have been many criticisms of the No Child Left Behind Act for its narrow emphasis on the improvement of lower achieving schools, the difficulty meeting the standards, and for reducing the number of activities/programs that have been considered to reduce the amount valuable instructional time, rather than providing opportunity for it (Broh, 2002).

President George W. Bush, under whose administration the Act was passed, proclaimed that the goal of the No Child Left Behind Act was to close the achievement gap between the highest and lowest socioeconomic status students (Bush, 2001). The Act mandated that states must develop curricular standards and various methods to assess student achievement throughout the elementary grades and into high school. Supporters of this Act claim that the achievement gap has narrowed since 2002, when it first became a federal mandate in schools across the country (Brown, 2002). However, opponents argue that the Act has made contemporary education a process that is under-funded, causing a curriculum to become more “watered down” or superficial instead of rigorous (Brown, 2002). Furthermore, the No Child Left Behind Act is similar to other federal legislation, in that it places primary focus on the cognitive domain of education. The Act does not take into consideration everything else schools offer. The authors of the No Child Left Behind Act have made judgments about academic standards, which oppose current and important literature that promote the concept of educating the whole child.

Proponents of educating the whole child argue that neglecting any components of a holistic education is detrimental to the child, as well as society. Some critics of this Act suggest that the high academic standards set by the states in their effort to comply with NCLB will actually alienate some of the very students that NCLB purports to serve - those who are at risk (Davalos, Chavez, & Guardiola, 1999; Reyes & Valencia, 1995).

Even so, NCLB inflicts a plethora of penalties on public schools that fail to meet adequate yearly progress standards, which may include financial consequences, staff demotions, and eventual state take overs of schools and districts. With that in mind, administrators at the local, county, and state levels find it is imperative that schools devote their resources to programs focused on the cognitive development of students. This rush to meet yearly progress standards, as well as expectations of improving curriculum, has caused schools to place less emphasis on other activities that may take place outside of a classroom, but still provide vital life lessons (Broh, 2002). This narrow vision of allocating resources has too often led to the cutting of programs outside the area of developing the cognitive domain. These cuts are becoming quite common across the nation, despite the estimation that athletic budgets take up only one to three percent of the total school budget (Pressley & Whitley, 1996). To save money in Ohio, several public schools eliminated the available funding of several sports for an entire school year (Bechtol, 2001; Diringer, 1993). With similar intentions, the Chicago school board cut overall funding by a factor of nine (Barron, Ewing, & Waddell, 2000; Bechtol, 2001). Similar cuts in the funding of extracurricular activity participation in the state of Minnesota and the cities of Boston, New York, and Philadelphia can clearly be seen over the last ten years (Ahmad, 2002; Quiroz, 2000). Students, educators, and parents in such areas are placing the blame on NCLB for this intense pressure on schools, and the negative effects it has produced, which hurt the children more than anyone else.

In *Pontiac Schools v. US Department of Education*, (2005) the plaintiffs argued that NCLB has caused states to refrain from allotting limited resources to existing school programs such as programs for the gifted and talented, foreign language instruction, arts programs, and extracurricular activities, including athletics. The plaintiffs claimed that NCLB has forcefully placed unfunded mandates on the schools. These critics alleged that NCLB is hindering the performance of the very students the Act was intended to help. Clearly, these critics favor these activities to ensure the best possible well-rounded education a child can receive.

Purpose of the Study

In the past half century research has examined the relationship between interscholastic athletics and student outcomes such as core-curricular grades. Those who research this topic may choose to concentrate on one sport, or a combination of two or more, as they examine extracurricular activities and student outcomes. A third method to examining this topic makes a clear distinction between athletic and non-athletic participation in schools, meaning that researchers may choose to examine the activities of athletes versus those of non-athletes. However, a limited amount of studies have examined student-athletes' academic performance in-season versus out-of-season.

The purpose of this research was to examine the relationships between students' performance outcomes and participation in athletics within seasons of competition for middle school student athletes. For purposes of the study, student performance outcomes were defined as grades achieved in core curricular areas, school attendance, and in school behavior. This research compared student athletes' four core curricular grades during their respective seasons of competition with those grades achieved in the same content areas in the marking period immediately following their season of competition. Furthermore, this research also compared attendance and disciplinary records of student-athletes during their seasons of competition and compared those same records with the subsequent marking period. Since the literature specifically focusing on middle school sports and student performance outcomes was minimal at this writing, the search strategy for this research was focused on literature concerning extracurricular activities and student performance outcomes at the high school level as well as the middle school level.

Research Questions

This study explored the relationship between participation in middle school athletics and student performance outcomes by examining the following: a) Is there a difference in student-athletes' core curricular grades in-season vs. out-of-season? b) Do student-athletes have better attendance records during their seasons of competition? c) Do student-athletes have better disciplinary records during their seasons of competition?

CHAPTER II

Review of the Literature

Most public schools offer numerous extracurricular activities. These activities have had a solid place in public schools for nearly 100 years. This has not always been the case. In the late 1800s, children were not allowed to participate in extracurricular activities, because educators at that time felt as though such activities were distracting students away from academic interests (Gholson & Buser, 1983). To administrators and educators, extracurricular activities were seen as leisure activities that hindered rather than developed cognitive ability.

At the turn of the twentieth century, the field of education found a new policy position on extracurricular activities based on groundbreaking work of psychologists during this time. G. Stanley Hall, found that public schools during the early 1900s had a student population dominated by females. As a result, Hall proclaimed that to serve the increasing male student population, schools must provide appropriate social opportunities for the development of leadership skills. Hall argued that the development of leadership was a more important challenge than the preservation of a rigorous academic curriculum. As a result of his work, educators began to use Hall's claims as a motivation to instill interscholastic team sports as a way to recruit and keep male students (Tyack & Hansot, 1990).

During the early 1900s, this new found support for extracurricular activities continued to grow. *The Seven Cardinal Principles of Secondary Education*, originated by the Commission on the Reorganization of Secondary Education between 1915 and 1918, caused educators to see school activities as "vital and productive facets of the school setting" (Joekel, 1985, p. 3). New evidence was forthcoming to educators, and many began to proclaim that extracurricular school activities assisted students with the development of life skills (Burnett, 2001). More and more evidence of similar claims became public, and participation in extracurricular activities became a keystone in children's overall development (Gerber, 1996; Gholson & Buser, 1983).

As the century progressed, and social sciences made their way into public school, Coleman (1961) proposed a zero-sum model of extracurricular activities. Coleman conducted research, and began to make strong claims that time spent on activities (particularly athletics) was wasted time that distracted students from their academic work. Consequently, researchers today are still examining this topic. For the remainder of the century, and continuing today, many have questioned the value of extracurricular and co-curricular activities and how they affect student outcomes. Those against participation in these activities are quick to point out that extracurricular activities have a negative effect on achievement and time and resources spent on these activities should be significantly condensed or abolished almost entirely (Coleman, 1961; Gholson & Buser, 1983; Gordon, 1957; Mendez, 1984; Stanfort, 1985). In contrast, the proponents of these activities produced counter studies to disprove this aspect of Coleman's work. Rehberg and Schafer (1968) acknowledged the fact that Coleman's data did not support his zero-sum model. Upon further review, Rehberg and Schafer found that tabular data presented by Coleman demonstrated that so-called top athletes had higher grade point averages than the student body as a whole.

The first quantitative studies examining activity participation were performed as a result of the zero-sum activity model. In the last half century, numerous researchers have found primarily positive relationships between activity participation and several student outcomes, specifically academic, social, and psychological effects (Holland & Andre, 1987; Marsh & Kleitman, 2002). Despite that, it is true that a small number of researchers have failed to find advantageous effects of activity participation (Coleman, 1961; Gholson & Buser, 1983; Gordon, 1957; Mendez, 1984; Stanfort, 1985). However, even fewer researchers and studies have produced evidence of any detrimental effects of participation (Holland & Andre, 1987; Marsh & Kleitman, 2002).

Participation in Athletics and Grades

Over the last thirty years, researchers have examined numerous possible relationships linking activity participation and student learning (Holland & Andre, 1987). The common trend in research is for those interested in this field to look for a correlation between activity participation and GPA (Holland & Andre, 1987; Marsh & Kleitman, 2003). To test their hypotheses, activity-participation researchers have come to accept the practice of using a large sample appropriate to discern subtle effects. That being the case, researchers who wish to do studies in this area of research often have no choice but to use archival data (Ingels, Scott, Taylor, Owings, Quinn, 1998). Unfortunately, these databases traditionally only examine students in terms of GPA and standardized test scores. Research has been conducted on student achievement and grades utilizing sample sizes that range from five students (Bechtol, 2001) to over one hundred thousand students (Whitley, 1999). Overall, scholars and researchers of this specific subject have found positive relationships between extracurricular participation and several student outcomes (Camp, 1990; Gerber, 1996; Marsh, 1992; Marsh & Kleitman, 2002; 2003; Power, 1999).

In 1964, Eidsmore conducted one of the first quantitative studies examining high school sports participation, and its effects on student achievement. Although his study did not entail strenuous statistical analysis, the study included a large sample. The study included 592 football players from twenty-four high schools. In this study, Eidsmore recorded the players' GPAs, and then made a comparison with the GPAs of the players' peers, who did not participate in any extracurricular activities. At the conclusion of the analysis, the study found that, athletes compared with non-athletes typically had earned significantly higher GPAs.

Camp (1990) made an effort to control for other variables believed at the time to influence academic achievement. These variables included gender, family background, study habits, and employment. Camp offered a regression model that specifically controlled for each of these variables, which was later labeled a causal model. Like other correlation scholars, Camp was unable to determine the direction of causation.

Camp (1990) combined self-reported grade distributions with computed GPAs to form a composite variable, academic achievement. Camp found that student activity level produced an important positive statistical effect on teacher-assigned grades. Additionally, the effect size for activity participation was more than double that of study habits, which was measured by the number of hours spent on homework each week.

Building from Camp, Marsh (1992) found an inverted U-shaped relationship between total extracurricular activity participation and academic outcomes. Marsh discovered that low and/or moderate total activity participation rates were beneficial. However, Marsh also found that excessive amounts of participation were detrimental to students' academic outcomes. Upon further reflection, Marsh realized that although his findings were revealing, and had statistically strong backing, the study was limited because of small effect sizes. Marsh warned researchers that the elimination of extracurricular activities could possibly result in negative consequences. Marsh's extensive work in this field led to speculation that participation in extracurricular activities resulted in an increase of student commitment to their school, which ultimately could promote academic achievement.

