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# The Influence of Student Engagment and Sport Participation on College Outcomes Among Division I Student Athletes

Over the past decade, the National Collegiate Athletic Association (NCAA) has become increasingly concerned about the educational experience of student athletes, beyond the mere enforcement of eligibility rules and regulations. Perhaps this growing interest is in response to public criticism of the intercollegiate athletic enterprise, commonly known as "American higher education's 'peculiar institution' " (Thelin, 1994, p. 1). Recent and past incidences of low graduation rates, particularly for football and men's basketball, gross misconduct, academic scandals, and student athletes leaving higher education institutions in poor academic standing have eroded the public's confidence concerning the educational benefits of participation in sports at the college level. Thus, finding the proper balance between intercollegiate athletics and the goals of higher education so that student athletes experience positive gains in student learning and personal development has been an enigma unsolved by institutions of higher education.

The NCAA has responded to public criticism by limiting the number of hours student athletes spend on athletic activities (e.g., competition, practice, conditioning, etc.), restricting the number of student athletes who live together on campus, and requiring academic support services for student athletes at Division I institutions. Despite the limits enforced by the NCAA, a recent survey on student athletes' experiences on col-

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lege campuses reported that football players at Division I institutions spend well over 40 hours per week on athletic related activities (Wolverton, 2008). That much time spent on athletics is alarming because it leaves very little time during the week to devote to other activities, such as academics and other educationally purposeful activities. Moreover, student athletes could potentially miss out on the learning that takes place from interacting with peers and engaging in other educational activities outside of the classroom and off the field.

More recently, the NCAA implemented the academic progress rate (APR) rule to encourage institutions and athletic programs to retain its student athletes in good academic standing. However, more information is needed concerning the overall experience of student athletes and the kinds of activities that foster learning and personal development for this population. Given the high profile status of sports such as football and men's basketball at Division I institutions, it would be instructive to examine whether participation in educationally purposeful activities varies by profile level of sport participation. Further, an examination of how such activities are related to cognitive and affective outcomes for student athletes in high profile versus low profile sports is warranted.

### *Research on Student Engagement and Undergraduate Outcomes*

#### *Student Engagement*

One of the most important factors in student learning and personal development is student engagement in educationally purposeful activities that contribute directly to desired outcomes (Astin, 1993b; Pascarella & Terenzini, 1991, 2005). This concept is reflected in Astin's theory of involvement, which essentially suggests that "students learn by becoming involved" (1985, p. 133). Chickering and Gamson's (1987) *Seven Principles for Good Practice in Undergraduate Education* continues this line of reasoning by defining the kinds of educationally purposeful activities that lead to learning and personal development. These principles encourage: (a) student-faculty contact; (b) cooperation among students; (c) active learning; (d) prompt feedback; (e) time on task; (f) communication of high expectations; and (g) respect of diverse talents and ways of learning (Chickering & Gamson, 1987). The National Survey of Student Engagement (NSSE) and other related initiatives have brought "student engagement" to the forefront of higher education reform. In particular, this study examines what contributes to the student athletes' experiences in relation to student-faculty interaction, peer interaction, participation in student groups, and participation in academic related activities, and the impact of such experiences on a set of college outcomes.

### *Sport Participation and Student Learning and Development*

There is quite a bit of literature on student engagement in relation to the general college student population and its relationship to learning and personal development (Astin, 1993b; Hu & Kuh, 2002, 2003; National Survey of Student Engagement, 2004, 2005; Pascarella & Terenzini, 1991, 2005); however, the literature examining student athletes' engagement and in educationally purposeful activities and its influence on cognitive and affective outcomes for this population is scant, though steadily growing (Pascarella, 2005; Terenzini, Pascarella, & Blimling, 1996).

A few studies have sought to examine what students do with their time outside of participation in sports and how such experiences influence student learning and personal development, and satisfaction with their college experience. According to Terenzini, Pascarella, and Blimling (1996), the majority of the literature in the 1990s focused on the influence of student experiences on psychosocial development. Some studies suggest that participation in intercollegiate athletics is negatively associated with involvement in and satisfaction with the college experience and career maturity (Blann, 1985; Kennedy & Dimmick, 1987; Sowa & Gressard, 1983; Stone & Strange, 1989). Other studies that controlled for pre-college characteristics found that participation in intercollegiate athletics was positively associated with satisfaction with the college experience, motivation toward degree completion, persistence, completion of the bachelor's degree, and gains in internal locus of attribution for success during the first year (Astin, 1993b; Ryan, 1989; Pascarella, Edison, Hagedorn, Nora, & Terenzini, 1996).

