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Quantifying the Psychological Benefits of Intercollegiate Athletics Participation

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Athletics' role within higher education in the United States has generated tension since its inception particularly due to the divide between academic pursuits and the commercialized college-sport enterprise. The purpose of this research was to explore the legitimacy of competitive athletics as a holistic educational endeavor worthy of fulfilling the mission of higher education through the comparison of select psychological outcomes (i.e., achievement striving, self-discipline, toughness, leadership, self-esteem, teamwork, perseverance, courage, and social/emotional intelligence) between active university students ($n = 914$) and varsity athletes ($n = 435$) at three "Power 5" NCAA Division I institutions. One-way and two-way ANOVAs revealed mixed results, both confirming and refuting Astin's (1984; 1999) Theory of Student Involvement. Practitioners must determine how to structure and deliver programs to cultivate benefits from intercollegiate athletics since mere participation does not lead to universal holistic development.

The proper role of athletics within the academy is an issue that has triggered tension and debate through each developmental era of the college sport enterprise (Desrochers, 2013; Oriard, 2001; Smith 2011; Thelin, 1996). The philosophical irreconcilability is founded upon a divide between the sanctity of the academy as a bastion of unadulterated learning and the competitive commercial enticements that can facilitate unprincipled behavior based upon a win-at-all costs mentality (Byers, 1996). A growing body of literature and litigation have condemned the National Collegiate Athletic Association (NCAA) and its actors for exploitation of its athletes (Elinson, 2013; McCormick & McCormick, 2006; Sack & Staurowsky, 1998; Zimbalist, 1999); excessive spending (Anthes, 2010; Drape & Thomas, 2010, Fulks, 2011); and facilitation of a media circus that detracts from the mission of higher education (Benford, 2007; Duderstadt, 2003; Sperber, 2000).

Many of the reform-based arguments have been tempered by literature documenting athletics' ability to enliven a campus community and build a university brand (Smith, 1988; Stevens, 2007; Toma, 1999). Metrics documenting this phenomenon include decreases in acceptance rates coupled with increases in athletic donations, applications, academic reputation, in-state enrollment, and incoming student SAT scores, particularly in "big-time athletics" schools (Anderson, 2012; Bremmer & Kesselring, 1993; Grimes & Chressanthis, 1994; Humphreys & Mondello, 2007; McCormick & Tinsley, 1987; Mixon, Trevino, & Minto, 2004; Pope & Pope, 2009; Tucker, 2005; Tucker & Amato, 1993).

Additional justification for housing athletics within the academy is based upon the fundamental notion that athletics is a unique element of holistic education (Adler & Adler, 1991; Bonfiglio, 2011; Bowen & Levin, 2003; Brand, 2006; Lapchick, 1987). Building on this idea, scholars have referenced many educational benefits of participation in competitive athletics including enhanced time management skills, heightened levels of self-discipline, and ability to balance dual roles as both students and athletes (Adler & Adler, 1991; Bowen & Levin, 2003; Cooper & Weight, 2011; Irwin, Irwin, & Hays, 2011). To date, however, many of these benefits have not been quantified with empirical research, and the educational legitimacy of intercollegiate athletics, particularly within the highly-commercialized Division I "Power 5" institutions, has become an area of intense media and public scrutiny (e.g. McGlynn & Richardson, 2011; Weight & Cooper, 2012).

The purpose of this study was to address this important literary gap through measuring a variety of psychological constructs within a sample of active university students and varsity athletes in an effort to quantify the legitimacy of athletics as an educational endeavor geared toward producing future societal leaders (Brand, 2009). This research is approached through Astin's theoretical lens of student involvement through which we theorized increased holistic educational benefits (measured by select psychological constructs) should be evidenced in the athlete population due to the high level of involvement exhibited through competitive athletics participation. The findings of the study are important to the literature and surrounding critical commentary of college sport as they provide quantifiable constructs indicative of holistic education. This data can add depth to the current discussions of reform, exploitation, and education within intercollegiate athletics by examining important aspects of individual well-being not typically addressed. Toward this end, the following research questions were pursued.

Research Questions

[RQ1] Do athletes and non-athletes differ in their perceived ability to pursue university opportunities?

[RQ2] Are there significant differences based on [A-I] in basic personality construct scores?

- A. Athlete class standing
- B. Athlete/non-athlete status
- C. Sex
- D. Class standing
- E. Race
- F. Age
- G. GPA
- H. Revenue/nonrevenue sport athlete status
- I. Participation in high school/youth sport

Review of Literature

Holistic Education

An emerging lens from which to view and evaluate educational pursuits includes that of a holistic perspective. The basis of holistic endeavors considers “complete systems rather than...the analysis of, treatment of, or dissection into parts” (Holistic, 2013, p. 2). Similarly, human beings can be described as “systems” that are constantly developing physically, mentally, emotionally, socially, and spiritually based on their lived experiences (Holistic, 2013, p. 3). To this end, holistic care for individuals should, by definition, be comprehensive and integrative since the overall human being is greater than the sum of its parts (Forbes, 2003a, 2003b; Lakes, 2000; Miller, 2006; Myers, Sweeney, & Witmer, 2000; Schreiner, 2009; Schreiner, Banev, & Oxley, 2005). Within the higher education system, scholars continue to address ways to best educate students as holistic human beings centered on the student experience in addition to the academic experience. To this end, Watson and Kissinger contend:

In higher education, wellness models are a close fit with the college student development models most often used on today’s campuses. Whereas previous wellness models focused primarily on physical health, today’s counseling-based wellness models aim to develop the whole person and enhance the overall college student experience (pp. 154).