Melnick and Sabo (1992) examined the effect participation in athletics had on Hispanic and African-American students. The researchers used multiple regression analysis, as well as controlled for previous students' performance outcomes. The findings of the study indicated that participation in athletics was not extensively related to self reported GPAs, for most ethnic/gender/economic groupings. However, the researchers also found that positive relationships did exist between participation and GPAs for African-American males attending suburban schools, as well as Hispanic females attending rural schools. Activity participation may provide constructive diversity experiences for certain minority groups.

In a secondary analysis of the National Education Longitudinal Study of 1988, Gerber (1996) discovered a positive relationship between participation in extracurricular activities and student achievement. Gerber examined achievement specifically by standardized test scores, not grades. This was in direct contrast to previous work of other researchers, all of whom used a variety of academic measures instead of limiting the variable to test scores. Gerber used three composite predictor variables: total extracurricular activity, school extracurricular activity, and outside extracurricular activities. Gerber used multivariate multiple regression analysis to examine the relationship between eighth grade students' participation and student achievement. Gerber used socio-economic status and gender as control variables.

Gerber (1996) found positive relationships for White and African-American students, between each of the three predictor variables and the single outcome variable, academic achievement. The most significant relationship existed between school extracurricular activity and student achievement. What made this study special was the fact that Gerber found a positive relationship between extracurricular participation and achievement for students from both races. Despite this, Gerber did not proclaim that her analysis revealed any form of causation. Instead, Gerber stated, that it was "clearly not the case that extracurricular participation is detrimental to student behavior" (Gerber, 1996, p. 48).

Whitley (1999) compiled and analyzed data on 126,700 North Carolina secondary students in 1994-95. Whitley examined if any differences in achievement existed between athletes and non-athletes. Whitley used paired *t*-tests to compare GPAs over a three-year period. The study found that athletes attained GPAs that were more than 22% higher than their non-athlete peers. What may be the most significant finding was that African-American male, African-American female, White male, and White female student athletes all had achieved higher GPAs than their peers of the same group who did not participate in athletics.

McCarthy (2000) completed a study to examine participation and its influence on student grades from various ethnic backgrounds. He found that students who participated in interscholastic sports had significantly higher grade point averages than their counterparts who did not participate. What was also significant about McCarthy's study was that his findings were the same for all students regardless of race.

Marsh and Kleitman (2002) examined the effects of five different kinds of extracurricular activity participation, which included athletic and non-athletic activities, on student outcomes. The study was designed to examine the number of school-sponsored extracurricular activities and the total time spent on school-sponsored activity participation. Both variables were found to be positively related to grades. However, there was no evidence of a significant relationship between athletic participation and standardized test scores, although there was data which showed that the number of school-sponsored extracurricular activities was positively related to standardized test scores.

Using the same longitudinal study as Gerber (1996), Broh (2002) used regression analyses to examine the relationship between participation in extracurricular activities and student achievement. Broh controlled for such factors as gender, race-ethnicity, socioeconomic status, school classification, school geographic location, and school size. In this study, Broh investigated the effects of participation in specific sports or activities, such as music, on student grades and achievement. Her analyses revealed that interscholastic sports and music had similar effects on student outcomes. Specifically, Broh found that interscholastic sports and music activities were positively related to Mathematics grades, English grades, and Mathematics test scores. Broh found that the relationships were stronger for the students who participated in sports than for those students who partook in most non-sports activities. She found that, "participation in interscholastic athletics during both the 10th and 12th grades has small but consistent benefits for students' grades, especially in Math and English" (Broh, 2002, p. 76). Similarly, Fejgin (1994) used the National Educational Longitudinal Study from 1988 to examine the relationship between athletic participation and academic achievement. After controlling for background variables, Fejgin found that significant effects of participation on grades were confirmed.

Marsh and Kleitman (2003) also completed a study that focused on the effects of athletic participation. The researchers wished to explore the types of athletic participation that demonstrated the strongest relationship to various student outcomes, such as GPA and standardized test scores. To examine this topic, the researchers chose to analyze the effects of total athletic participation, intramural athletic activities, extramural activities, individual sports, and team athletics on various student outcomes. All outcome variables measured in the twelfth grade, were controlled for by incorporating previous measures of the same variables in the eighth and tenth grades into the model.

Marsh and Kleitman (2003) found mixed relationships when it came to looking at athletic participation and its effects on GPA and standardized test scores. Their findings indicated that before and after the controls for background and other outcome variables (race, SES, gender, school size, standardized test scores) were considered, a significant positive relationship between participation and GPA existed. Additionally, before controls were implemented, a significant positive relationship existed between total athletic participation and standardized test scores. However, after controlling for background variables and other outcomes, this relationship drastically shifted to be significantly negative. Once this was discovered, Marsh re-examined his earlier study performed in 1992, where the existence of a U-shaped relationship was found. However, there was no support for a similar relationship between extracurricular activity participation and standardized test scores or GPA.

While most would like to believe that participation in athletics either hinders or assists with student achievement, there is existing research that has concluded that athletic participation may do neither. Hanks and Eckland (1976) utilized data from a national sample of high school and collegiate athletes. After analyzing their data, the researchers concluded that athletic participation had no influence, positive or negative, over student achievement. Fleenor (1997) chose to examine standardized test scores rather than teacher assigned grades. Fleenor's study had a sample of 40 participants, all of which were from the same rural high school. After examining the data, she also found no evidence that athletic participation affected student test scores.

While positive relationships between interscholastic sports and student achievement have been reported in single studies, both positive and non-existent relationships were found in a single study by Cooper, Valentine, Nye & Lindsay (1999), which investigated how students spent time spent after school. The study looked at five after-school activities such as, hours spent doing homework, hours spent watching television, participation in extracurricular activities, or employment, and the effects they may have on academic achievement. To estimate academic achievement, the researchers utilized standardized test scores and teacher assigned grades.

The completion of homework was positively related to standardized test scores, while athletic participation was found to have no relationship. However, significant positive relationships were found to exist between athletic participation, homework completion, and teacher assigned grades. The most significant relationship was found to exist between athletic participation and homework completion. These findings are in direct contrast with the findings discovered by Camp (1990), who found that extracurricular activity participation was a better predictor of student grades than time spent on homework.

A study completed by Schneider and Klotz (2000) that agreed with such findings as the ones stated above, and argued that athletic participation has no influence on standardized test scores. Schneider and Klotz examined four years of standardized test scores of 346 student athletes from grades fifth through ninth. After examining the data, the researchers found that interscholastic athletic participation does not positively affect test scores. Similarly, Miller, Melnick, Barnes, Farrell, and Sabo (2005) performed a study that included 600 adolescents between the ages of 14 through 19 from New York. Their data showed that male student-athletes' grades were lower than their male counterparts who did not participate in athletics.

Eitle and Eitle (2002) studied student participation in scholastic varsity sports. The findings of this study were similar to those of their colleagues, in that they found no significant positive relationships. However, Eitle and Eitle (2002) found a significant negative relationship between participation and standardized achievement test scores. Unlike Melnick and Sabo (1992), Eitle and Eitle (2002) focused on whether a student either did or did not participate in football, basketball, and other sports. Their findings regarding the relationship between participation and grades were similar to those of Melnick and Sabo: no significant positive relationships detected.

Participation in Athletics and Misbehavior

There is literature on associations between athletic participation on school behavior. Researchers look at this topic through a variety of lenses, such as discipline referrals, detentions, or suspensions. Over the course of years, several researchers have looked for relationships between participation in extracurricular activities and the behavioral patterns of participating students. Braddock, Royster, Winfield, and Hawkins (1991) studied the academic resiliency of eighth-grade, African-American males using the multiple regression analyses on data from the National Education Longitudinal Study of 1988. The researchers discovered a relationship between interscholastic participation and measures of student misbehavior. For example, students that participated in interscholastic activities reported lower frequencies of fighting. Furthermore, parents of children who participate in these activities received fewer reports of student misbehavior, or failing grades. The study also found that participation in interscholastic programs had no significant effect on tardiness or absenteeism.

To examine this issue further, Hollingsworth (1996) administered an opinion survey to 756 students and 273 certified staff members in seven Ohio High Schools. The subjects surveyed in this study responded to 15 statements that examined how activity participation influenced student misbehavior. A statistical analysis was performed on the results of subjects' reactions. When analysis was complete, Hollingsworth discovered that students who participated in extracurricular activities misbehaved less than their peers who did not participate in activities, supporting similar studies done by Fejgin

(1994) where it was found that athletic participation had a significant positive influence over student behavior and in-school discipline issues.

In addition to this work, Whitley's (1999) study of North Carolina high school students found similar results to Braddock and associates, in terms of the effects of interscholastic participation on student behavior. Whitley utilized *t*-tests to examine if those students who participated in athletics had a lower discipline referral percentage than their non-participating peers. Separate analyses were conducted for male, female, white, and African-American, students. When analyses of all the data were complete, Whitley found that all of the participating subgroups had lower discipline referral percentages than their non-participating peers.

Research has also been done to see if athletic participation has any influence on student behavior outside of the school environment. Landers and Landers (1978) looked at over 500 court records of male delinquents. The data revealed that those males who participated in athletics had lower rates of delinquent behavior than their peers who did not participate in athletics. In a dissertation by Elder (1984), no relationship was detected between activity participation and student discipline problems. Elder performed multiple linear regression analyses and controlled for sex, race, SES, scholastic achievement, and type of school. Rhea and Lantz (2004) performed study and also looked primarily at behavioral tendencies of male student-athletes outside of the school environment. However, their study did find that male student athletes were less likely to get into a fight with their peers in school.

Marsh and Kleitman (2002) found that the number of school-sponsored activities in which a student participated was negatively related to staying out of trouble. In other words, students participating in more activities/sports were less likely to stay out of trouble than their peers who participated in fewer activities. However, no relationship was detected between the total time a student spent on school-sponsored activities and staying out of trouble after controlling for all relevant background variables. Marsh and Kleitman (2003) concluded that athletic participation had no effect on staying out of trouble, when background and control variables were included in the model.

Participation in Athletics and Daily Attendance

When it comes to the question of student attendance, the research in this area related to athletic participation has been looked at through the lenses of student daily attendance and student drop-out rates. The literature on these two topics have uniformly found that interscholastic athletic participation has a positive influence over daily attendance and student drop-out rates. What is the most unique about this research is that athletic participation holds true for both cases regardless of race, gender, or socioeconomic status. While both topics are important, this section will focus on daily attendance, as the study did the same.

Whitley (1999) performed a study where students were split according to participation, gender, and race (only black and white). After analyzing the data, Whitley found that in each category, athletes missed significantly fewer days of school than their peers who did not partake in athletic competition. In a given school year, Whitley (1999) found that the average student missed five more school days than the average athlete.