More recently, Wolniak, Pierson, and Pascarella (2001) examined the effect of athletic participation for males on a series of outcome variables by comparing male athletes in revenue producing sports to athletes in other sports and non athletes. Overall the authors found that male athletes did not differ significantly from their peers on outcomes such as openness to diversity and challenge, learning for self understanding and academic motivation. Similarly, Umbach, Palmer, Kuh, and Hannah (2005), using data from the National Survey on Student Engagement, found that on average student athletes across division levels and institutional types did not differ from their peers on involvement in effective educational practices, such as academic challenge, interaction with faculty, and participation in active and collaborative learning.

### *Outcomes of Undergraduate Education*

Astin (1993b) developed a useful typology to classify student outcomes from college into cognitive and affective domains. Specifically,

cognitive outcomes deal with students' higher order mental processes such as critical thinking, academic achievement, and logic and reasoning, whereas affective outcomes are characterized by students' values, attitudes, and beliefs. These two types of outcomes are important to both individual students as well as the society as a whole. For instance, student learning from college has been a paramount concern in the policy arena, as documented by the report by the National Commission on the Future of Higher Education (2006). The commission argued that "the quality of student learning at U.S. colleges and universities is inadequate and, in some cases, declining" and rightfully suggested "these shortcomings have real world consequences" (p. 3). Cognitive development has been studied among college students in a number of different ways. The current study is interested in student athletes' learning and communicating skills as one of many measures of cognitive development.

Affective outcomes have gained salience in higher education and in contemporary society (Colby, Ehrlich, Beaumont, & Stephens, 2003; Ehrlich, 2000). The importance of democratic values and civic engagement in a diverse democracy has never been more important in the United States. Undergraduate students will be expected to work effectively with people unlike themselves upon graduating from college and entering the workforce. Therefore, students' attitudes and values about people from diverse backgrounds are of critical importance to functioning in a diverse society. Because of the importance of democratic values and civic education we included a measure of cultural attitudes in the current study. Personal self-concept is another important affective outcome examined in this study. Having a positive attitude about oneself sets the stage for growth and development in other areas, such as academic performance and developing competence (Chickering & Reisser, 1993; Pascarella, Smart, Ethington, & Nettles, 1987).

### *Purpose of This Study*

Most of the internal and public scrutiny of college sports involves high profile athletes in sports such as football and men's basketball; yet, recent research on the impact of sport participation on student learning and development has largely focused on comparing all athletes to their non-athlete peers across institutional types. There is a need to better articulate what contributes to engagement in educationally purposeful activities for student athletes who participate in different sports and how that in turn relates to desirable outcomes for this student population. This issue is particularly important as the public becomes increasingly skeptical about the quality of education for college athletes and distrustful about the role of athletics in American higher education (Bowen &

Levin, 2003; Shulman & Bowen, 2001; Thelin, 1994; Wolverton, 2008). To that end, the purpose of this study was to examine factors related to student athletes' engagement in educationally purposeful activities at Division I universities and its impact on a set of cognitive and affective outcomes (Astin, 1993a). The following research questions guided this study:

1. To what extent do student background characteristics and other factors influence student athletes' engagement in educationally purposeful activities?
2. Controlling for student background characteristics and other factors, to what extent does engagement in educationally purposeful activities influence cognitive and affective outcomes for student athletes?
3. Is the influence of student engagement on college outcomes conditional on the profile level of the sport in which the student athlete participated?

## *Methods*

### *Data Source & Instrumentation*

The Basic Academic Skills Study (BASS) is a multifaceted scale designed for use by the NCAA to measure student athletes' interests, attitudes, and academic skills (National Collegiate Athletic Association, 2002). The BASS is one of few large scale datasets on Division I student athletes and has three major components (two of which were used for the purpose of this study). The Progress in College (PIC) subscale was designed to measure academic and social successes and failures, personal goals, and general attitudes toward college. The Social and Group Experiences (SAGE) subscale was designed to measure detailed aspects of high school and college experiences. The Mini-Battery of Achievement (MBA) subscale was designed to measure current levels of reading, writing, mathematics, and factual knowledge.

