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Do Athletic Scholarships Impact Academic Success of Intercollegiate Student-Athletes: An Exploratory Investigation

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The purpose of this study was to identify whether athletic scholarships play a role in academic success by determining if there was a difference in academic performance between male and female athletic scholarship student-athletes and non-athletic scholarship student-athletes as measured by cumulative collegiate GPA. A secondary purpose of the study was to compare male and female athletic scholarship student-athletes and non-athletic scholarship student-athletes as measured by cumulative collegiate GPA. The chi-square test of homogeneity was used to determine that a significant difference in GPA of scholarship and non-scholarship student-athletes does exist. The results also identified a significant difference existed in GPA of female student-athletes in both the scholarship and non-scholarship categories when compared to male student-athletes in the same categories. This study has several implications for the intercollegiate athletics department at this particular institution and perhaps upon further research on intercollegiate athletics.

Introduction

College athletics have a history of importance and a prominent place in American society (Dilley-Knoles, Burnett, & Peak, 2010). Newspapers dedicate entire sections to the topic and specialized television stations have been created to cover a variety of sports. However, the attention is not, and should not be solely on the competitions. Recently the spotlight has been redirected to the academic performance of student-athletes, occasionally highlighting the negative side of such performance (Dilley-Knoles et al., 2010).

The National Collegiate Athletic Association (NCAA) has created standards for academic performance among member institutions to encourage improvement of such performance among all student-athletes. For example, to be eligible for intercollegiate athletics, a high school student must meet certain GPA requirements and achieve certain standardized test scores, while

collegiate student-athletes also have NCAA prescribed GPA and progress-toward-degree requirements to achieve each year. Both the GPA and degree progress requirements vary depending upon the NCAA division level of a given institution.

However, such policies simply should not be created and enforced without reason. Scientific evidence is needed to support the creation of new polices that assist with the academic success of current student-athletes. For example, Petrie and Stoever's (1997) study found that Scholastic Aptitude Test scores were positively correlated with female student athletes' academic success and that social support was positively correlated to academic success among freshman female student athletes. Simons, Van Rheenen, and Covington (1999) investigated non-cognitive predictors of student athlete academic success while Gottschalk and Milton (2010) found that female student-athletes were more likely to have higher collegiate GPAs than male student athletes. These studies are important to the future academic success of the student-athlete due to the important information that can be gleaned regarding the various factors that affect collegiate student-athlete success.

Literature Review

Understanding the academic challenges facing collegiate student-athletes is a complex task. Scholarly research is beginning to help colleges and universities better serve their student-athletes and prepare them for lifelong success, albeit mainly outside the realm of sport. For example, Scott et al. (2008) stated, "As new data are becoming available it is incumbent upon research in this field to challenge traditional assumptions that often go untested within college athletics" (p. 224). One such traditional assumption is that student-athletes perform better during the season of competition than they do outside the season of competition. "The thought is that the structured nature of the playing season leads to more structure in the student-athletes' academic lives and better academic performance" (Scott et al., 2008, p. 202). However, in 2008 in a rather comprehensive study, the opposite outcome was reported. This study involved over 65,000 student-athletes from approximately 425 NCAA Division I, II, and III institutions. Paired sample t-tests were used to examine the differences in GPA in-season and out-of-season (Scott et al., 2008). Each division was studied independently but all produced the same results.

Student-athletes had a slightly lower GPA in-season than out-of-season thus resulting in a statistically significant result at $p < .01$ (Scott et al., 2008). It was once believed that student-athletes could benefit academically from longer playing seasons and more structured competition and practice time. However, the data does not support this idea. Using this data driven information, NCAA leaders can consider policies relating to playing seasons and practice opportunities that support the best interest of the student-athlete both athletically and academically.

Much of the early research on academic success of collegiate student-athletes was focused on studying variables that would predict such success. For example, Baumann and Henschen (1986) appeared to respond to Proposal 48, the 1983 NCAA legislation that, at the time, codified stricter academic standards for participants in Division I intercollegiate sports. Among other predictive results, these researchers reported that variables other than ACT scores were better predictors of academic success for the student-athlete. As a result, Baumann and Henschen (1986) suggested that Proposal 48 was invalid.