Similar to Whitley's findings, McCarthy (2000) conducted a study using 19,000 students from various backgrounds in the state of Colorado. His study found that all athletes, regardless of race, had better daily attendance than their peers who did not participate in interscholastic athletics. What was also important about McCarthy's findings was the fact that he also found that athletes missed less days of school than those students who participated in other school clubs and activities, such as band and orchestra.

When it comes to this topic at the middle school level, one study stands out. Braddock, Royster, Winfield, and Hawkins (1991) used the multiple regression analyses on data from the National Education Longitudinal Study of 1988. The study found that participation in interscholastic programs had no significant effect on tardiness or absenteeism. To examine their findings more closely, Hawkins, Royster, and Braddock (1992) studied African American students in the 8^{th} grade again. At the conclusion of their second study, the researchers found that female student-athletes had less daily absences and tardiness when compared to their female peers who did not participate in school athletics. This study did not have any significant findings when it came to the male student population.

Utilizing the *Michigan Study of Adolescent Life Transitions*, Eccles and Barber (1999) performed multiple regression analyses to measure the relationship between participation in various activity types and skipping school. The sample included 1,259 students from 10 school districts. The model controlled for SES, gender, and academic aptitude. No differences were detected among athletes versus non-athletes.

In-Season vs. Out-Of-Season

In 1978, Laughlin examined student athletes, specifically wrestlers, using a variety of variables that included: GPA, daily attendance, and discipline referrals. His study used these variables and compared the same variables for each student-athlete in-season versus out-of-season. His major finding was that daily attendance was better in-season as was the student athletes' GPA.

Additional research was done by Silliker and Quirk (1997). These two researchers did a similar study to Laughlin's 1978 study, as they examined the GPA and daily attendance of male and female soccer players. The two researchers then compared the in-season data to the out-of-season data for the same student athletes. The results were very similar to Laughlin's findings. The student athletes had higher GPAs and missed fewer days of school in-season, when compared to the remainder of the school year.

A study was performed by Emmons (1994) as he intended to compare the core-curricular grades of student athletes in the season before their sport began, with the core-curricular grades of the students during their season of competition. Emmons examined the core grades of 330 student athletes from 13 different high schools in the northeastern part of the country. His findings revealed no significant difference in the grades of student-athletes in-season versus out-of-season. However, his research did reveal that the student-athletes' mean grades of the core-curricular classes were slightly higher in-season.

Another study that examined this topic was performed by Siegenthaler (2001). Siegenthaler's study looked to compare the GPA and daily attendance of track runners in-season versus out-of-season. After he performed his study, he found that no significant difference existed in GPAs of track runners in-season versus out-of-season. However, he did find that track runners had significantly fewer absences from school during their season of competition.

Summary

The research on athletic participation and student achievement has been relatively consistent. All but a few studies have reported positive effects for athletic participation and various forms of student achievement. However, only one has examined this issue at the middle school level. The findings related to activity participation and student misbehavior were inconsistent. Research in this area indicates that participation curbs misbehavior, while the other research indicates a finding of no difference. Daily attendance appears to be positively affected by athletic participation, specifically at the high school level. However, when research was performed at the middle school level, the data revealed that no difference existed between athletes and non-athletes. When it comes to in-season versus out-of-season, the research is limited as well as mixed. Further research is necessary to clarify the relationships between athletic participation and the outcomes listed earlier.

CHAPTER III

Methodology

The unit of analysis was a student-athlete who participated in a middle school sports program each of the three school years he/she attended one of the middle schools examined. All students attended a middle school located within the same public school district. Students who participated in more than one sports program were excluded, to create a data set consisting of students who participated in a single sports program during each school year. Units were not independent of one another in that clusters of students from the same middle schools are likely to have been acquainted.

Sample

The participants in this study were drawn from a single school district composed of three middle schools in a Mid-Atlantic state. The proposed sample was located in the northern part of a state and had an approximate total enrollment of 7,100 students. The demographic population was broken down as the following: 49% were white, 20% were African American, 25% were Asian, 8% were Hispanic, and 6% were multiracial. The district served approximately 6,000 households each year. Non-random selection of the sample means that inferences cannot be drawn to a larger population. There are distinct advantages to selecting a single conveniently located school district willing to participate in the study. One great disadvantage of selecting a relatively small sample in this manner is that subjects may be unrepresentative of any larger population.

Table 1

Demographic Breakdown of the Proposed Sample

Demographic	Middle School #1	Middle School #2	Middle School #3
School Enrollment	464	586	543
Ethnicity%			
Caucasian	31	23	21
African American	29	38	40
Hispanic	13	17	21
Asian	27	22	18
Special Education%	12	14	18
Percent of Low Income Students	19%	37%	40%
# Students per Teacher	10	10	10
Average Class Size	20	23	20
# Suspensions	23	60	28
Percent of Student Daily Attendance	96%	96%	95%

The sample included students who participated on various teams offered in the district's middle school sports program for the 2007-2008, 2008-2009, and 2009-2010 school years. Over the fall, winter, and spring seasons the total number of subjects was ninety students. The district sponsors one team per sport. Specifically, this means that students from each of the three middle schools have the opportunity to try out for the team and make the final roster. These teams then represent the township by playing other surrounding townships within the county. Furthermore, the district in this study did not enforce an academic eligibility requirement for its middle school sports program.

However, the district coaches stood united in that they did not allow any student who obtained a core-curricular grade below 65 in the prior marking period to try out for a team. Therefore, it must be understood that this sample did not include any students with failing grades prior to their season of competition.

Data Collection

The data included core-curricular grades, daily attendance records, and records of in-school misbehavior. The data were compiled from a pre-existing school-level database that stores academic information on each student enrolled in the school district. The district database contained such information as each student's demographics, current year schedule, daily attendance, marking period grades, and discipline records. To acquire these data, the researcher filed a request letter with the assistant superintendent of curriculum and instruction. The letter sought the permission to examine student files kept centrally at each middle school. The researcher collected no names, addresses, or other personal identifiers from the database. For additional protection of human subjects, data were coded in field notes using a sequential coding system not linked in any way to a student's identity.

Once the roster from each sport was collected, a final list was made of every participant in each of the six middle school sports. From there the data from the district website was collected and numerically recorded in SPSS 17.0. This included demographic information, gender, grade level, daily attendance (number of days absent), number of discipline referrals, and the final numerical grades of the four curricular classes (Mathematics, English, Social Studies, and Science). Once all the information was found for each middle school athlete, two rows were created, one for in-season and one for out-of-season.

Variables

Outcome Variables

Most published research on athletic participation and academic achievement has been focused on student grades or standardized test scores. To examine this topic from a new and clearer view, two additional student outcomes were measured along with students' core curricular grades: daily attendance and in-school behavior, as shown in Table 2. Student grades referred to grades earned in a marking period in mathematics, English, social studies, and science. Daily attendance referred to the number of full equivalent days absent in a marking period. In-school behavior referred to the number of discipline referrals that a student received in a marking period.

Table 2

Definition of Terms

Name	Definition
Student grades	Grades earned in a marking period in math, English, social studies, and science.
Daily Attendance	The number of days absent in a marking period.
In-school Behavior	The number of discipline referrals a student received in a marking period.

Predictor Variables

Academic performance, behavior, and attendance of the sampled student athletes were analyzed to determine if these system outputs differed between times when a student participated in one of five sports (boys soccer, girls soccer, boys basketball, girls basketball, wrestling, and softball) and the sport was in-season versus times when the sport was out-of-season. Students in the sample participated in no middle school sports program year round. Aside from times when students did not participate because of injuries or scheduling, the main predictor variable was focused on times when student athletes either participated in a sport or else did not participate because their sport was out-of-season. A student's in-season athletic participation information was reported by the submission of rosters. Gender served as a control variable for this study because outcomes for boys and girls are expected to differ independently of their athletic participation. To isolate the effects of athletic participation in-season, the researcher ran separate analyses in effect for boys and girls. The variables allowed for the study of academic performance, behavior, and attendance with athletic participation in season controlling for a student's gender.

Data Analysis

The data analysis included the use of descriptive and inferential statistics. The statistical software package, SPSS version 17.0, was used to perform all the necessary calculations. The descriptive statistics that were calculated include the mean, standard deviation, and the number. These were used to take a close look at core curricular grades, daily attendance, and discipline referrals. These were further examined according to school, gender, and grade level.

The researcher used analysis of variance techniques to compare the outcomes for one group of student athletes at two different times. In this study the two main groups were athletes in-season and athletes out-of-season. The data analysis consisted of a three step process. One, specific data were collected for each in-season athlete; core curricular grades, daily attendance, and in school behavior were analyzed based on school, grade level, and gender. Two, the same procedure was followed for each athlete while he/she was out-of-season. Finally, the analysis determined if any significant differences existed in the performance of athletes related to core curricular grades, daily attendance, or in school behavior while athletes were in-season versus out-of-season.

Tests of Hypotheses

The null hypothesis was formally tested utilizing ANOVA performed by SPSS 17.0. The null hypothesis stated: Student achievement, daily attendance, and in-school behavior are unrelated to participation during periods when the sport is in-season. Alternatively, athletic participation during a regular season predicts core curricular grades, daily attendance, and in-school misbehavior. Student athletes are expected to perform better in school to maintain eligibility for participation in a sport during the regular season of sports activity. The rationale and test of hypothesis assumes that student athletes were more focused on meeting the conditions for continuing eligibility to play when their sport was in-season and were less focused on meeting these conditions when their sport was out-of-season.

Limitations of Study

Several limitations of this study are anticipated. One, the proposed sample was drawn from one school district. Granted participants went to one of three schools, they represented only a percentage of middle school student athletes. Two, students who participated in multiple sports were ruled out. This action was taken so that true comparisons between in-season versus out-of-season could be made. Three, predictor variables were limited to middle school sports participation. Students who did not participate in this program could have been active in community-sponsored activities, just as students in their off-season from middle school sports could also have participated in similar activities. Four, a big threat to validity of this study is the fact that the researcher is a teacher at one of the township's three middle schools. This presented the possible opportunity for bias in the collection of data as the researcher had developed a teacher-student relationship with some of the study's participants. Five, the study utilized only three school years of data in one school district. Six, the sample size was relatively small with only ninety students. Finally, unrelated events that occurred outside of school could be a threat to the results of this study. The personal lives of middle school athletes other than gender and race were not examined in this study. A student's personal life, however, clearly cannot be separated from his or her life in middle school.