For the purpose of this study, a secondary analysis of data was conducted using the PIC and SAGE subscales. The PIC and SAGE subscales of the BASS measure student experiences in several areas: (a) participation in various in and out of class activities; (b) perceptions of the campus environment, such as quality of relationships with students other than teammates and faculty; (c) political and cultural attitudes and values; (d) athletic, personal, and social goals. In addition, students estimate their learning, growth, and development in key areas during the first year of college and provide background information, such as major,

sport, race/ethnicity, gender, and classification. The items on the PIC and SAGE surveys were developed by a team of educational, psychological, and sociological researchers in coordination with the NCAA. Twenty-one Division I colleges and universities participated in the 1996–97 survey administration for a total sample of 410 freshmen. Of the participants, 25.1% participated in high profile sports while 74.9% in low profile sports; 54.6% of the participants were male and 45.4% female; 75.5% were White, 17.3% Black, and 7.2% Other Ethnicity. Other Ethnicity included Asian American, American Indian, Latino/Hispanic American, and other.

*Variables*

The variables in this study were divided into three categories: (a) background characteristics, (b) engagement variables, and (c) cognitive and affective outcomes. Background characteristics included gender, race/ethnicity, major area of study, and profile level of sport and were measured as follows:

- Gender (0 = female, 1 = male);
- Sport (0 = low profile, 1 = high profile);
- Race was coded as a set of dummy variables: African American, other ethnicity (Asian American, American Indian, Latino/Hispanic American, and other), and White, with the latter as the reference group;
- Major was coded as a set of dummy variables: Humanities, social and behavioral sciences, math and science, undecided, and pre-professional with the latter as the reference group.

We examined four areas of student engagement in this study: (a) interaction with faculty, (b) interaction with students other than teammates, (c) participation in student groups, organizations, and other service activities, (d) and participation in academic related activities (See Table 1). These four measures of student engagement are closely aligned with the essential ideas in the study of student engagement in educationally purposeful activities (Astin, 1993b; Chickering & Gamson, 1987; Hu & Kuh, 2002, 2003; National Survey of Student Engagement, 2004, 2005; Pascarella & Terenzini, 1991, 2005). The four variables were based on the mean scores across the items on each subscale. The items were measured on a six point Likert scale ranging from *1* (never) to *6* (very often).

Two indicators of student affective outcomes were used in this study: (a) cultural attitudes and (b) personal self concept (Table 1). The mea-

TABLE 1

Student Engagement, Attitudes & Values, and Gains Variables, Item Loadings, & Reliability Estimates

| Factor and Individual Item Measures | Loading | α |
|---|---|---|
| Interaction with Faculty | | 0.75 |
| Talked with faculty member about a class | 0.59 | |
| Discussed career plans with a faculty member | 0.75 | |
| Discussed personal issues with faculty member | 0.61 | |
| Interaction with Students other than Teammates | | 0.80 |
| Talked to other students about social matters | 0.89 | |
| Talked with students about personal concerns | 0.73 | |
| Talked with students outside class about course content | 0.63 | |
| Participation in Student Organizations and other Activities | | 0.86 |
| Voted in student elections (clubs, student government, etc.) | 0.47 | |
| Served as an officer of a student organization | 0.54 | |
| Done volunteer or community services | 0.71 | |
| Helped with youth groups or recreational sports programs | 0.69 | |
| Participated in non-athletics-related organized activities | 0.87 | |
| Participation in Academic Related Activities | | 0.70 |
| Read assigned textbooks, articles | 0.37 | |
| Written a paper of 8 pages or more | 0.46 | |
| Made a presentation in class (including responding to questions or problems) | 0.50 | |
| Made a presentation outside of class | 0.44 | |
| Attended a public lecture not part of class assignment | 0.34 | |
| I did “extras” that showed a commitment to being a good student | 0.49 | |
| Cultural Attitudes | | 0.71 |
| Sometimes war is necessary to put nations in their place | 0.49 | |
| Inferior groups of people should stay in their place | 0.56 | |
| People of different races and ethnic groups can never really be comfortable with each other even if they are close friends | 0.56 | |
| Discrimination against people of different races and ethnic groups is no longer a problem in the United States | 0.58 | |
| Both men’s and women’s collegiate athletic teams should receive the same amount of financial support | 0.56 | |
| Discrimination against women is no longer a problem in the United States | 0.47 | |
| Positive Self Concept | | 0.81 |
| I feel that I am a person of worth, and equally as good as other people | 0.69 | |
| I feel that I have a number of good qualities | 0.89 | |
| I take a positive attitude toward myself | 0.74 | |
| Gains in Learning and Communication Skills | | 0.72 |
| Progress I am making in learning to speak clearly and effectively | 0.78 | |
| Progress I am making in learning to write clearly and effectively | 0.45 | |
| Progress I am making in learning to think mathematically | 0.49 | |
| Progress I am making in acquiring knowledge and skills to prepare me for work | 0.40 | |

