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# Sport Activities Versus Academic Achievement For Rural High School Students

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**ABSTRACT**

**A study was conducted to determine whether participating in sport activities had any impact on students' academic achievement in rural high schools. The participating students (N=225) were selected from four rural high school districts. The participants' immediate pre-season grades in English, math, science and social science were compared with their immediate postseason grades in the same courses. The independent variable was participating in school-sponsored sport activities and the dependent variable was the participants' postseason grades. The comparisons were conducted on a course-by-course and team-by-team basis. Results of data analyses indicated that no significant differences were found between the students' pre-season and postseason grades, which suggest that participating in school-sponsored sports activities did not affect the academic achievement for the participating rural high school students.**

The role of sport participation for high school students in the educational process has been a topic of debate for decades. Critics observe that sport activities deflect time away from the classroom (Melnick, Sabo, & Vanfossen, 1992). Supporters of high school sport programs argue that sport participation improves students' achievement motivation (Casey, 1989; Parker & Johnson, 1981), improves students' grades, keeps them in school, raises their educational aspirations (Melnick, Sabo, & Vanfossen, 1992), helps them appreciate health, exercise and fitness, helps them learn about themselves and learn to handle adversity, and helps them experience team work and sportsmanship (Rasmussen, 1999-2000). Whether high school sport programs benefit or negatively impact the academic achievement of student participants remains a topic of controversy. While the quantity of research literature in this field is growing, its uneven quality provides no evidence to afford a clear understanding of the nature on the issue (Greendorfer, 1987). To date, the educational consequences from participating

school-sponsored sport activities for high school students are still not fully understood.

Literature on the relationship between students' participation in sports and their various psychosocial and psycho-educational factors provides mixed findings. The findings of a group of studies indicated that participation in sports increased students' overall interest and commitment to schooling as well as their engagement in more student-teacher contact, more positive attitudes about schooling, more parent-school contact (Crain, 1981; Trent & Braddock, 1992). Moreover, Slavin and Madden (1979) found that sports could facilitate positive racial/ethnic relations as well as positive inter-group attitudes and behaviors among northern and southern desegregated schools. Crain (1981) reported similar findings.

A number of researchers focused on the influences of sport participation on various psychosocial aspects of high school students. As the literature shows, one such benefit is that participation in sport activities could provide extrinsic rewards to students and help them form social bonds and relationships within school (Crain, 1981; Slavin & Madden, 1979; Trend & Braddock, 1992). Furthermore, sport participation could also create intrinsic values for students, according to Kavussanu and McAuley (1995): Highly active individuals were significantly more optimistic and experienced greater self-efficacy than those non-active or low-active people. Similar findings were also reported by Bandura (1986), Hamid (1990), Scheier and Carver (1987), and Thayer (1987). In a longitudinal study, Manners and Smart (1995) noted that athletic team participation was related to identity foreclosure, particularly for males.

With respect to whether students' participation in sport activities was beneficial to their academic goals, Marsh (1988) reported that participation in too many activities produced diminishing returns. Participation in sports and other extracurricular activities was consistently beneficial, but participation in some activities had mixed or predominantly negative effects. With regard to the relationship between athletic participation and higher educational goals, Spreitzer and Pugh (1973) found an association between athletic participation and higher educational goals. Sport involvement was not necessarily detrimental to academic pursuits. Influence of sport involvement was particularly strong for boys who were not otherwise predisposed to attending college. Sport involvement tended to engender high-perceived peer status, which in turn stimulated a desire for further status acquisition through college attendance.

The impact of sport participation on girls' academic orientation was the focus of a number of studies. Feltz and Weiss (1984) found that socioeconomic level and extent of activity involvement were factors contributing to most of the differences between groups, in which higher SES levels and higher levels of involvement were predictive of higher ACT scores. These findings were opposite to the notion that involvement only in athletics was detrimental to educational achievement for female students. SES levels and extent of extracurricular involvement were influential other than students' participation categories on females' academic achievement. In another study, Snyder and Spreitzer (1977) analyzed survey data on participation in sports as related to educational expectations among high school girls. They focused on athletic participation and serious involvement in music as socialization experiences within the school context. The researchers found a positive relationship between both types of extracurricular participation and educational expectations. This study seems to suggest that sports for these high school girls did not appear to be dysfunctional.