Chapter IV

Results

This chapter will begin with a brief summary of the purpose, methods, and results. Following this summary the results, including descriptive and inferential statistics, will be presented and explained in full detail. This study compared middle school athletes' core curricular grades, daily attendance, and in-school behavior over three years of middle school education in one school district to determine if any significant differences exist between in-season and out-of-season student academic and behavioral performance. In addition, the influence of other variables such as gender, ethnicity and school attended were also examined. Data for investigation of these three performance indicators for each student athlete were readily available in the school management system utilized by the school district:

1. Core-curricular grades in (English, mathematics, science and social studies) were obtained by accessing the student management system. Numerical grades were recorded for the marking period that ran simultaneously with each student athlete's season of competition, as well as the marking period following its conclusion.
2. Daily attendance was obtained by examining the number of days a student athlete was absent during the marking period his/her season of competition was in progress, and the marking period following its conclusion.
3. In-school behavior was examined as the number of separate incident discipline referrals to the assistant principal for each student as recorded in the student management system.

4. Demographic data were obtained from students' individual records stored in the district's student management system.

Data on each indicator for each student athlete in the sample were then segregated by calendar date into categories: data pertaining to when the student athlete was in-season and data pertaining to when the student athlete was out-of-season. For the purposes of this study, in-season was defined as the single marking period during the year during which athletic activity occurred. Out-of-season was defined as the marking period immediately following athletic activity. The aggregate data from each of these subsets was then compared employing statistical process.

Initially, means for students' core curricular grades, number of days absent, and number of discipline referrals received were calculated for student athletes during their season of competition. Then, the same data were collected for the same students in the marking period following the completion of an athletic season, and again all means were calculated for the corresponding data. Subsample statistics then compared to see if any differences occurred between student athletes being in-season and when they were out-of-season. The data were also examined to see if any differences/trends existed for these students over the three-year period of middle school education.

The sample included nearly equal proportions of boys and girls, as well as the number of student-athletes that attended each middle school, alleviating two likely threats to external validity. At the time of this writing, opportunities for extracurricular athletic activities may tend to be more plentiful still for boys than girls, however there were an equal number of sports provided for each gender. The activities designed primarily for boys were soccer, wrestling, and basketball. The activities for girls were soccer, basketball, and softball. The table also shows that minority students in the sample outnumbered White students by a ratio of two to one.

Table 3

Description of the Total Sample (N=90)

Name	n	Frequency (%)
Gender		
Male	48	53.3
Female	42	46.7
Ethnicity		
Black	34	37.8
White	30	33.3
Other	26	28.9
Middle School attended		
School #1	32	35.6
School #2	30	33.3
School #3	28	31.1

The researcher examined the exact score obtained in each core-curricular class, as well as the number of recorded absences and discipline referrals. Each student had the opportunity to obtain a maximum score of "100" in each core-curricular class, while the number of discipline referrals received was unlimited. The number of absences had a maximum of the amount of days in a marking period. Since marking periods varied in length, an average was taken and provided as the maximum. Given that the same student-athletes were studied in and out of season, the method controls extraneous variables that might otherwise affect between-group differences in student outcomes.

Table 4

Mean Results of In-Season and Out-of-Season Core Curricular Grades, Daily Attendance, and In-School Discipline Referrals By Grade Level

Grade	Time of Measure (Seasonality)	Descriptive Statistic	English	Math	Science	Social Studies	Number Of Ref.	Absences
6th								
	In Season							
		m	86.7	84.9	86.1	87.1	0.69	0.88
		max	100	100	100	100		43
		sd	7.6	9.5	10.2	7.9	1	0.83
		n	90	90	90	90	90	90
	Out of Season							
		m	81.8	79.8	81.3	82.8	2.3	3.9
		max	100	100	100	100		43
		sd	9	11.9	11.3	8.9	2.2	2.4
		n	90	90	90	90	90	90
7th								
	In Season							
		m	86.8	84.4	85.1	85.6	0.9	0.9
		max	100	100	100	100		43
		sd	6.6	8.2	8.6	7.5	0.96	0.99
		n	90	90	90	90	90	90
	Out of Season							
		m	81.2	78.9	79.1	80.1	1.9	2.7
		max	100	100	100	100		43
		sd	7	9.9	9.7	8.8	1.4	1.9
		n	90	90	90	90	90	90
8th								
	In Season							
		m	84.7	82	84	84	0.8	1
		max	100	100	100	100		43
		sd	7.4	9.3	9.7	8.1	0.8	0.9
		n	90	90	90	90	90	90
	Out of Season							
		m	79.3	76.7	78.9	79.3	2.2	2.7
		max	100	100	100	100		43
		sd	9.1	11	9.7	8.2	1.6	2.2
		n	90	90	90	90	90	90

Table 4 shows that, on average, student athletes appear to have earned higher core-curricular grades, had better attendance, and received less discipline referrals during their respective seasons of competition. A common pattern of mean student academic performance, daily attendance, and in-school behavior occurred in Grade 6, Grade 7, and Grade 8. In addition to subsample means, the analysis compared subsample variances between in-season and out-of-season student athlete academic performance, daily attendance, and in-school discipline referrals. Consider 6th grade English, math, and science for example, in which the standard deviations of course averages ranged from 7.6 to 10.2 in season and from 9 to 11.3 out of season. The standard deviations of course averages in season were within 1 to 3 percentage points of comparable measures out of season.

Table 5 provides another perspective on the same result by testing the null hypotheses that out of season core curricular grades and such were equal to those of in season core curricular grades, daily attendance, and discipline referrals. These implicit null hypotheses were rejected in favor of alternatives that group means were different in season and out of season, at a significance level of .05.

Table 5

ANOVA Results of In-Season and Out-Of-Season Core Curricular Grades, Daily Attendance, and In-School Discipline Referrals

Grade	Descriptive Statistic	English	Math	Science	Social Studies	Number of Ref.	Absences
6th							
	Type III Sum of Squares (Type III S. O. S.)	1100.1	1206.4	1056.09	840.67	118.42	399.022
	Degrees of Freedom (df)	1	1	1	1	1	1
	F	15.8	10.43	9.19	11.64	41.45	124
	Sig	.000*	0.001*	.003*	.001*	.000*	.000*
7th							
	Type III S. O. S.	1433.7	1355.8	1632.02	1350.3	52.27	144
	df	1	1	1	1	1	1
	F	30.92	16.37	19.18	20.12	34.57	62.38
	Sig	.000*	.000*	.000*	.000*	.000*	.000*
8th							
	Type III S. O. S.	1333.9	1377.8	1175.56	1190.9	85.19	136.94
	df	1	1	1	1	1	1
	F	19.31	13.02	12.55	18.08	49.35	47.79
	Sig	.000*	.000*	.001*	.000*	.000*	.000*

**p </=.05*

Specifically, the analysis revealed statistically significant differences in student athletes' core-curricular grades, daily attendance, and in-school discipline referrals between in-season and out-of-season data. The relatively large F statistics such as for 6th grade English $F = 15.8$ ($p < .05$) were so unlikely under the null hypotheses that one must have rejected the null hypothesis of no between-group differences in favor of the alternative: that student outcomes were different between in season and out of season.

Along with the examination of student-athletes over their entire middle school education, this study inspected the possibility of any differences in student outcomes between males and females. As stated earlier, forty-eight males and forty-two females were sampled. Table 6 provides descriptive statistics for male and female students. In season, for example, male students earned average grades of 84.9 in English, 83.9 in math, and 85.3 in science. In season, female students earned average grades of 88.8 in English, 86.3 in math, and 87.3 in science. This table describes their outcomes in a commonsense way suggesting both gender differences and seasonality differences.

Table 6

Mean Results of In-Season and Out-Of-Season Core Curricular Grades, Daily Attendance, and In-School Discipline Referrals By Gender for Grade 6

Time of Measure (seasonality)	Gender	Descriptive Statistic	English	Math	Science	Social Studies	Number of Ref.	Absences
In Season	M							
		m	84.9	83.9	85.3	86	0.7	1
		max	100	100	100	100		43
		sd	7.7	10	11.2	8.2	0.93	0.89
		n	48	48	48	48	48	48
Out of Season	M							
		m	80.5	78.7	80.3	82.2	2.1	3.5
		max	100	100	100	100		43
		sd	9.2	12.7	11.7	9.2	2.5	2.1
		n	48	48	48	48	48	48
In Season	F							
		m	88.8	86.3	87.3	88.4	0.7	0.8
		max	100	100	100	100		43
		sd	6.9	8.8	8.8	7.6	1.1	0.75
		n	42	42	42	42	42	42
Out of Season	F							
		m	83.2	81.1	82.6	83.6	2.1	4.2
		max	100	100	100	100		43
		sd	8.7	10.8	10.6	8.7	1.4	2.7
		n	42	42	42	42	42	42

Female student athletes, though slightly outnumbered by the boys, received better core-curricular grades than their male counterparts both in-season and out-of season, in sixth grade. These results held true for grades seven and eight as well. The breakdown of these years can be seen in Appendix E. In addition, male and female student athletes differed in daily attendance, and in-school behavior. However, upon closer examination male and female student athletes maintained similar attendance records and in-school behavior during their seasons of competition, and the marking period immediately following their seasons' conclusions. Despite the differences and similarities that existed, it was also revealed that both genders earned lower core-curricular grades, missed more days of school, and received more discipline referrals when their season of competition had ended.

Table 7 shows a more formal test of each null hypothesis that student outcomes for male students equaled those of female students against the alternative that student outcomes for male and female students differed. In addition, Table 7 allows for comparison of student outcomes by gender across all three grades: 6^{th}, 7^{th}, and 8^{th}. The F statistics shown in Table 7 were generally lower than F statistics shown in the previous Table 5. Generally those in Table 7 were not large enough to force rejection of the null hypothesis for gender differences within the three grade levels.