NOTE: Scores for five of the six items on the cultural attitudes scale were reversed so that high scores are associated with positive attitudes and low scores are associated with negative attitudes.

sures for these two affective outcomes were based on the mean across the items on each subscale, which ranged on a six point Likert scale ranging from 1 (very strongly disagree) to 6 (very strongly agree). Cultural attitudes were measured as the sum of students' responses to six questions about the necessity of war and the treatment of people from different races and ethnic groups. The cognitive outcome consisted of a measure of gains in learning and communication skills, operationalized as the mean across the four items on the subscale. The four items were measured on a six point Likert scale ranging from *1* (very little) to *6* (a great deal).

### *Data Analysis*

Before examining the research questions, we conducted exploratory factor analysis to assess the underlying structure of the items on the scale. The results of the factor analysis yielded a factor structure congruent with the measures used in this study. Reliability estimates for each subscale were acceptable, ranging from 0.70 to 0.86. We applied a general rule to retain factors with loadings of 0.30 or better. The common characteristics of the items loading on each factor assisted in naming the factors appropriately for further analysis.

To address the first research question, we used multiple regression analysis to examine the influence of background characteristics on each of the engagement variables. For the second research question, we ran a series of hierarchical regression analyses to examine how student background and in particular student engagement in college activities affected student outcomes. Background characteristics were entered first, followed by the engagement variables to assess the unique influence of engagement on the outcome variables. Finally, we addressed the third research question by running regressions and including the interaction terms between profile of sport (1 = high profile and 0 = low profile) and engagement on cognitive and affective outcomes. We then disaggregated the sample into student athletes in high profile and low profile sports for separate regression analyses. In all the analyses, the independent variables were somewhat correlated but the bi-variant correlation coefficients were small and did not rise to the level of collinearity concern.

### *Limitations*

Even though we used one of the best datasets available on college athletes regarding their engagement in educationally purposeful activities and college outcomes, there are some limitations that are worth mentioning. First, although the data are from multiple campuses, it is not possible to compare students across institutions. The NCAA did not code for the insti-

tutions attended by participants in the database. Second, background characteristics such as high school grades, test scores, parental level of education are not available in the database, nor are measures of student outcomes prior to college attendance. Therefore, the use of cross-sectional data might distort the estimations of the relationships among student characteristics, student engagement in college, and student outcomes from college (Seifert, Goodman, Edvalson, Laskowski, Pascarella, & Blaich, 2007). Third, even though the focus of this study is on college athletes with an intention to provide valuable information about ways that could help improve their engagement and maximize their college outcomes, it would be potentially useful to have comparable studies on non-athletes as well. Finally, as in most national surveys on college students, student self-reported data were used in this study. Even though student self-reported data are valid measures in general, readers should be reminded that students might not use the same baseline to respond to survey questions (National Survey of Student Engagement, 2004, 2005; Pascarella, 2001).

*Results*

Table 2 presents the descriptive statistics for the overall sample and student athletes in high profile and low profile sports, as well as effect size of the differences between athletes in high and low profile sports. Concerning the engagement variables, student athletes reported interacting with students other than teammates more often than any other type of engagement and reported participation in student groups and organizations less often. These findings were expected given the time constraints placed on this population; however, athletes do seem to find ways to interact with their non athlete peers. The effect sizes were small from most variables; however, two variables, interacting with students other than teammates and cultural attitudes, had significant and moderate differences (Cohen, 1977). Compared to student athletes in low profile sports, those in high profile sports had lower level of interaction with students other than teammates, and had lower level of scores on the measure of cultural attitudes and values.