A number of researchers studied the effects of high school sport participation on

African-American male students, and presented mixed findings. Sport participation seemed to have positive effects on their educational aspirations (Braddock, 1980, 1981; Hanks, 1979; Picou & Huang, 1982; Wells & Picou, 1980), self-esteem (Braddock, 1981; Hanks, 1979), college enrollment and graduation (Braddock, 1981), competitive orientation (Wells & Picou, 1980), and adult earnings (Picou, McCarter, & Howell, 1985). For this group of students, sport participation had mixed effects on their grades (Braddock, 1981; Wells & Picou, 1980). In addition, Braddock and Royster (1991) conducted a study of the impact of participation in sport activities on academic resilience among African-American 8th grade male students. Their analyses indicated that sport participation for these students was positively related to their aspirations to enroll in college preparatory programs in high school, to have definite plans to complete high school and enter college. Both interscholastic and intramural sport participants derived social status advantages (i.e., popularity and sense of importance) among their schoolmates, which were directly related to their involvement in sports. They were less likely to be involved in school-related social misconduct problems, more likely to look forward to their core curriculum classes, and less likely to be judged by their teachers as not giving full effort in their class work.

For black female high school athletes, the literature presents a different picture. With respect to their participation in sport activities, we see mixed findings on their educational aspirations (Hanks, 1979; Picou & Huang, 1982), on encouragement to attend college from parents, teachers, and peers (Hanks, 1979; Wells & Picou, 1980). Negative findings have been reported on their educational attainment, occupational status and adult earnings (Picou, McCarter, & Howell, 1985). In addition, the effects of sport participation on educational achievement, career mobility and social involvement for high school minority female students were analyzed by Reith (1989) through a survey of a large national sample. The Hispanic high school female students who participated in sports were found to be more likely to score well on achievement tests, to stay in high schools and continue their education in colleges than their non-athletic peers. In contrast, black female high school athletes were found to have fewer special benefits from sport participation. They reported higher popularity than non-athletes and were more involved in extracurricular activities. But the urban black female students who participated in sports and went directly into work force after high school actually fared worse in their careers than the non-athletes did.

The review of this body of literature seems to show that sport participation among high school male and female students (except the urban female black students) is positively related to their psychosocial and/or psycho-educational aspects, which may suggest that appropriate sport participation for most high school students is not detrimental to their educational process.

Another body of literature focused on the association between sport participation of high school students and their academic achievement. A study published by the American Sports Institute (1996) reported on the effects of a yearlong high school course program, which used sports to enhance academic achievement. The grade point average (GPA) was the primary measure for evaluating the program results. Analysis of the study's data revealed that the program students outperformed those in the control group on all of the applicable measures, including GPA and academic eligibility for extracurricular activities. These findings showed that by participating in the program, students of the program improved their academic performance as measured by overall GPA.

In a separate study, Jordan (1999) examined the effects of participation in

school-sponsored sport activities on school engagement and achievement for black high school students. The potential differential effects of sport participation and the degree to which sport participation affected black students' academic achievement were also among the issues that Jordan studied. Jordan found a small but consistently positive effect of sport participation on academic achievement, when other variables in the equation were held constant. This pattern of the effects of sport participation varied little across the different racial/ethnic groups. The researcher also reported that sport participation improved school engagement and academic self-confidence of all student athletes.

To determine the effects of participating in school sport program on CTBS test percentiles of students in the 4th and 11th grades, Fleenor (1997) compared a sample group's scores to those of the students from the rest of the United States. In this study, both male and female students who either did not play at all or who participated in school-sponsored baseball, basketball, cheerleading, football, golf, softball or tennis at any time from 4th grade through 11th grade participated. Twenty students formed the experimental group and 20 made up the control group. Each group contained 10 boys and 10 girls. The data evaluation showed no significant differences in the CTBS percentiles of any of the groups in this study. The two groups showed no significant differences when analyzed together. Results of the study suggest that no negative/positive effects on achievement were found for students' participation in sports. Din, Ernst and Olczyk (2003) reported similar findings on the impact of suburban high school students' participating in sport activities on their academic achievement.