Table 7

ANOVA Results of In-Season and Out-of-Season Core Curricular Grades, Daily Attendance, and In-School Discipline Referrals Based on Gender By Grade

Grade	Seasonality	Descriptive Statistic	English	Math	Science	Social Studies	Number of Ref.	Absences
6th								
	In Season							
		Type III S.O.S.	334.8	132.44	90.67	129.86	0.191	0.667
		df	1	1	1	1	1	1
		F	6.18	1.47	0.878	2.06	0.188	0.963
		Sig	.015*	0.228	0.351	0.155	0.665	0.329
6th								
	Out of Season							
		Type III S.O.S.	167.57	129.86	123.2	44.2	2.23	10.13
		df	1	1	1	1	1	1
		F	2.07	0.92	0.971	0.546	0.47	1.78
		Sig	0.154	0.34	0.327	0.462	0.495	0.186
7th								
	In Season							
		Type III S.O S.	82.29	540.83	122.27	124.77	0.088	0.003
		df	1	1	1	1	1	1
		F	1.93	8.78	1.65	2.27	0.094	0.003
		Sig	0.17	.004*	0.202	0.136	0.76	0.955
7th								
	Out of Season							
		Type III S.O.S.	8.09	261.95	58.72	82.29	1.27	32.22
		df	1	1	1	1	1	1
		F	0.162	2.71	0.611	1.05	0.603	9.77
		Sig	0.688	0.104	0.436	0.308	0.44	.002*
8th								
	In Season							
		Type III S.O.S.	248.89	49.01	96.67	222.09	0.016	0.384
		df	1	1	1	1	1	1
		F	4.73	0.562	1.03	3.51	0.021	0.459
		Sig	.032*	0.456	0.314	0.064	0.886	0.5

8th							
Out of Season							
	Type III S.O.S.	288.1	103.72	141	40.89	2.53	0.35
	df	1	1	1	1	1	1
	F	3.56	0.85	1.52	0.603	0.932	0.071
	Sig	0.063	0.359	0.221	0.44	0.337	0.791

$*p$ </= .05

The use of ANOVA demonstrated that only a few statistically significant relationships exist when it comes to the differences between male and female student athletes academic performance not withstanding in-season and out-of-season considerations. In the sixth grade, the only strong relationship is that female athletes obtain better scores in English during their seasons of competition than their male counterparts. In the seventh grade, female student athletes outperform the males in Math during their seasons of competition, and also have better attendance records when their sport is no longer in season. In the eighth grade, the only significant finding was that females once again outscored their male colleagues in English while their sports were in season.

Once the findings based on gender were revealed, this study also looked to find any differences that may exist between student athletes based on their ethnicities. Data were collected to see if any ethnic group clearly performed better academically, attended school more regularly, or received less discipline referrals than their peers who were in two other possible ethnic categories. Once again, threats to external validity were slowed by the fact that the sample size utilized groups that were similar in size, with thirty-four Black students, thirty White students, and twenty-six students of other races or ethnicities. Once again, since the same students were studied each of the three years, results were expected to be similar, setting a clear pattern, and revealing if one group performed better than the other two. Table 8 provides descriptive statistics for each ethnicity examined in this study during the 6th grade year of middle school. In season for example, Black students earned average grades of 84.8 in English, 82.9 in math, and 83.3 in science. In season, White students earned average grades of 88.5 in English, 88.3 in math, and 89.3 in science. In season, students of other races or ethnicities earned average grades of 87.1 in English, 83.9 in math, and 86.4 in science. This table describes their outcomes coherently, suggesting both ethnic differences and seasonality differences.

Table 8

Mean Results of In-Season and Out-Of-Season Core Curricular Grades, Daily Attendance, and In-School Discipline Referrals By Ethnicity

Grade	Race	Seasonality	Descriptive Statistic	English	Math	Science	Social Studies	Number of Ref.	Absences
6th	B								
		In Season							
			m	84.8	82.9	83.3	86.7	1	0.9
			max	100	100	100	100		43
			sd	8.85	9.4	11.1	8	1.4	0.8
			n	34	34	34	34	34	34
		Out of Season							
			m	78.7	76.5	78.7	81.6	2.6	1
			max	100	100	100	100		43
			sd	8.7	10.9	11.1	9.4	2.5	1.4
			n	34	34	34	34	34	34
6th	W								
		In Season							
			m	88.5	88.3	89.3	87.6	0.5	0.9
			max	100	100	100	100		43
			sd	5.9	7.6	7.8	7.4	0.6	0.9
			N	30	30	30	30	30	30
		Out of Season							
			m	84.4	84.9	84.9	83.7	1.9	3.6
			max	100	100	100	100		43
			sd	8.7	9.8	9.7	8.2	1.8	2.3
			N	30	30	30	30	30	30

6th	O								
		In Season							
			m	87.1	83.9	86.4	87.2	0.5	0.8
			max	100	100	100	100		43
			sd	7.5	10.7	10.4	8.7	2.4	0.8
			N	26	26	26	26	26	26
		Out of Season							
			m	82.8	78.2	80.7	83.4	2.4	3.5
			max	100	100	100	100		43
			sd	8.9	13.6	12.4	9.3	2.1	2.1
			N	26	26	26	26	26	26

(Races: B=Black Student-Athletes, W=White Student-Athletes, O=Other Student-Athletes).

White student athletes registered higher core-curricular averages, both in and out-of-season during their sixth grade year. However, White student athletes had similar attendance and in-school behavior records, compared to those of their peers from different ethnicities. These same patterns are evident in grades seven and eight as well, which can be viewed in Appendix F. While White student athletes may have earned higher-core curricular grades than their minority peers, the data revealed that each of the three races examined in the study had a similar pattern of earning lower core-curricular grades, registering more absences, and earning more discipline referrals once their season had concluded. Once the data revealed that each race earned higher grades, registered less absences and discipline referrals during their season of competition, the study looked at the strength of any and all differences based on ethnicity. Since the previous data revealed the pattern of White student athletes earning higher grades than their peers, a relationship was evident. Table 9 shows a more official test of each null hypothesis that student outcomes for White students equaled those of Black students, as well as students from other races and ethnicities, against the alternative that student outcomes for students from each ethnicity differed. In addition, Table 9 allows for comparison of student outcomes by ethnicity across all three grades: 6th, 7th, and 8th.

Table 9

ANOVA Results of In-Season and Out-of-Season Core Curricular Grades, Daily Attendance, and In-School Discipline Referrals Based on Ethnicity

Grade	Seasonality	Descriptive Statistic	English	Math	Science	Social Studies	Number of Ref.	Absences
6th								
	In Season							
		Type III S.O.S.	232.66	509.31	576.28	12.83	5.36	0.268
		df	2	2	2	2	2	2
		F	2.08	2.94	2.92	0.098	2.78	0.19
		Sig	0.13	.048*	.050*	0.906	.047*	0.827
6th								
	Out of Season							
		Type III S.O.S.	565.04	1221.4	631.07	81.38	6.69	13.66
		df	2	2	2	2	2	2
		F	3.66	4.69	2.58	0.5	0.706	1.19
		Sig	.030*	.012*	0.082	0.609	0.497	0.308
7th								
	In Season							
		Type III S.O.S.	199.32	269.02	318.57	64.98	2.04	2.43
		df	2	2	2	2	2	2
		F	2.38	2.06	2.19	1.18	1.1	1.18
		Sig	0.099	0.134	0.117	0.311	0.337	0.337
7th								
	Out of Season							
		Type III S.O.S.	373.39	714.47	449.86	110.53	2.44	9.58
		df	2	2	2	2	2	2
		F	4.03	3.85	2.43	0.7	0.575	1.33
		Sig	.021*	.025*	0.094	0.499	0.565	0.269
8th								
	In Season							
		Type III S.O.S.	241.83	386.33	548.18	55.76	2.19	0.36
		df	2	2	2	2	2	2
		F	2.27	2.27	3.04	0.423	1.44	0.213
		Sig	0.11	0.107	.050*	0.656	0.242	0.809

8th							
Out of Season							
	Type III S.O.S.	162.17	517.25	548.18	24.38	2.86	2.55
	df	2	2	2	2	2	2
	F	0.973	2.18	1.75	0.177	0.521	0.256
	Sig	0.382	0.119	0.179	0.838	0.596	0.775

*$p \leq .05$ (printed as *p </= .05)

These statistical results indicate that the strongest differences occur in the sixth grade, with White student athletes achieving better grades in Math and Science during their seasons of competition. Additionally, in sixth grade, White athletes demonstrated better in-school behavior than their peers during their season of competition. White out-of-season sixth grade student athletes continued to achieve higher than their peers by obtaining better grades in English and Math. The only differences that existed in the seventh grade occurred out-of-season with White student athletes outperforming their counterparts in English and Math. Finally, only one significant difference existed in the eighth grade. White student athletes performed better in Science during their season of competition than the peers from different ethnicities.

Once it was revealed that differences existed between the students based on gender, and ethnicity, this study looked at one last variable, which school the student athletes attended. This study examined the possibility that student athletes may obtain higher/lower grades, attend school more/less, and behave better/worse in school based on what school they attended for their middle school education. Once again, threats to external validity were alleviated by similar group size. Thirty-two students attended school one, thirty students attended school two, and twenty-eight students attended school three. The table shows that a pattern is evident all three years of middle school. Table 10 presents descriptive statistics for students based on what middle school they attended for their 6th grade year. In season, students from School #1 earned average grades of 90.8 in English, 87.7 in math, and 92.7 in science. In season, students from School #2 earned average grades of 83.2 in English, 83.8 in math, and 80.6 in science. In season, students from School #3 earned average grades of 85.8 in English, 83.2 in math, and 84.8 in science. This table reasonably describes their outcomes, suggesting both seasonality differences and differences that may result from the school students attended.

Table 10

Mean Results of In-Season and Out-Of-Season Core Curricular Grades, Daily Attendance, and In-School Discipline Referrals By School

Grade	School	Seasonality	Descriptive Statistic	English	Math	Science	Social Studies	Number of Ref.	Absences
6th	1								
		In Season							
			m	90.8	87.7	92.7	89.5	0.5	0.9
			max	100	100	100	100		43
			sd	5	8.9	6	6.6	0.8	0.8
			n	32	32	32	32	32	32
		Out of Season							
			m	87.5	83.9	88.6	85.9	2.3	3.8
			max	100	100	100	100		43
			sd	6	11.8	7.1	6	2.3	2.2
			n	32	32	32	32	32	32
6th	2								
		In Season							
			m	83.2	83.8	80.6	86.2	0.9	1
			max	100	100	100	100		43
			sd	8.5	9.5	12.1	9.1	1.4	0.9
			n	30	30	30	30	30	30
		Out of Season							
			m	78.9	77.9	77.1	80.8	2.2	4.2
			max	100	100	100	100		43
			sd	10.3	12.5	12.5	11.1	2.2	2.9
			n	30	30	30	30	30	30

6th	3								
		In Season							
			m	85.8	83.2	84.8	85.4	0.7	0.7
			max	100	100	100	100		43
			sd	7	9.8	7.3	7.8	0.7	0.8
			n	28	28	28	28	28	28
		Out of Season							
			m	78.2	77.2	77.6	81.4	2.4	3.6
			max	100	100	100	100		43
			sd	7.3	10.3	9.8	8.6	2	2
			n	28	28	28	28	28	28

Based on inspection of the means for each school, student athletes who attended school one, regardless of athletic season considerations, generally earned higher scores in all of their core-curricular subjects. No similar differentiation by school was immediately seen in the means of daily attendance and in-school behavior. However, as was the case with the examination of gender and race, there is a clear pattern of student athletes earning lower core-curricular grades, registering more absences, and receiving more discipline referrals once their season of competition has concluded. This pattern can be seen for grades seven and eight as well in Appendix G.