Table 3 presents multiple regression results on the influence of student background characteristics and other factors on student athletes' engagement in educationally purposeful activities. In general, background characteristics explained very little of the variance in engagement in educationally purposeful activities and where differences were significant, the variance explained was small (see Table 2). Background characteristics such as race/ethnicity, gender, major, and profile level of sport did not significantly influence the extent to which student athletes

TABLE 2
Means and Standard Deviations of Engagement Variables by Profile of Sport

| Variable<br>*N* (%) | Overall<br>410 | | High Profile<br>103 (25.1%) | | Low Profile<br>307 (74.9%) | | | |
|---|---|---|---|---|---|---|---|---|
| Variable | Mean | *SD* | $M_H$ | *SD* | $M_L$ | *SD* | Effect Size | Sig. |
| IWF | 3.28 | 1.21 | 3.19 | 1.27 | 3.31 | 1.18 | –00.99 | |
| IS | 4.56 | 1.18 | 4.11 | 1.31 | 4.70 | 1.10 | –05.00 | ** |
| PAR | 2.73 | 1.24 | 2.63 | 1.30 | 2.78 | 1.21 | –01.21 | |
| AP | 3.17 | 09.38 | 3.15 | 09.97 | 3.18 | 09.19 | –00.32 | |
| CUL | 4.21 | 06.82 | 3.99 | 07.53 | 4.29 | 06.40 | –04.40 | ** |
| PSC | 5.24 | 08.02 | 5.26 | 09.11 | 5.24 | 07.64 | 00.25 | |
| LCS | 4.28 | 08.88 | 4.32 | 09.63 | 4.27 | 08.63 | 00.56 | |

NOTE: IWF = interaction with faculty. IS = interaction with students other than teammates. PAR = participation in student groups and activities. AP = participation in academic related activities. CUL = cultural attitudes and values. PSC = personal self-concept. LCS = gains in communication and learning skills. Effect size computed as $(M_H - M_L)/\sigma_{overall}$.
*$p < 0.05$. **$p < 0.01$.

interacted with faculty, participated in academic related activities, nor participated in student groups and organizations. However, one of the models was significant: interaction with students other than teammates. Background characteristics accounted for 8% of the variance in interaction with students other than teammates ($F[8, 401] = 4.562$; $p = 0.000$). Gender and profile of sport were significant predictors in the overall model. Student athletes in high profile sports reported interacting less often with students other than teammates compared to low profile athletes, with effect size of –0.269. Male athletes had less of such interaction than their female counterparts, with effect size of –0.353.

Table 4 presents the results on the influence of background characteristics and engagement on college outcomes, such as cultural attitudes, personal self-concept, and learning and communication skills. The overall model accounted for 16% of the variance in cultural attitudes ($F[12, 3397] = 6.322$; $p = 0.000$). In the overall model, gender, race/ethnicity, sport, major, and interaction with students were significant predictors of positive cultural attitudes. Specifically, student athletes in high profile sports reported less positive cultural attitudes compared to those in low profile sports (effect size = –0.651). Male athletes had less positive cultural attitudes compared to female athletes (effect size = –0.131). Black athletes and athletes who majored in math and science reported more positive cultural attitudes compared to White athletes and athletes who were pre-professional majors, with effect sizes of 0.359 and 0.321 respectively. Interaction with other students was positively and significantly related to student positive cultural attitudes.

TABLE 3

Summary of Multiple Regression Analysis of Background Characteristics on Engagement Variables

| Variable | Interaction with Faculty | | | Interaction with Students | | | Participation in Student Activities | | | Par in Academic Related Activities | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *B* | *SE B* | β | *B* | *SE B* | β | *B* | *SE B* | β | *B* | *SE(B)* | β |
| Males | –0.200 | 0.143 | –0.083 | –0.417 | 0.135 | –0.176* | –0.316 | 0.146 | –0.127 | –0.197 | 0.111 | –0.105 |
| Black | –0.031 | 0.173 | –0.010 | –0.108 | 0.163 | –0.035 | –0.020 | 0.176 | –0.006 | –0.125 | 0.134 | –0.051 |
| Other Ethnicity | 0.148 | 0.237 | 0.031 | –0.284 | 0.223 | –0.062 | –0.048 | 0.241 | –0.010 | –0.210 | 0.184 | –0.057 |
| High Profile Sports | 0.032 | 0.174 | 0.011 | –0.317 | 0.164 | –0.117* | 0.025 | 0.177 | 0.009 | 0.126 | 0.135 | 0.058 |
| Humanities | 0.038 | 0.234 | 0.008 | 0.191 | 0.221 | 0.043 | 0.193 | 0.238 | 0.041 | 0.241 | 0.182 | 0.068 |
| Social & Behavioral Sciences | 0.027 | 0.224 | 0.006 | 0.128 | 0.221 | 0.030 | –0.212 | 0.228 | –0.048 | –0.085 | 0.174 | –0.025 |
| Math & Science | –0.165 | 0.209 | –0.041 | 0.135 | 0.197 | 0.034 | 0.205 | 0.213 | 0.050 | 0.007 | 0.162 | 0.002 |
| Undecided | –0.178 | 0.147 | –0.065 | –0.236 | 0.138 | –0.088 | –0.267 | 0.149 | –0.095 | –0.065 | 0.114 | –0.031 |
| Constant | 3.434 | 0.116 | | 4.925 | 0.109 | | 2.960 | 0.118 | | 3.286 | 0.090 | |
| $R^2$ | | 0.01 | | | 0.08** | | | 0.02 | | | 0.01 | |

*$p < 0.05$. **$p < 0.01$.