To examine the relationship of sport participation to the educational achievement of African-American and Hispanic students, Melnick, Sabo and Vanfossen (1992) selected the participants from a national sample. The independent variable of the study was athletic activity participation; the dependent variables included senior year popularity, extracurricular involvement, grades, achievement test performance, dropout rates, and educational expectations. The researchers found that athletic participation enhanced popularity and contributed to greater involvement in extracurricular activities. Sport participation was generally unrelated to grades and standardized test scores. Depending on school location (i.e., urban, suburban, rural), sport participation was significantly related to lower dropout rates for some minority youth. It was unrelated to educational expectations in the senior year. The researchers also noted that high school sport participation was a social resource for many minority youth, but only a modest academic resource for others.

The above studies on the relationship of sport participation of high school students to academic achievement seemed to suggest that sport participation either contributed positively in a small way to student achievement or did not impact student achievement. Since the number of studies on this issue is limited, and these studies utilized mostly either data from survey questionnaires or the correlational study method, findings from such studies remain inconclusive. Further study on this issue is needed.

The purpose of the study was to investigate whether rural high school students' participation in school-sponsored sport activities had any impact on their academic achievement. Specifically, this study investigated whether there was a difference between the participating students' immediate pre-season grades and their immediate postseason grades in English, math, science, and social science.

## Method

### Participants

The participants (N=225) were selected from five high schools of four rural school districts in the Kentucky area of the Appalachian Mountains region. They played various sports: basketball (6 teams – 4 boys teams, 2 girls teams), football (3 teams), baseball (2 teams), track (1 team), volleyball (1 team), cheerleading (1 team) and softball (1 team). They were in 15 teams in total. The specific numbers of the students on the 15 teams are listed in Table 1 of the paper. The five schools were located in three counties, which were located in the rural poverty area of the Appalachian Mountains region. The schools in these school districts were either small town schools or rural small schools. Generally, there were a high percentage of students in those schools who received reduced-price lunch or free lunch. In one school, over 90 percent of the school students received reduced-price or free lunch. These schools were not much different from other eastern Kentucky rural schools in terms of students' socio-economic status, cultural backgrounds (Over 95% of the students were white.) and academic achievement (in the average or low average range).

### Procedure and Design

All the sport teams were formed at the beginning of the school year; long before the data collection of this study began. The researcher collected the existing data that were available during post sport season period. The researcher did not have any influence on the students, the teams or their respective grades. Due to realistic difficulties, convenience samples were used for the study.

The participants' immediate pre-season grades in English, math, science and social science were compared with their immediate postseason grades in the same courses. In this study, participating in school-sponsored sport activities was treated as the independent variable, and the participants' postseason grades in the same four school subject areas were treated as the dependent variable. The grade records were already in those schools. The researcher had no influence at all on what grades each student received, and merely collected available existing related school records for analyses.

With the available data, the comparisons were conducted via a Dependent t Test and a Pearson r Test on a course-by-course and team-by-team basis. With each team, only the commonly taken courses by those participating students were used for analysis. This was because not every student on the same team was taking the same courses. They took some courses together, and also took some different courses. The grades for those different courses could not be used for comparison purpose, because in this case the number of students taking the same course from the same team was too small for statistical analysis. The students' grades for the PE (physical education) course were not included for analysis because it was not considered

to be an academic subject area, even though almost every student in this study took this type of course.

## Results

Results from data analyses indicated that no systematic significant differences were found between the participating students' pre-season and postseason academic grades, or the students did not achieve less at the end of the sports-season (See Table 1).

The results also showed that in the comparisons of team academic records, no significant differences were found; however, for individual students, we saw a slightly different picture: A very small number of students achieved slightly lower grades at the end of the sport season, and several students received higher grades in some courses. Thus the no-difference pattern did not apply to all individual students on all those teams, only to the vast majority of the participating students.

Exceptions were also found: Four teams showed higher postseason grades in several courses; four teams showed slightly lower grades in one course (See Table 1).