In addition to the inspection of the above data, ANOVA was used to find the significance of the differences between student athletes' core curricular grades based on which middle school they attended. Since the initial data revealed a clear difference in examined outcomes based on school attended, the possibility of the existence of statistically significant relationships was strong. Table 11 shows a more stringent test of each null hypothesis that student outcomes for students from one school equaled those of students who attended the other two examined middle schools for their 6th grade year. In addition, Appendix H affords the opportunity for comparison of student outcomes by school across 7th and 8th grade.

Table 11

ANOVA Results of In-Season and Out-of-Season Core Curricular Grades, Daily Attendance, and In-School Behavior Based on School

Grade	Seasonality	Descriptive Statistic	English	Math	Science	Social Studies	Number of Ref.	Absences
6th								
	In Season							
		Type III S. O. S.	913.99	359.49	2370.7	293.11	2.11	1.86
		df	2	2	2	2	2	2
		F	9.49	2.04	15.15	2.39	1.05	1.35
		Sig	.000*	0.137	.000*	0.1	0.354	0.263
6th								
	Out of Season							
		Type III S. O. S.	1664.7	838.89	2589.42	497.96	0.757	5.64
		df	2	2	2	2	2	2
		F	12.88	3.12	12.96	3.25	0.079	0.486
		Sig	.000*	.000*	.000*	.044*	0.924	0.617

**p </= .05*

The use of ANOVA has demonstrated that statistical differences do exist among student athletes based on what school they attended during their middle school years. The inspection of means and the use of ANOVA had demonstrated that student athletes who attended school one earned higher core curricular scores than their peers who attended schools two or three, both during their seasons of competition and during their off seasons. However, there was no statistical significance when it came to student athletes' daily attendance and in-school behavior.

Overall, the data showed that middle school athletes earned higher core curricular grades, registered fewer absences, and received less discipline referrals during their seasons of competition, regardless of gender, race, or school attended. This is displayed in each individual year of middle school education.

CHAPTER V

Discussion

Middle school sports programs may be at risk across the country, especially in school districts unable to financially support such programs. Those in favor of the elimination of these sports programs may argue that the researcher examined schools in the same district, and that the findings and validation of this research may not be a reflection of all middle school sports programs. While this input may be well stated, the researcher does look at student-athletes who come from different schools, different genders, different ethnic backgrounds, and examines them for a three-year period of time. The researcher examined core curricular grades, daily attendance, and in-school discipline referrals over this three-year period while student-athletes were in their season of competition, as well as out of their season of competition.

Summary of Findings

SPSS 17.0 was used to find the averages of the six outcome variables, and the researcher used ANOVA to examine any possible relationships that may exist between any of these variables. The data and the researcher's analysis led to the rejection of the null hypothesis; that participation in a middle school sport has no relationship to student-athletes' core-curricular grades, daily attendance, or in-school behavior while that sport is in-season. The analysis revealed that on average, student-athletes do perform significantly better in all core subjects, miss less days of school, and receive less discipline referrals while their respective sports are in-season. Specifically, the data revealed that no matter what race, gender, or school attended, student-athletes earned higher grades, had better daily attendance, and behaved better in school while their sports were in-season.

Similar findings to that of athletic participation, strong relationships were found for student-athletes when their sports were not in-season. Once again, on average student-athletes core-curricular grades went down, they obtained more absences, and they earned more discipline referrals when their sports were not in competition. Further analysis revealed that a significant relationship did exist between student-athletes being out-of-season and the outcome variables, regardless of race, gender, or school attended.

The researcher also examined the possibility of student-athletes doing better or worse as they progressed through their middle school years. This analysis demonstrated that student-athletes displayed very similar scores in their core-curricular grades, missed almost the same amount of days of school, and earned a similar amount of discipline referrals while their sports were in season all three years of middle school. Additionally, the data also showed that similar declines occurred in the students' core-curricular grades, increases in the number of absences and number of discipline referrals also occurred at the same rate for all three years once the student-athletes' sports had concluded. These observations rule out the argument of those who may claim that grades may go down as students progress through middle school because of course content becoming more difficult. Once again, the data showed that this was the case for male and female students, all races, and all schools in this study.

Implication for Research

This study coincides with the findings of athletic participation researchers, and adds to the growing body of research that exists on middle school sports participation. This study has reached findings that many stakeholders would find useful. School district administrators, teachers, coaches, parents, and students should be made aware of such findings. The ability to have students work for better grades, attend school on a regular basis, and display good in-school behaviors are the goals of almost every school across this nation. This study may be limited by size, but its findings also have the ability to shine some light on the question of how do we as educators keep kids motivated?

Unexplored in this paper was the extent to which extracurricular activity participation may be especially important for adolescents in transition to high schools. The descriptive tables suggest that student grades, attendance and behavior appear to benefit from activity participation across the board. Yet students in 7th grade and 8th grade may tend to benefit significantly more from athletic participation.

Middle school sports can be a very expensive program for a school district to maintain, especially during tough economic times. However, when you look at the findings of this study and look at the monetary amount it costs to facilitate a middle school sports program, many would label that money spent as an investment. This investment may be an opportunity for many adolescents, but it’s also an opportunity for school districts to finally find at least one way to keep a portion of their kids coming to school each day, ready to learn, prepared to succeed, and possessing the knowledge and ability to behave as an upstanding citizen within the school.

With the cost of just about everything steadily rising, school districts need to be made aware of the fact that data exists proving that middle school sports programs afford student-athletes the opportunity to succeed in the classroom, in the hallways, and on the field of competition. When school districts eliminate these programs in the hope of saving dollars and cents, those districts should look at studies, such as this one, and realize that middle school student-athletes have the tendency to earn lower core-curricular grades, miss more days of school, and earn more discipline referrals when they are not in athletic competition. If these middle school athletic programs are taken away altogether, school districts would be running the risk of putting their students at the risk of continuing a possible downside of their educations that may be hard to rebound from once they are allowed to return to the athletic fields in high school.

Student Grades

Eitle and Eitle's (2002) findings regarding athletic participation and student grades disagree with the findings of the current study. Eitle and Eitle found that there was no positive relationship between grades and participation in football, basketball, and other sports. The current study controlled for previous measures of outcome variables. For example, when investigating the effects of sport participation on grades, Eitle and Eitle did not control for base year grades, rather they only examined grades during student-athletes' season of competition. With that in mind, it is clear why the researchers' findings disagree with the findings of the current study.

The results of the current study verified the results of Marsh and Kleitman's (2003) study of the effects of athletic participation on student grades and academic achievement. Marsh and Kleitman used a comprehensive list of control and background variables in their regression analysis, including race and school size. Even with the addition of these controls, the relationship between athletic participation, and core-curricular grades was found to be a positive one.

Broh (2002) differs from the current study in two important ways: First, student outcomes investigated in Broh's work were 12th-grade outcomes, while this study examined 6th through 8th-grade outcomes; second, participation and outcome variables were more specific and wide ranging. Despite these differences, Broh's study and the current study had some similar findings. In particular, Broh found a positive relationship between interscholastic sports and student grades. Specifically, Broh found a positive relationship between interscholastic athletic participation and mathematics grades and English grades, just as this study did find a positive relationship between athletic participation and all core-curricular subjects.

Misbehavior

The findings of this study were in agreement with some of Braddock and associates' (1991) findings when it came to measures of misbehavior. However, Braddock and colleagues defined students' misbehaviors differently than the researcher did for this study. Braddock and colleagues defined misbehavior as the number of times a student was sent to the office for such things as trouble with schoolwork or fighting. Braddock and colleagues also included parents receiving phone calls about students' behaviors in their definition of in-school misbehavior, while this study solely examined the number of discipline referrals a student-athlete received. Despite the difference of what was analyzed in the two studies similar findings were revealed. Both studies found that those students who participated in interscholastic athletics were less likely to get into trouble during their season of competition.

This study's results differed from those of Marsh and Kleitman's (2003). Marsh and Kleitman found no relationship between athletic participation and misbehavior. No relationship was found between time spent on athletic activities and the likelihood of students behaving properly. In this study, those involved with middle schools sports were all found to misbehave less often in school during their seasons of competition. The difference in these findings can possibly be credited to the different manners in which misbehavior was defined. The variable in this study, misbehavior, was defined as a student-athlete participating in a behavior that earned him/her an in-school discipline referral. While, the study conducted by Marsh and Kleitman, staying out of trouble, was measured by combining in school and out of school behaviors.

Implications for Practice

Competing Interpretations of Results

The relationships found between middle school sports and student performance defined as core-curricular grades, daily attendance, and in school behavior can be interpreted as follows. It is likely that participation in middle school athletics leads to the improvement in of these student outcomes, as the data seem to show. Good grades are not a district requirement when it comes to making a sports team. However, the district coaches have agreed that no student can participate if they are failing a class during their respective season, or received a grade below 65 during the marking period prior to the start of their season. With that in mind, it is easy to understand the study's finding that student-athletes perform better during their seasons of competition, while grading leniency can possibly explain the drop in grades when student athletes are out-of-season. Either way, the middle school sports programs should be supported, and students should be encouraged to participate. Furthermore, there are advantages to participating in multiple sports to avoid the out-of-season slump in student performance. This may hinder the chance for student-athletes' performance decreasing at the conclusion of a season.

Value of Middle School Sports

One might expect that the relationships found between core-curricular grades, daily attendance, and in-school behavior in-season versus out-of-season will open the eyes of the people who have been critical of these programs in the past. While there will always be those who feel that middle school sports do little to improve students' overall academic performance, this research demonstrates that differences do exist between students' academic performances in-season and their out-of-season performances. This study may be limited by size, but the finding that in-season grades, daily attendance, and in-school behavior were better for all three years in middle school may allow those in favor of middle school sports, and the critics to understand the extent to which activity participation does appear to help.

Recommendations

NCLB has created an educational environment where schools across the country have to sustain enormous amounts of pressure. This has led to administrators paying extra close attention to student performance outcomes. As a result, administrators and teachers put more pressure on themselves to search for means that will improve standardized test scores in core subjects such as mathematics, English, science, and social studies. Unfortunately, these extrinsic and intrinsic pressures have a tendency to lead to a constricted focus of our public schools' goals/obligations. This narrow scope causes many involved in education to forget the potential impact and educational value of extracurricular opportunities, such as middle school sports. Because such programs are looked at with such scrutiny, administrators have to look at the costs and benefits before they are able to support and run these programs.