The overall model for reported gains in personal self-concept was significant and accounted for 10% of the explained variance ($F$[12, 397] = 3.698; $p < 0.000$). Gender, race/ethnicity, and interaction with students were significant predictors in the model. Female athletes and Black athletes reported higher levels of personal self-concept compared to male athletes and White athletes, with effect sizes of 0.231 and 0.309 respectively. Interaction with other students was positively related to personal self-concept.

The overall model for reported gains in learning and communication skills was significant and accounted for 20% of the explained variance ($F$[12, 397] = 8.725; $p = 0.000$). Interaction with faculty, interaction with other students, and participation in academic related activities were significantly and positively related to the learning and communication skills reported by those student athletes.

TABLE 4

Summary of Multiple Regression Analysis of Background Characteristics and Engagement Variables on Outcomes

| | Cultural Attitudes | | | Personal Self-Concept | | | Learning & Communication Skills | | |
|---|---|---|---|---|---|---|---|---|---|
| Variable | B | SE B | β | B | SE B | β | B | SE B | β |
| *Block 1* | | | | | | | | | |
| Males | –0.444 | 0.076 | –0.325** | 0.185 | 0.093 | 0.115* | 0.074 | 0.096 | 0.041 |
| Black | 0.245 | 0.091 | 0.136* | 0.248 | 0.111 | 0.117* | 0.008 | 0.115 | 0.003 |
| Other Ethnicity | 0.102 | 0.125 | 0.038 | –0.040 | 0.152 | –0.261 | 0.069 | 0.158 | 0.020 |
| High-Profile Sports | –0.089 | 0.092 | –0.057* | –0.063 | 0.112 | –0.034 | 0.099 | 0.116 | 0.049 |
| Humanities | 0.008 | 0.123 | 0.003 | 0.129 | 0.150 | 0.042 | –0.050 | 0.156 | –0.015 |
| Social & Behavioral Sciences | 0.073 | 0.118 | 0.030 | 0.025 | 0.143 | 0.009 | 0.245 | 0.149 | 0.077 |
| Math & Science | 0.219 | 0.110 | 0.097* | 0.002 | 0.134 | 0.001 | 0.106 | 0.139 | 0.036 |
| Undecided | 0.034 | 0.077 | 0.022 | 0.026 | 0.094 | 0.014 | –0.102 | 0.098 | –0.050 |
| *Block 2* | | | | | | | | | |
| IWF | –0.040 | 0.030 | –0.071 | 0.039 | 0.037 | 0.059 | 0.086 | 0.038 | 0.117* |
| IS | 0.058 | 0.030 | 0.100* | 0.188 | 0.036 | 0.276** | 0.144 | 0.038 | 0.191** |
| PAR | 0.031 | 0.030 | 0.056 | 0.020 | 0.036 | 0.031 | –0.053 | 0.037 | –0.074 |
| AP | –0.075 | 0.041 | –0.104 | –0.026 | 0.049 | –0.031 | 0.295 | 0.051 | 0.311** |
| Constant | 4.419 | 0.169 | | 4.146 | 0.206 | | 2.482 | 0.214 | |
| $R^2$ | | 0.16** | | | 0.10** | | | 0.20** | |

NOTE: Results in this table appear in the final model for the dependent variables above. IWF = interaction with faculty. IS = interaction with students other than teammates. PAR = participation in student groups and activities. AP = participation in academic related activities. CUL = cultural attitudes and values. PSC = personal self concept. LCS = gains in communication and learning skills.

*$p < 0.05$. **$p < 0.01$.