Lang, Dunham, and Alpert (1988) were concerned with the general concept of "why some football players integrate and succeed in their academic studies, while others become detached and fall academically" (p. 209). They also attempted to predict factors that would help explain why success or academic falling occurred. They reported that high school GPA, a repeated year in high school, academic motivation, a history of trouble, mother's education level, and whether the student-athlete graduated from a private high school were variables that predicted academic success, or lack of it in college. Lang et al. (1988) were one of the first to report that SAT scores did not emerge, from discriminant analysis, as one of the variables predicting academic success. They also were one of the pioneers in considering socioeconomic and demographic variables stating that such "background variables are often overlooked predictors of academic success" (Lang et al., 1988, p. 218). As aforementioned, they found that mother's educational level and whether the student-athlete graduated from a private high school to be predictors of academic success among the football players studied.

In another early exploratory study, Sellers (1992) investigated predictors of academic achievement, defined as GPA, of student-athletes in division 1 revenue producing sports based on race. Sellers reported different predictors of GPA existed between Caucasian and African-American student athletes, and that high school GPA was the only common predictor between the two racial groups. Another interesting finding in the Sellers (1992) study was that academic motivation was not correlated to GPA among these college athletes as measured by the amount of hours spent studying and the desire to obtain a college degree.

It is important to note research that predicts academic success has been part of more recent investigations as well. Gaston-Gayles (2004) investigated academic motivation among student-athletes at a Division I institution. Using regression, she found that ACT scores, ethnicity, and academic motivation predicted academic performance among the 211 student-athletes at the selected Midwest, Division I institution. (Gaston-Gayles, 2004).

Recently, however, comparative studies have been conducted at NCAA institutions that consider the academic success of student-athletes. For example, Gottschalk and Milton (2010), using chi-square analysis, found a statistically significant difference in academic performance between male and female student-athletes. Female-student athletes were significantly more likely to be academically successful, based on collegiate GPA than male students. Dilley-Knoles, Burnett, and Peak (2010) "concluded that the female student-athletes had a significantly higher GPA than the male student-athletes" using ANOVA (Dilley-Knoles et al., 2010). Again, this research allows for a better understanding of the complexity of student-athlete academic success and provides an opportunity to make educated decisions about future policies. The research opens several avenues for additional investigation, as well.

In further comparative research, Umbach, Palmer, Kuh, and Hannah (2006) found that male student-athletes achieved slightly lower GPAs than their non-athlete male counterparts, while, conversely, female students had GPAs similar to the female non-athletes, among other things. Chee, Pino, and Smith (2005) reported that female student-athletes performed better than their male counterparts due to their behavioral and ethical tactics in dealing with academic pursuits, traditional ideology, and social environment. Finally, in a classic study of Division I student-athletes, Simons, et al. (1999) reported that although non-revenue athletes had higher motivation to succeed academically than revenue athletes, female student athletes were found to have higher academic commitment than male student athletes who were involved in revenue sports.

A body of research is accumulating that deals with student-athletes and their academic performance, however, there remains a need for further exploration of this topic. The purpose of this study, therefore, is to identify whether athletic scholarships play a role in academic success by determining if there was a difference in academic performance between athletic scholarship student-athletes and non-athletic scholarship student-athletes as measured by cumulative collegiate GPA. In alignment with other recent research regarding gender, this investigation also attempts to determine whether differences in GPA existed between female and male student-athletes who received scholarships and female and male student-athletes who did not receive an athletic scholarship.

Methodology

The entire student-athlete population from the academic year 2010-11 at a private not-for-profit, four-year, NCAA Division II, Doctoral/Research University in rural Ohio served as the sample for this comparative study. Approval was obtained from the university's Human Subjects Review Board to conduct the study. Assisted by the University Office of Institutional Research, student-athletes were identified from the 2010-11 NCAA squad lists and attic scholarship status was determined from financial aid records. For purposes of this study, a scholarship student-athlete was defined as any student-athlete receiving any amount of athletic financial aid distributed by the institution. A non-scholarship student-athlete was defined as any student-athlete not receiving athletic aid from the institution. The sample size was 455 student-athletes enrolled in both the fall and spring semester of which 256 were scholarship student-athletes and 199 were non-scholarship student-athletes In terms of gender, 154 were female and 301 were male. Of the 154 female student-athletes, 101 received an athletic scholarship while 155 of the 301 male student-athletes received an athletic scholarship. Information on student-athlete GPAs was also provided by the Office of Institutional Research.

For the purpose of this study, academic success was measured by the collegiate GPA of the male and female student-athletes. Other factors have an impact on collegiate GPA, but the direction of recent research (Gottschalk 2009, Gottschalk & Milton, 2010) has developed a narrow focus with important results, and this study purports to take a similar narrow focus on specific variables.