Table 1

Dependent t Test Results for All Teams

| | | Pearson r Test | | | Dependent t Test | | | |
|---|---|---|---|---|---|---|---|---|
| Team | Subjects | r | p | Group Mean (pre - post season) | Mean of Paired diff. | t | df | p |
| 1 | English | .25 | .42 | 80-80 | 8.33 | .31 | 11 | .97 |
| | Science | .64 | .02 | 81.7-87.6 | -5.9 | -2.84 | 11 | .01 |
| | Math | .55 | .06 | 77.41-77.25 | .16 | .37 | 11 | .97 |
| | Economics | .66 | .01 | 88.33-89.41 | -1.08 | -.56 | 11 | .58 |
| 2 | History | .92 | .02 | 80.2-86.2 | -6 | -2.3 | 4 | .07 |
| | English | .30 | .51 | 82.7-83.2 | -.57 | -1.07 | 6 | .91 |
| | Math | .98 | .000 | 79-72.4 | 6.5 | 3.89 | 6 | .008 |
| 3 | Science | .88 | .000 | 82.84-82.92 | -7.69E | -.041 | 25 | .96 |
| | Math | .96 | .000 | 78.51-75.63 | -2.89 | 2.41 | 26 | .023 |
| 4 | English | .67 | .006 | 73.9-78.6 | -4.8 | -1.44 | 14 | .17 |
| | Math | .76 | .001 | 81.86-79.06 | 2.8 | 1.68 | 14 | .11 |
| | Science | .79 | .000 | 77.7-81.2 | -1.47 | -.76 | 14 | .45 |
| | Social Sci. | .91 | .000 | 80.06-81.5 | -1.47 | -.76 | 14 | .45 |

Table 1 – Continued-1

Dependent t Test Results for All Teams

| | | Pearson r Test | | | Dependent t Test | | | |
|---|---|---|---|---|---|---|---|---|
| Team | Subjects | r | p | Group Mean (pre - post season) | Mean of Paired diff. | t | df | p |
| 5 | English | -.25 | .34 | 90.93-92.67 | 1.26 | .73 | 14 | .47 |
| 6 | English | .20 | .45 | 90.93-92.67 | -1.73 | -1.16 | 14 | .26 |
| 7 | English | .59 | .000 | 82-84.95 | -2.95 | -2.3 | 42 | .02 |
| 8 | English | .69 | .01 | 83.54-83.54 | .0 | .0 | 10 | 1.00 |
| | Math | .93 | .000 | 83.18-84.09 | -.9 | .96 | 10 | .35 |
| | Science | .91 | .000 | 83.27-82.81 | -.45 | .71 | 10 | .65 |
| | Social Sci. | .81 | .002 | 83.45-84.18 | -.73 | .45 | 10 | .65 |
| 9 | English | .85 | .000 | 84.46-87.03 | -2.57 | -2.56 | 27 | .01 |
| | Math | .93 | .000 | 85-87.1 | -2.1 | -3.4 | 27 | .002 |
| | Science | .83 | .000 | 84.75-86.32 | -1.51 | -.69 | 27 | .01 |
| | Soc. Sci | .80 | .000 | 86.75-85.25 | 1.5 | 1.45 | 27 | .15 |
| 10 | English | .87 | .000 | 7939-80.92 | -1.0 | -.71 | 13 | .48 |
| | Math | .34 | .23 | 80.28-81.42 | -1.1 | -.5 | 13 | .62 |
| | Science | .96 | .000 | 80-80.7 | -.78 | -1.19 | 13 | .25 |
| | Soc. Sci | .93 | .000 | 81.57-80.57 | 1.0 | 1.13 | 13 | .27 |
| 11 | English | .7 | .05 | 82.62-84.06 | -2.0 | -.93 | 7 | .37 |
| | Math | .92 | .001 | 82.87-80-75 | 2.1 | 1.22 | 7 | .26 |
| | Science | .8 | .015 | 82.25-82.87 | -.62 | .30 | 7 | .76 |
| | Soc. Sci | .95 | .000 | 82.87-84 | -1.12 | -.98 | 7 | .35 |
| 12 | English | .81 | .048 | 86.3-87.6 | -1.3 | .92 | 5 | .38 |
| | Math | .99 | .000 | 88.3-89.3 | -1.0 | -1.01 | 5 | .34 |
| | Science | .89 | .017 | 86-88.83 | -2.8 | -1.9 | 5 | .10 |
| | Soc. Sci | .98 | .001 | 88.1-89.3 | -1.1 | -1.3 | 5 | .23 |
| 13 | English | .88 | .001 | 92.77-93.88 | -1.1 | .85 | 8 | .42 |
| | Math | .84 | .004 | 92.44-93.66 | -1.2 | 1.1 | 8 | .28 |
| | Science | .68 | .044 | 92.44-93.11 | -.6 | -.5 | 8 | .62 |
| | Soc. Sci | .93 | .000 | 92.66-92.11 | -.55 | -.7 | 8 | .49 |