The regression analyses with interaction terms (high profile × engagement measures) indicated that the effects of student engagement measures on college outcomes were not uniform for student athletes in high profile and low profile sports. For instance, one of the interaction terms in the model for reported gains in learning and communication skills was significant and deserves discussion here. The interaction between sport and participation in academic related activities was significant in the overall model. In other words, greater participation in academic related activities had a smaller effect on reported gains in learning and communication skills for high profile athletes compared to low profile athletes. The results from disaggregated analyses indicated that interaction with students other than teammates was significantly and positively related to student personal self-concept for student athletes in both high and low profile sports. Interaction with students other than teammates and participation in academic related activities were positively and significantly related to learning and communications skills reported by student athletes in low profile sports, but not for student athletes in high profile sports. In combination with the results from regressions with interaction terms, this result indicated that participation in academic related activities added significantly less to the model for student athletes in high profile sports compared to their counterparts in low profile sports.

### *Discussion*

The purpose of this study was to examine student athletes' engagement in educationally purposeful activities and the impact of those engagements on a set of cognitive and affective outcomes. Of particular interest was the extent to which student athletes engaged in educational activities that lead to student learning and whether or not engagement effects were conditional on the type of sport in which a student athlete participated.

The descriptive statistics suggest that of the four engagement measures in this study, student athletes most frequently interacted with students other than teammates. This finding is encouraging given recent criticisms about intercollegiate athletics creating a separate subculture on campus characterized by students not engaging with their peers inside or outside of the classroom (Bowen & Levin, 2003; Shulman & Bowen, 2001) and reports of student athletes spending too much time during the week on athletic related activities (Wolverton, 2008). Our findings suggest otherwise and the magnitude of this form of engagement was the strongest one among all the engagement measures in this study.

TABLE 5

Comparisons of the Effects of Student Engagement on College Outcomes for Student Athletes in Low- and High-Profile Sports

| | High-Profile Sports | | | Low-Profile Sports | | |
|---|---|---|---|---|---|---|
| Variable | B | SE B | β | B | SE B | β |
| *Cultural Attitudes* | | | | | | |
| IWF | –0.081 | 0.081 | –0.137 | –0.040 | 0.032 | –0.075 |
| IS | 0.116 | 0.071 | 0.201 | 0.040 | 0.033 | 0.069 |
| PAR | 0.030 | 0.070 | 0.052 | 0.043 | 0.033 | 0.081 |
| AP | –0.164 | 0.090 | –0.217 | –0.049 | 0.046 | –0.071 |
| *Personal Self-Concept* | | | | | | |
| IWF | –0.029 | 0.093 | –0.040 | 0.051 | 0.039 | 0.079 |
| IS | 0.292 | 0.081 | 0.419** | 0.166 | 0.041 | .238** |
| PAR | –0.009 | 0.080 | –0.013 | 0.021 | 0.040 | 0.033 |
| AP | –0.091 | 0.102 | –0.100 | 0.004 | 0.056 | 0.005 |
| *Learning & Communication Skills* | | | | | | |
| IWF | 0.115 | 0.101 | 0.152 | 0.073 | 0.041 | 0.101 |
| IS | 0.115 | 0.088 | 0.157 | 0.165 | 0.042 | 0.209** |
| PAR | –0.089 | 0.087 | –0.121 | –0.035 | 0.042 | –0.050 |
| AP | 0.124 | 0.112 | 0.128 | 0.354 | 0.058 | 0.377** |

NOTE: Results in this table appear in the final model for the dependent variables above. IWF = interaction with faculty. IS = interaction with students other than teammates. PAR = participation in student groups and activities. AP = participation in academic related activities. CUL = cultural attitudes and values. PSC = personal self-concept. LCS = gains in communication and learning skills.
*$p < 0.05$. **$p < 0.01$.

Consistent with previous research (Kuh, Hu, & Versper, 2000; Pascarella & Terenzini, 1991, 2005), student background characteristics were not influential in explaining the extent to which student athletes engaged in educationally purposeful activities such as interacting with faculty, participating in student groups and organizations, and participating in academic related activities. Only one of the models was significant, interaction with students other than teammates. Male and high profile athletes interacted less with students other than teammates compared to female and low profile athletes. This finding was not surprising given that on balance, female athletes are better able to balance athletic, academic, and social roles compared to male athletes (Simons, Van Rheenen, & Covington, 1999).