The chi-square test of homogeneity was used to test for significant differences. All data were analyzed at $\alpha \leq .05$. The independent variables compared were student-athletes who received an athletic scholarship versus student-athletes who did not receive an athletic scholarship, while the dependent variable was cumulative collegiate GPA. Three separate comparisons were developed to provide different ways of considering the data: 1) an overall analysis of the student-athlete population, 2) an analysis of the GPA of male and female student-athletes who received athletic scholarships, and 3) an analysis of the GPA of male and female student-athletes who did not receive athletic scholarships. Similar to a previous research study at the same institution (Gottschalk & Milton, 2010) a GPA of 3.0 and higher was the dividing point of the GPA comparison. Although Gottschalk & Milton (2010) used mean GPA of student-athletes as the dividing point in their study, the mean score was reported to be 2.98. Therefore, a GPA of 3.0 was determined to be similar to that particular mean GPA. Based on the variables, each individual student-athlete was placed into one of the following categories: scholarship student-athlete with a GPA of 3.0 or higher (152 student-athletes), scholarship student-athlete with a GPA of less than 3.0 (104 student-athletes), non-scholarship

student-athlete with a GPA of 3.0 or higher (90 student-athletes), or non-scholarship student-athlete with a GPA of less than 3.0 (109 student-athletes).

The null hypothesis for this study when comparing the entire student-athlete population was that there would be no difference in cumulative GPA between scholarship and non-scholarship student-athletes. The research hypothesis stated that there would be a significant difference in cumulative GPA between scholarship and non-scholarship student-athletes.

When analyzing the data from a gender perspective, the null hypothesis was that there would be no difference in cumulative GPA between male and female student-athletes who received athletic scholarships or in cumulative GPA between male and female student-athletes who did not receive athletic scholarships. The research hypothesis stated that there would be a significant difference in cumulative GPA between male and female scholarship student-athletes and a significant difference in cumulative GPA between male and female non-scholarship student-athletes.

Results

Overall

The results of the chi-square test (Table 1) indicate a significant difference in GPA of scholarship and non-scholarship student-athletes ($\chi^2 = 9.00$, $p \leq .003$, 1 df, sig.). Student-athletes who were awarded an athletic scholarship were more likely to have a GPA of 3.0 or above than student-athletes who were not awarded an athletic scholarship. A total of 33.4 % of the student-athletes were scholarship student-athletes with a GPA of 3.0 or higher, while 19.7% of the student-athletes were non-scholarship with a GPA of 3.0 or higher. A total of 22.8% of the student-athletes were scholarship student-athletes with less than a 3.0 GPA category while 23.9% of the student-athletes were non-scholarship with less than a 3.0 GPA. Overall, the scholarship student-athletes had an average GPA of 3.089 and the non-scholarship student-athletes had an average GPA of 2.944 (Little, 2011). Of the scholarship student-athletes, (n=256) 59.4% fell into the at or above 3.0 GPA category whereas 40.6% were in the below a 3.0 GPA category. While examining the non-scholarship student-athletes (n=199), 45.5% are in the at or above 3.0 GPA category in comparison to the 54.8% in the below a 3.0 GPA category.

Table 1 - *Chi-square results indicating scholarship and non-scholarship student-athletes' GPA*

Type of Student-Athlete	At or above 3.0 GPA	Below 3.0 GPA	Total
Scholarship	152 (136)	104 (120)	256
Non-Scholarship	90 (106)	109 (93)	199
Total	242	213	455

[$\chi^2(1,N= 455) = 9.00$, $p \leq .003$] Expected frequencies in parentheses.

Scholarship Student-Athletes by Gender

The results of the chi-square test (Table 2) indicate a significant difference in GPA of female versus male scholarship student-athletes ($\chi^2 = 19{,}66$, $p \leq .001$, 1 df, sig.). Female student-athletes who were awarded an athletic scholarship were more likely to have a GPA of 3.0 or above than male student-athletes who were awarded an athletic scholarship. A total of 30.0% of the scholarship student-athletes were female student-athletes with a GPA of 3.0 or higher, while 29.3% of the scholarship student-athletes were male student-athletes with a GPA of 3.0 or higher. A total of 9.4% of the scholarship student-athletes were female student-athletes with less than a 3.0 GPA while 31.3% of the scholarship student-athletes were male student-athletes with less than a 3.0 GPA (see Table 2). Comparing scholarship student-athletes by gender continues to support the findings made by previous researchers such as Gottschalk (2009), Gottschalk & Milton (2010), and Diley-Knoles, Burnett, & Peak (2010) that female student-athletes fare better than male student-athletes as measured by GPA. The expected frequencies indicate that the women in the 3.0 and higher GPA category exceed the expected frequency while their male counterpoints in the same category fall short of the expected frequency. In the less than 3.0 GPA category, the women have less than the expected number whereas the men have more than expected in the below 3.0 GPA category.