Table 1 Continued-2

Dependent t Test Results for All Teams

| | | Pearson r Test | | | Dependent t Test | | | |
|---|---|---|---|---|---|---|---|---|
| Team | Subjects | r | p | Group Mean (pre - post season) | Mean of Paired diff. | t | df | p |
| 14 | English | .92 | .002 | 88.85-88.4 | .42 | .34 | 6 | .74 |
| | Math | .96 | .001 | 88-86.7 | 1.28 | .98 | 6 | .36 |
| | Science | .95 | .001 | 88.57-88.71 | -.14 | -.15 | 6 | .88 |
| | Social Sci. | .74 | .055 | 88.28-88.85 | -.57 | .36 | 6 | .73 |
| 15 | English | .94 | .000 | 82.4-84.1 | -1.6 | -1.58 | 8 | .15 |
| | Math | .91 | .000 | 81.1-84.8 | -3.7 | -2.6 | 8 | .03 |
| | Science | .87 | .002 | 82.3-84.8 | -2.5 | -1.3 | 8 | .20 |
| | Social Sci. | .90 | .001 | 83.3-83.1 | -.22 | .16 | 8 | .87 |

Team 1 = K County high school baseball
Team 2 = M County high school boys basketball
Team 3 = B County high school football
Team 4 = K County high school boys basketball
Team 5 = P School girls basketball
Team 6 = P School boys basketball
Team 7 = P School boys football
Team 8 = K County L high school boys basketball
Team 9 = K County L high school football
Team 10 = K County L high school baseball
Team 11 = K County L high school cheerleaders
Team 12 = K County L high school girls volleyball
Team 13 = K County L high school Track
Team 14 = K County L high school girls basketball
Team 15 = K County L high school softball

## Discussion

School-sponsored sport activities have been with school students for decades. High school students who participate in sport activities spend a significant amount of time in those activities. Whether involving in those activities affect the students' learning has been debated among educators and parents for years. This study analyzed some empirical data to see whether playing sports had any impact on rural high school students' learning outcome. The study utilized a design that compared the difference between the same group of students' pre-season grades and their postseason grades. The independent variable in this study was participating in various sport activities; the dependent variable was the participating students' postseason achievement in four school subject areas. This was a causal-comparative study with an AB design. Although generally speaking, a solid cause-effect relationship is hard to establish with this type of study and design, the results of this study do provide some empirical evidence from a different research perspective. The data obtained in this study already existed before the study began. The grades of the same students from the pre-season and the postseason period were provided by their teachers without any input or influence from the researcher: None of the teachers of those participating students knew anything about this study, nor did those students had any idea about this project.

It is to be pointed out that the results of the study were from three eastern Kentucky counties in the Appalachian region. Generally speaking, participating in school-sponsored sport activities did not make any changes on the participating students' learning outcomes. As the data indicated, their grades remained basically unchanged in both seasons. Or rather, their participating in sport activities did not seem to have any impact on their academic learning. However, the evidence is not sufficient to warrant any definitive conclusion on this impact issue. Further studies are needed for a better understanding of the issue.

With regard to why deflecting time away for sport activities did not affect those students'learning, some PE teachers offered an explanation: They believed that this was because during the in-season time, the participating students organized time better and used time more efficiently, with or without help from their coaches or PE teachers. A better use of time by this group of rural high school students may be one reason why their participation in sport activities did not affect their academic learning. That these schools demanded that the students be in good academic standing to stay on the sport teams may be another reason for the students to have achieved the immediate postseason learning outcomes. However, these reasons need also to be verified by further research.

## Conclusion

The data analyses seem to indicate that for the vast majority of the participating rural high school students, playing sports did not have any impact on their academic achievements. For those who did obtain lower grades at the end of the sport season, the difference between the pre- and postseason grades was small: approximately 2 to 3 points. Based on the evidence of the study, it is tentatively concluded that for the participating rural high school students, their pre-season grades were not found to be significantly different from their post-season grades.

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