The engagement variables, as a group, were significant in all of the college outcome models. This suggests that the kinds of activities student athletes engage in during college have a greater impact on personal self-concept and learning and communication skills regardless of background characteristics such as race/ethnicity, gender, and major. En-

gagement in educational activities has also been found to have a positive impact on learning and personal development for students in the general population (Astin, 1984; Kuh, Schuh, Whitt, & Associates, 1991; Pascarella & Terenzini, 1991, 2005). Evidence that student athletes also benefit from engagement in educational activities fills a gap in the literature about this special population of college students. Moreover, the evidence from this study supports that exposing student athletes in meaningful ways to their non-athlete peers makes a difference in terms of how they view themselves, their cultural attitudes, and reported gains in learning and communication skills. This finding supports the powerful educational effects of creating opportunities for student athletes to interact with their non-athlete peers in college.

This study also examined the conditional effects of student engagement on college outcomes. The interaction term between participation in academic related activities and profile of sport was significant in the model for learning and communication skills. Academic related activities such as writing papers and completing reading assignments had a smaller effect on reported gains in learning and communication skills for athletes in high profile sports compared to athletes in low profile sports. This finding is very interesting and more research is needed to examine the kinds of academic activities that lead to positive gains in this area for high profile athletes in particular.

### *Conclusions and Implications*

The results from this study point to several conclusions. First, like other college students, student background characteristics tend to have limited influence on engagement in educationally purposeful activities (Kuh, Hu, & Versper, 2000; Pascarella & Terenzini, 1991, 2005). That is, who the students are matters very little in what the students do in college. Second, engagement has positive and significant impacts on a set of college outcomes for student athletes, suggesting that college athletes can benefit from increased college engagement in ways similar to the general student population (Kuh, Hu, & Versper, 2000; Pascarella & Terenzini, 1991, 2005). Finally, the findings show evidence that the influence of student engagement on cognitive outcomes is conditional on the type of sport student athletes participate in, suggesting differential effects for student athletes in different sport types.

These findings have implications for policy and practice related to student athletes in higher education. Student athletes regardless of race/ethnicity, academic major, and profile level of sport participation are equally as likely to engage in educationally purposeful activities

and should be encouraged to do so because increased involvement leads to positive gains in personal self-concept and learning and communication skills. Further, such involvement can curtail what critics believe to be a separate athletic subculture on college campuses that does not benefit in ways similar to the general population from the overall college experience.

The interaction of sport and profile level of sport produced interesting findings that can be instructive for Division I institutions. More specifically, the findings suggest that some types of activities have a greater impact for some sports compared to others. For instance, participating in academic related activities produced greater reported gains in learning and communication skills for low profile athletes compared to high profile athletes. More of this type of analysis is needed to further understand how college impacts various populations in unique ways (Pascarella & Terenzini, 1998, 2005). This study supports that participation in academic related activities is more meaningful for low profile athletes. However, we need to understand better the types of involvement that lead to learning and development for high profile athletes as well.

Given the time constraints and additional pressures associated with participation in college sports, Division I institutions may want to be intentional about engaging student athletes in activities that lead to desired outcomes. Rather than being dismissive about how athletes spend their time, athletic administrators can enhance the services provided to student athletes by building in ways for this population to interact more with students other than athletes—particularly for those who spend a great deal of time on athletic-related activities. Interacting with peers, in particular, has been shown to lead to desired cognitive and affective outcomes for high and low profile athletes in distinctive ways.

The more frequently low profile student athletes participate in academic related activities, the more likely they are to experience gains in learning and communication skills. Helping these student athletes find ways to participate in academic related activities to the extent that they are involved in athletic related activities will likely lead to gains in student learning (Gaston-Gayles, 2004). As stated previously, more research is needed to understand the kinds of academic related activities that lead to positive gains in learning and communication skills for high profile athletes.

The findings from this study add to the literature on the college experiences of student athletes. Previous studies have compared student athletes to non-athletes and found no differences in involvement in educationally purposeful activities (Umbach, et al., 2005, Wolniak, Peirson, & Pascarella, 2001). This study did not make such a comparison due to

limitations of the dataset. However, the findings confirm the importance of student engagement in promoting desirable outcomes within the student athlete population. It also suggests that engagement in different types of educationally purposeful activities has different effects on different types of outcomes. Another key finding revealed that the effects were conditional on the profile level of the sport in which the student participated for two of the three outcomes studied. The results from this study are consistent with previous research suggesting that student athletes should not be considered as a homogenous population relative to their experiences in college (Wolniak, Pierson, & Pascarella, 2001). To promote desirable outcomes for student athletes, higher education administrators and policy makers may want to intentionally engage high and low profile student athletes in different types of activities that promote desirable affective and cognitive outcomes.

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