Although the benefits of middle school sports may be modest, it is important to see that these are also uniformly positive over the examined three-year period of time. Educational leaders at the district and school level should encourage the existence of and aim for future growth of middle school sports programs in an effort to encourage the participation of a large portion of the student body. However, before such programs can be funded, improved, or run correctly the research on these programs and these programs' possible benefits should be well read and understood, before it is looked at as a possible cure all those students who participate in middle school sports programs. This study as well as past research has shown that participation in a middle school athletic program can be beneficial to those students involved.

Suggestions for Further Research

The topic of student performances, especially grades, attendance, and behaviors, and how they relate or are impacted by athletic programs is studied nationally as well as globally. However, most of that research compares athletes with non-athletes, and only a limited number of studies actually examine the impact middle school sports programs may have on student-athletes. Furthermore, there are even fewer studies that examine the academic performances of student-athletes in-season versus out-of-season. These facts demonstrate the need for further research of middle school sports programs and the possible impact these programs may or may not have on student-athletes' in-school performances. Specifically, studies that examine middle school sports programs who do not have eligibility requirements should be done to see if students who have failing grades prior to their season of competition significantly improve during the marking period when their respective sport is in season.

One of the limitations of this study stated earlier is the size of the study. While, the researcher attempted to overcome this limit by having this study be longitudinal, similar to Laughlin (1978) and Silliker & Quirk (1997), it is hard to generalize the relationships found in-season versus out-of-season when the study is limited in size.

Similar studies should be performed, with larger, more diverse samples than those utilized to in this study.

Further research examining this topic over a similar time span and including more middle school student-athletes will provide those involved with public education the chance to see the strength of the relationships between athletic participation and student performance, especially in-season versus out-of-season. These studies and their findings will also lead to further research on the pay-to-play option that is being exercised in multiple states across the country. These studies will afford everyone the opportunity to see if pay-to-play is limiting participation in activities such as middle school sports, and in the long run of students' education may be hindering their in-school academic performance as well as limiting their athletic ability and opportunities for improvement as well.

Conclusion

Despite the limitations cited earlier, the current study contributes to the understanding of the differences that exist between student-athletes in-season academic performance and their out-of-season academic performance. The statistically significant positive effects of middle school sports were consistent over the three years examined. Student-athletes obtained higher core-curricular grades, attended school more regularly, and obtained less in-school discipline referrals while their sport was in-season. It is also important to note that this study showed that there was no improvement in student-athletes' in-school academic performance out-of-season, when many would argue that they have more time to focus on their core-curricular course loads. District and school administrators would have their students' best interests in mine if they would take the time to read the research on this topic and think hard about how the elimination of programs, such as middle school sports, may actually hinder students' grades, attendance, and in-school behavior, rather than improve them.

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APPENDIX A

Breakdown of Student Athletes' Grades
(3 years)

Number of Students

		Grade 6	Grade 7	Grade 8
English In-Season				
	Above 80	72	77	72
	Below 80	18	13	18
	Below 70	2	3	2
English Out-of-Season				
	Above 80	57	56	55
	Below 80	33	34	35
	Below 70	10	3	10
Math In-Season				
	Above 80	70	66	65
	Below 80	20	24	25
	Below 70	8	1	12
Math Out-of-Season				
	Above 80	52	47	41
	Below 80	38	43	49
	Below 70	21	20	21
Science In-Season				
	Above 80	71	68	63
	Below 80	19	22	27
	Below 70	8	4	7
Science Out-of-Season				
	Above 80	55	50	50
	Below 80	35	40	40
	Below 70	14	16	15
Social Studies In-Season				
	Above 80	75	75	67
	Below 80	15	15	23
	Below 70	1	2	2
Social Studies Out-of-Season				
	Above 80	59	57	44
	Below 80	31	33	46
	Below 70	7	8	8

Absences In-Season				
	0	34	39	29
	1	36	27	36
	2	17	17	20
	3 or more	3	7	5
Absences Out-of-Season				
	0	8	12	14
	1	5	11	12
	2	15	26	20
	3 or more	62	41	44
Referrals In-Season				
	0	49	41	40
	1	29	26	32
	2	7	18	15
	3 or more	5	5	3
Referrals Out-of-Season				
	0	23	19	13
	1	15	16	19
	2	16	24	27
	3 or more	36	31	31

APPENDIX B

Breakdown of Student Athletes' Grades by Gender
(3 years)

		Number of Students					
			Grade 6		Grade 7		Grade 8
Gender		**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
English In-Season							
	Above 80	35	37	39	32	35	37
	Below 80	13	5	9	10	13	5
	Below 70	1	2	1	0	1	1
English Out-of-Season							
	Above 80	26	31	28	28	24	31
	Below 80	22	11	20	14	24	11
	Below 70	6	4	2	1	5	5
Math In-Season							
	Above 80	33	37	30	36	32	33
	Below 80	15	5	18	6	16	9
	Below 70	5	3	1	0	8	4
Math Out-of-Season							
	Above 80	26	26	22	25	22	19
	Below 80	22	16	26	17	26	23
	Below 70	15	6	14	6	16	5
Science In-Season							
	Above 80	35	36	32	36	29	34
	Below 80	13	6	16	6	19	8
	Below 70	4	4	2	2	4	3
Science Out-of-Season							
	Above 80	26	29	26	24	24	26
	Below 80	22	13	22	18	24	16
	Below 70	10	4	12	4	12	3
Social Studies In-Season							
	Above 80	38	37	38	37	31	36
	Below 80	10	5	10	5	17	6
	Below 70	1	0	1	1	1	1
Social Studies Out-of-Season							
	Above 80	28	31	28	29	22	22
	Below 80	20	11	20	13	26	20
	Below 70	4	3	5	3	5	3

Absences In-Season							
	0	17	17	22	17	14	15
	1	19	17	14	13	20	16
	2	9	8	7	10	11	9
	3 or more	3	0	5	2	3	2
Absences Out-of-Season							
	0	3	5	3	9	6	8
	1	5	0	4	7	8	4
	2	8	7	13	13	11	9
	3 or more	32	30	28	13	23	21
Referrals In-Season							
	0	26	23	22	19	21	19
	1	16	13	13	13	17	15
	2	5	2	10	8	9	6
	3 or more	1	0	3	2	1	2
Referrals Out-of-Season							
	0	11	12	12	7	5	8
	1	6	9	8	8	7	12
	2	8	8	13	11	17	10
	3 or more	23	13	15	16	19	12

APPENDIX C

Breakdown of Student Athletes' Grades by Race
(3 years)

Number of Students

Race		Grade 6			Grade 7			Grade 8	
	Black	Other	White	Black	Other	White	Black	Other	White
English In-Season									
Above 80	23	21	28	26	24	27	23	21	28
Below 80	11	5	2	8	2	3	11	5	2
Below 70	2	0	0	1	0	0	2	0	0
English Out-of-Season									
Above 80	17	18	22	17	19	20	19	15	21
Below 80	17	8	8	17	7	10	15	11	9
Below 70	5	2	3	1	2	0	6	2	2
Math In-Season									
Above 80	25	18	27	22	18	26	25	16	24
Below 80	9	8	3	12	8	4	9	10	6
Below 70	5	3	0	1	0	0	6	4	2
Math Out-of-Season									
Above 80	18	13	21	11	15	21	14	10	17
Below 80	16	13	9	23	11	9	20	16	13
Below 70	11	7	3	11	6	3	8	7	6
Science In-Season									
Above 80	23	18	27	23	19	26	19	19	25
Below 80	11	8	3	11	7	4	15	7	5
Below 70	7	1	2	3	1	0	5	2	0
Science Out-of-Season									
Above 80	17	15	23	13	15	22	13	15	22
Below 80	7	11	7	21	9	8	21	11	8
Below 70	6	5	3	7	6	3	6	6	3
Social Studies In-Season									
Above 80	28	22	25	27	22	26	24	19	24
Below 80	6	4	5	7	4	4	10	7	6
Below 70	0	1	0	0	1	2	0	1	1
Social Studies Out-of-Season									
Above 80	22	16	21	19	15	23	15	12	17
Below 80	12	10	9	15	11	7	19	14	13
Below 70	4	2	1	4	3	3	5	2	1

Absences In-Season									
0	12	10	12	14	15	10	10	9	10
1	13	12	11	13	5	9	16	10	10
2	8	3	6	4	5	8	8	4	8
3 or more	1	1	1	3	1	3	0	3	2
Absences Out-of-Season									
0	3	4	1	7	3	2	6	4	4
1	1	1	3	6	1	4	4	6	2
2	4	3	8	8	10	8	8	5	7
3 or more	26	18	18	13	12	16	16	11	17
Referrals In-Season									
0	17	14	18	15	11	15	12	13	15
1	9	10	10	8	11	7	14	8	10
2	3	2	2	6	4	8	5	5	5
3 or more	5	0	0	5	0	0	3	0	0
Referrals Out-of-Season									
0	8	6	9	7	6	6	8	2	4
1	7	3	5	6	5	5	5	6	8
2	5	6	5	7	7	10	9	8	10
3 or more	14	11	11	14	8	9	12	10	8

APPENDIX D

Breakdown of Student Athletes' Grades by School Attended
(3 years)

		Number of Students								
			Grade 6			**Grade 7**			**Grade 8**	
School Attended		**#1**	**#2**	**#3**	**#1**	**#2**	**#3**	**#1**	**#2**	**#3**
English In-Season										
	Above 80	29	19	22	30	21	25	28	19	22
	Below 80	3	11	6	2	9	3	4	11	6
	Below 70	3	2	0	2	1	0	4	2	0
English Out-of-Season										
	Above 80	31	13	13	29	13	14	28	14	13
	Below 80	1	17	15	3	17	14	4	16	15
	Below 70	1	6	3	1	1	2	1	5	4
Math In-Season										
	Above 80	27	22	21	29	15	22	29	19	17
	Below 80	5	8	7	3	15	6	3	11	11
	Below 70	2	3	3	1	1	0	1	6	5
Math Out-of-Season										
	Above 80	23	17	12	24	9	14	22	13	6
	Below 80	9	13	16	8	21	14	10	17	22
	Below 70	4	11	6	1	12	7	3	11	7
Science In-Season										
	Above 80	31	17	23	29	17	20	29	15	19
	Below 80	1	13	5	3	13	8	3	15	9
	Below 70	1	8	0	0	1	0	3	5	1