Table 2 - *Chi-square results indicating female scholarship student-athletes vs. male scholarship student-athletes and GPA*

Type of Student-Athlete	At or above 3.0 GPA	Below 3.0 GPA	Total
Female Scholarship	77 (60)	24 (41)	101
Male Scholarship	75 (92)	80 (63)	155
Total	152	104	256

[$\chi^2(1,N= 256) = 19.66$, $p \leq .001$] Expected frequencies in parentheses.

Non-Scholarship Student-Athletes by Gender

The results of the chi-square test (Table 3) indicate a significant difference in GPA of female non-scholarship student-athletes vs. male non-scholarship student-athletes ($\chi^2 = 7.55$ $p \leq .004$, 1 df, sig.). Female student-athletes who were not awarded an athletic scholarship were more likely to have a GPA of 3.0 or above than male student-athletes who were not awarded an athletic scholarship. A total of 16.6 % of the non-scholarship student-athletes were female student-athletes with a GPA of 3.0 or higher, while 28.6% of the non-scholarship student-athletes were male student-athletes with a GPA of 3.0 or higher. A total of 10.1% of the non-scholarship student-athletes were female student-athletes with less than a 3.0 GPA while 44.7% of the non-scholarship student-athletes were male student-athletes with less than a 3.0 GPA. A comparison of non-scholarship student-athletes by gender again supports the findings made by previous researchers such as Umblach et al. (2006), Chee et al. (2005), and Simons et al. (1999) that female student-athletes have greater academic success than male student-athletes. The non-scholarship female student-athletes exceed the expected frequency in the at or above 3.0 GPA category and have lower than expected numbers in the below 3.0 GPA category. In

contrast, the male non-scholarship student-athletes do not meet the expected frequency number in the at or above 3.0 category and have greater than expected numbers in the less than 3.0 GPA category.

Table 3 - *Chi-square results indicating female non-scholarship student-athletes vs. male non-scholarship student-athletes and GPA*

Type of Student-Athlete	At or above 3.0 GPA	Below 3.0 GPA	Total
Female Non-Scholarship	33 (24)	20 (29)	53
Male Non-Scholarship	57 (66)	89 (80)	146
Total	90	109	199

[$\chi^2(1,N= 199) = 7.55, p \leq .004$] Expected frequencies in parentheses.

Discussion/ Implications

This study conducted at a four year private NCAA Division II institution provides similar evidence to what is becoming an increasing body of knowledge regarding intercollegiate student-athlete performance in the classroom (Dilley-Knoles et al., (2010), Gottschalk, (2009, Gottschalk & Milton (2010)). For example, the NCAA commissioned Hardwick-Day (2008) "to help its members and prospective members in Division II better understand the real cost of the investment made by Division II institutions and the value they receive in return for their investment" (p. 2). The Hardwick-Day (2008) investigation began by considering the academic characteristics of student-athletes at 18 private and public Division II institutions. The study incorporated a combination of previous classroom performance and standardized tests to measure overall academic credentials. Among other things, the study concluded that "…athletic scholarships offered to females are especially helpful to institutions' academic profiles" (Hardwick-Day, 2008, p. 2).

The challenge proffered by Scott et al. (2008), that traditional assumptions often go untested within college athletics, is also addressed by the findings of this study. Borrowing from the "dumb jock" stereotype, it is generally inferred that scholarship student-athletes would have lower GPAs as compared to non-scholarship student-athletes because, as the thinking goes, scholarship student-athletes are in school to play their sport and not focus on their studies. The findings of this study certainly suggest otherwise in that scholarship student-athletes, both male and female were found to have significantly higher GPAs that non-scholarship student-athletes at the institution studied. Furthermore, at the institution in this study the top academic scholarship award carries with it a requirement to maintain a 3.0 GPA. For a scholarship student-athlete the NCAA minimum GPA requirement after the completion of 72 semester hours is a 2.0. It is often assumed from this information, especially in athletics (Scott et al., 2008), that the non-scholarship student-athletes would have higher GPAs than the athletic scholarship student-athletes based upon required GPA. As the results of the comparison of athletic scholarship student-athletes versus non-athletic scholarship student athletes indicate in the present study, the reverse was actually found to be the case, providing a unique result in the existing literature on the topic of collegiate scholarship athletes and GPA.