Science Out-of-Season										
	Above 80	29	13	13	27	11	12	28	10	12
	Below 80	3	17	15	5	19	16	4	20	16
	Below 70	1	8	5	1	9	6	1	8	6
Social Studies In-Season										
	Above 80	29	23	23	29	22	24	27	19	21
	Below 80	3	7	5	3	8	4	5	11	7
	Below 70	0	0	1	0	1	1	1	1	1
Social Studies Out-of-Season										
	Above 80	28	15	16	26	14	17	20	11	13
	Below 80	4	15	12	6	16	11	12	19	15
	Below 70	0	5	2	1	5	3	0	6	2
Absences In-Season										
	0	10	10	14	13	14	12	7	11	11
	1	16	10	10	10	7	10	15	13	8
	2	5	9	3	6	6	5	7	6	7
	3 or more	1	1	1	3	3	1	3	0	2
Absences Out-of-Season										
	0	1	6	2	4	5	3	5	6	3
	1	3	6	1	6	3	2	4	4	4
	2	5	7	7	9	11	6	10	4	6
	3 or more	23	11	18	13	11	17	13	16	15
Referrals In-Season										
	0	20	18	11	16	14	11	16	13	11
	1	10	5	14	10	5	11	8	11	13
	2	1	3	3	5	7	6	7	4	4
	3 or more	1	4	0	1	4	0	1	2	0

Referrals Out-of-Season										
	0	8	10	5	8	7	4	5	5	3
	1	7	3	5	4	6	6	6	7	6
	2	4	6	6	10	8	6	11	8	8
	3 or more	13	11	12	10	9	12	10	10	11

APPENDIX E

Mean Results of In-Season and Out-of-Season Core Curricular Grades, Daily Attendance, and In-School Discipline Referrals by Gender for Grades Seven and Eight

Grade	Time of Measure (seasonality)	Gender	Descriptive Statistic	English	Math	Science	Social Studies	Number of Ref.	Absences
7th									
	In Season	M							
			M	85.9	82.1	84	84.5	0.9	0.9
			max	100	100	100	100		43
			Sd	6.8	8.2	9.3	7.6	1	1.1
			N	48	48	48	48	48	48
	Out of Season	M							
			M	80.9	77.3	78.3	79.3	1.8	3.3
			max	100	100	100	100		43
			Sd	7.2	10.1	10.7	9.3	1.5	1.9
			N	48	48	48	48	48	48
7th									
	In Season	F							
			M	87.8	86.9	86.4	86.9	0.8	0.9
			max	100	100	100	100		43
			Sd	6.3	7.4	7.6	7.2	0.91	0.92
			N	42	42	42	42	42	42
	Out of Season	F							
			M	81.2	80.7	79.9	81.2	2.1	2.1
			max	100	100	100	100		43
			Sd	7	9.5	8.6	8.2	1.4	1.7
			N	42	42	42	42	42	42
8th									
	In Season	M							
			M	83.2	81.4	83	82.7	0.8	1.1
			max	100	100	100	100		43
			Sd	7.9	10	10.2	8.5	0.89	0.94
			N	48	48	48	48	48	48
	Out of Season	M							
			M	77.6	75.7	77.7	78.6	2.3	2.7
			max	100	100	100	100		43
			Sd	8.9	12.2	10.7	8.5	1.6	2
			N	48	48	48	48	48	48
8th									
	In Season	F							
			M	86.5	82.8	85.1	85.9	0.8	0.9
			max	100	100	100	100		43
			Sd	6.4	8.5	8.9	7.2	0.87	0.88
			N	42	42	42	42	42	42

Out of Season	F							
		M	81.2	77.9	80.2	80	2	2.8
		max	100	100	100	100		43
		Sd	9.2	9.5	8.3	7.9	1.7	2.5
		N	42	42	42	42	42	42

APPENDIX F

Mean Results of In-Season and Out-of-Season Core Curricular Grades, Daily Attendance, and In-School Discipline Referrals by Ethnicity for Grades Seven and Eight

Grade	Race	Seasonality	Descriptive Statistic	English	Math	Science	Social Studies	Number of Ref.	Absences
7th	B								
		In Season							
			M	85.4	82.7	83	84.9	1.1	0.9
			Max	100	100	100	100		43
			Sd	7.9	8.5	9.4	7.7	1.2	0.9
			N	34	34	34	34	34	34
		Out of Season							
			M	78.7	76.1	76.8	79	2.2	2.3
			Max	100	100	100	100		43
			Sd	7.2	10.1	9.8	8.8	1.6	1.9
			N	34	34	34	34	34	34
7th	W								
		In Season							
			m	88.9	86.7	87.5	86.8	0.8	1.1
			max	100	100	100	100		43
			sd	4.9	6.8	7.6	6.9	0.9	1
			n	30	30	30	30	30	30
		Out of Season							
			m	83.5	82.7	82.1	81.6	1.8	3
			max	100	100	100	100		43
			sd	6.4	9	8.5	7.6	1.2	1.8
			n	30	30	30	30	30	30
7th	O								
		In Season							
			m	86.2	83.7	85.1	85.3	0.7	0.7
			max	100	100	100	100		43
			sd	5.9	8.8	8.3	7.9	0.7	1
			n	26	26	26	26	26	26
		Out of Season							
			m	81.6	78.2	78.5	79.9	1.9	2.9
			max	100	100	100	100		43
			sd	6.6	9.7	10.6	10.3	1.5	1.9
			n	26	26	26	26	26	26
8th	B								
		In Season							
			M	82.8	81	81.2	83.4	1	0.9
			Max	100	100	100	100		43
			Sd	8.5	9.5	10.7	8	1	0.7
			N	34	34	34	34	34	34

		Out of Season							
			M	77.9	75.4	77.2	78.6	2.2	2.8
			Max	100	100	100	100		43
			Sd	10.2	10.1	9.2	8.7	1.9	2.4
			N	34	34	34	34	34	34
8th	W								
		In Season							
			M	86.7	85	87.1	85.2	0.7	1.1
			Max	100	100	100	100		43
			Sd	5.7	8.5	8.3	7.4	0.8	0.9
			N	30	30	30	30	30	30
		Out of Season							
			m	81	80.1	81.6	79.6	1.9	3
			max	100	100	100	100		43
			sd	7.9	10.6	7.9	7.2	1.4	2
			n	30	30	30	30	30	30
8^{th}	O								
		In Season							
			m	85	80.1	84.1	84	0.7	1.1
			max	100	100	100	100		43
			sd	7.2	9.6	9.1	9	0.8	1.1
			n	26	26	26	26	26	26
		Out of Season							
			m	79.1	74.7	78	79.7	2.4	2.5
			max	100	100	100	100		43
			sd	8.9	12.1	11.6	8.8	1.7	2.2
			n	26	26	26	26	26	26

APPENDIX G

Mean Results of In-Season and Out-of-Season Core Curricular Grades, Daily Attendance, and In-School Discipline Referrals by School for Grades Seven and Eight

Grade	School	Seasonality	Descriptive Statistic	English	Math	Science	Social Studies	Number of Ref.	Absences
7th	1								
		In Season							
			m	90.7	88.2	90.1	87.5	0.7	1
			max	100	100	100	100		43
			sd	3.9	6.1	5.5	6	0.9	1.1
			n	32	32	32	32	32	32
		Out of Season							
			m	85.8	84.4	85.3	82.5	1.8	2.3
			max	100	100	100	100		43
			sd	5.7	7.6	7.5	5.9	1.4	1.6
			n	32	32	32	32	32	32
7th	2								
		In Season							
			m	83.2	80.3	80.7	84.1	1.1	0.9
			max	100	100	100	100		43
			sd	7.9	8.6	9.9	8.8	1.2	1
			n	30	30	30	30	30	30
		Out of Season							
			m	78	74.5	74.8	78.2	1.9	2.6
			max	100	100	100	100		43
			sd	6.5	9.9	10.8	10.4	1.6	2
			n	30	30	30	30	30	30
7th	3								
		In Season							
			m	86.8	84.4	85.1	85.6	0.8	0.8
			max	100	100	100	100		43
			sd	5	7.9	7.3	7.2	0.9	1
			n	28	28	28	28	28	28
		Out of Season							
			m	81.2	78.9	79.1	80.1	2.1	3.3
			max	100	100	100	100		43
			sd	6.3	9.7	8.3	9.5	1.4	1.9
			n	28	28	28	28	28	28

8th	1								
		In Season							
			M	88.6	86.5	89.2	86.8	0.8	1.2
			Max	100	100	100	100		43
			Sd	4.7	7.2	8	6.7	0.9	0.9
			N	32	32	32	32	32	32
		Out of Season							
			M	83.7	81.8	84.8	81	2	2.7
			Max	100	100	100	100		43
			Sd	6.5	9.5	6.9	6	1.4	2.4
			N	32	32	32	32	32	32
8th	2								
		In Season							
			M	81.5	79	79	82.8	0.9	0.8
			Max	100	100	100	100		43
			Sd	8.7	9.5	10.5	9.3	1	0.7
			N	30	30	30	30	30	30
		Out of Season							
			M	76.6	74.1	75.5	77.6	2.1	2.9
			Max	100	100	100	100		43
			Sd	10.5	11.8	10.1	10.5	1.7	2.4
			N	30	30	30	30	30	30
8th	3								
		In Season							
			M	83.8	80.1	83.5	82.6	0.8	1
			Max	100	100	100	100		43
			Sd	6.7	9.6	7.6	7.5	0.7	1.1
			N	28	28	28	30	28	28
		Out of Season							
			M	77.1	73.7	75.7	79.1	2.4	2.8
			Max	100	100	100	100		43
			Sd	8.4	10	8.8	7.5	1.9	1.8
			N	28	28	28	28	28	28

APPENDIX H

ANOVA Results of In-Season and Out-of-Season Core Curricular Grades, Daily Attendance, and In-School Behavior Based on School for Grades Seven and Eight

Grade	Seasonality	Descriptive Statistic	English	Math	Science	Social Studies	Number of Ref.	Absences
7th								
	In Season							
		Type III S. O. S.	872.06	971.45	1385.72	196.64	1.96	0.482
		df	2	2	2	2	2	2
		F	12.77	8.46	11.49	1.79	1.06	0.238
		Sig	.000*	.000*	.000*	0.172	0.351	0.789
7th								
	Out of Season							
		Type III S.O.S.	1087.7	1621.7	1965.28	298.76	1.3	14.19
		df	2	2	2	2	2	2
		F	14.23	9.85	13.06	1.95	0.305	2
		Sig	.000*	.000*	.000*	0.149	0.738	0.141
8th								
	In Season							
		Type III S.O.S.	803.46	1007.5	1639.59	353.14	0.215	1.95
		df	2	2	2	2	2	2
		F	8.57	6.59	10.57	2.83	0.137	1.18
		Sig	.000*	.002*	.000*	0.065	0.872	0.313
8th								
	Out of Season							
		Type III S.O.S.	982.53	1299.8	1754.7	177.09	1.93	0.508
		df	2	2	2	2	2	2
		F	6.65	5.93	11.68	1.32	0.349	0.051
		Sig	.002*	.004*	.000*	0.272	0.706	0.951

**p </= .05*