The findings of this study also support the point of view that many variables contribute to the academic success of a student-athlete. Gender is one variable that was found to play a significant role in the success of the scholarship student-athlete while the gender of a non-scholarship student-athlete seemed to be less of a factor as it related to academic success. It would be inappropriate to insist that scholarship status alone predicts academic success, but the findings of this study suggest that it may be a contributing factor. This too reiterates the need to continue to explore the many different variables of academic success, but not independent of each other. Further assessing how course load impacts GPA during the competition season for scholarship student-athletes, along similar lines to that studied by Scott et al. (2008), would provide additional insight. While comparing gender and study habits would also add value to this discussion.

A significant difference was determined when comparing the academic performance of athletic scholarship student-athletes and non-athletic scholarship student-athletes based on cumulative GPA at this institution. This study has several implications for the intercollegiate athletics department at this particular institution and perhaps with additional research for intercollegiate athletic departments in general. These findings add additional meaning to the value of scholarship student-athletes. They provide empirical evidence to support the conclusion that athletic scholarships may have a positive impact on academic success of student-athletes.

This research could potentially provide valuable information to the institution and the NCAA as a whole. The research results offer institutions some justification for spending additional resources on scholarship dollars for student-athletes. For example, if an athletic program is not funded according to NCAA maximum equivalency limits, this study could be used to provide support for increasing the funding to that program without jeopardizing the academic success of the student-athletes. Academic performance is becoming a hot button topic in which the NCAA continues to take interest. If scholarship status is determined to be a contributing factor to academic success as this study suggests it was for this particular institution, the NCAA, as well as individual institutions should consider ways to increase the scholarship limits at institutions nationally and in doing so increase the potential for academic success of the student-athletes.

When considering the findings of this research from a gender perspective important information can be determined. Of the 256 scholarship opportunities available at this institution, 60.5% (155) of those opportunities were offered to male student-athletes while 39.5% (101) were offered to women. Again, there was a significant difference when comparing gender and GPA in relation to both scholarship and non-scholarship student-athletes, female scholarship student-athletes were found to have higher GPAs than male scholarship student-athletes. This important finding at least suggests that scholarship status impacts female academic success to a greater degree than it does male academic success. The category with the largest number of student-athletes was the male non-scholarship student-athlete with a GPA of less than a 3.0 (n=89). This result should provide insight to intercollegiate athletic departments particularly on how to focus resources. It suggests that athletic scholarships are more valuable to the academic success than most athletic departments, even universities have previously believed. Further study using a larger sample size is definitely needed to make such a final, definitive claim.

A major implication of this study is the need for continued research on the topic of academic success of collegiate student-athletes. Additional scientific research would allow for data driven decision-making instead of trial and error decision making. It is obvious that several factors contribute to academic success, and continued research would help identify the most

effective combination. It would also be beneficial to determine how course load, season, high school GPA, standardized test results, sport, motivation, class-standing, level of scholarship, division, and academic major affect the outcome of this study. Continued research would allow for a growing understanding of the academic complexities of a collegiate student-athlete and would allow institutions the ability to provide the student-athlete the best possible academic experience.

Limitations

The findings of this study suggest that scholarship and non-scholarship student-athletes differ on academic performance when compared by cumulative GPA offers additional insight to understanding the complexities of the academic success of the student-athlete. However, one should proceed with caution when making generalized statements using this data. This study was conducted using one institution. In order to make generalized statements relating to all student-athletes, a more diverse population would need to be studied using institutions of varying sizes and demographics. Caution should also be exercised in terms of generalizing the findings of this research because of the limited nature of the chi-square test itself. As Gottschalk and Milton (2010) contend, the chi-square test of homogeneity is not the most powerful inferential statistic. However, both Gottschalk and Milton(2010) and this study are exploratory, benchmark type studies which consider very specific, yet useful questions that help set the direction for future needed research. For this reason, the results are still important and relevant.

This study also did not consider the different levels of scholarship. Comparing full athletic, partial athletic and academic scholarships would enhance the results of this study. It was also not in the realm of this study to determine why there was a statistically significant difference when comparing cumulative GPA of scholarship and non-scholarship student-athletes, the goal was to merely establish whether a difference existed. A study using more in-depth comparisons and analyses is needed to fully understand the implications of the data.

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