Furthermore, Bonfiglio (2011) identified the mission statement of a regional accrediting higher education organization which alludes to the holistic benefits derived from athletics within the higher education experience by explicitly stating:

Recreational, intercollegiate, and intramural athletic programs should be consistent with, and actively supportive of, the institution’s mission and goals and consistent with the academic success, physical and emotional well-being, and social development of those who participate (pp. 31).

For instance, a model of holistic care in intercollegiate athletic departments may include a variety of the following individuals (part-time and/or full-time) to provide specialized health and wellness resources and services for athletes: athletic trainer(s), team physician(s) and sports medicine staff, strength and conditioning coach(es), sport nutritionist(s), sport psychology consultant(s), psychiatrist(s), clinical psychologist(s), licensed clinical social worker(s), substance abuse counselor(s), disability needs coordinator(s), academic support personnel, and/or team chaplain(s). As one reflects on the job titles, a staff comprised of the aforementioned individuals could accommodate the variety of unique needs for intercollegiate athletes' holistic wellness.

Benefits of Intercollegiate Athletic Participation

Scholars have pointed to a variety of studies over the past three decades that have produced mixed results regarding the cognitive, psychological, and emotional outcomes of intercollegiate athletic participation (Bonfiglio, 2011; Gayles & Hu, 2009a, 2009b; Pascarella, Truckenmiller, Nora, Terenzini, Edison, & Hagedorn, 1999; Umbach, Palmer, Kuh, & Hannah, 2006). Although there is evidence that intercollegiate athletes have subpar outcomes when compared to their non-athlete peers, there is a large pool of literature to substantiate the unique benefits of participating in intercollegiate athletics. For example, athletes are aware of the psychological and social benefits gleaned from intercollegiate athletic participation (Singer, 2008). In a study by Potuto and O'Hanlon (2007), more than 90% agreed that athletic participation had strongly influenced their leadership skills, teamwork, work ethic, ability to take responsibility for oneself, decision making ability, and time management skills. Videon (2002) added "athletics...develop[s] numerous estimable qualities such as self-discipline, perseverance, hard work, sacrifice, teamwork, respect for rules, and interpersonal skills" (p. 420), and additional studies have confirmed similar cognitive development outcomes (Bonfiglio, 2011; Hirko, 2009; Howard-Hamilton & Sina, 2001; Pascarella & Terenzini, 2005).

While studies have documented many participant-benefits, it is critical to emphasize participation itself does not guarantee these aforementioned outcomes, which could partially explain the mixed results (Gayles & Hu, 2009a; Watson & Kissinger, 2007). Specifically, the more students are involved – with respect to time and effort – in a learning experience (such as intercollegiate athletics), the greater the developmental outcome (Gayles, 2009; Gayles & Hu, 2009a). Additionally, cognitive development is enhanced when participants are exposed to multicultural relationships, communities, and experiences (Hirko, 2009; Wolf-Wendel, Douglas, & Morphew, 2001). Without a doubt, intercollegiate athletics has the capability to foster a multicultural environment which links athletes "across most differences, including race, socioeconomic status, and geographic background" (Wolf-Wendel et al., 2001, p. 376). Therefore, athletic administrators must be attuned to properly leverage intercollegiate athletics so students who compete in varsity athletics are able to effectively take advantage of the holistic benefits and outcomes athletics offers.

Division I "Power Five" Athletic Culture

As we explore the educational value of intercollegiate athletics, it is important to understand the context of the Power Five athletics sample and the structural issues that may affect optimal educational experiences. In August of 2014, the NCAA Division I Board of

Directors granted autonomy to the 64 schools in the richest five conferences (the ACC, Big 12, Big Ten, SEC and Pac-12) that had threatened to leave the NCAA unless granted autonomy to enact legislation unique to their interests (Hosick, 2014; Wolken, 2014). Many of the initiatives these institutions sought to implement were athlete-centric, including the ability to offer additional compensation, loosen agent restrictions, and offer compensation for players' families to attend postseason games (Bennett, 2014; Weight & Zullo, 2015; Wolken, 2014). This formal governance shift is troubling to some who believe it will hasten the arms race of extravagant expenditures (Dosh, 2014; Sneed, 2014; Terlep, 2014).

The arms race of expenditures represents a win-at-all-costs phenomenon wherein athletic administrators outspend one another by building bigger facilities (Frei, 2011; Knight Commission, 2001; 2009); paying coaches exorbitant salaries (Budig, 2007); and/or by recruiting more athletes than the available scholarships or legal roster spots (Guilbeau, 2011). Each of these actions are undertaken in order to gain a competitive advantage (Knight Commission, 2009, 2010; Murdock, 2007; Suggs, 2001), yet "the gains from bidding higher turn out to be self-canceling when everyone does it. The result is often an expenditure arms race with no apparent limit" (Frank, 2004, p. 10). The arms race has been pursued at all levels of intercollegiate athletics, but some of the most detrimental effects of the spending are most clearly evident at the Division I Power Five level where the money has been most abundant. At this level, we have seen a proliferation of new athlete-only workout centers, entertainment lounges, practice facilities and study centers often miles away from "main campus" that structurally isolate athletes from the rest of the university population (Duderstadt, 2012; Frey, 2012). This structural isolation can exacerbate other forms of athlete isolation that have been documented in the literature within Division I institutions including feelings of "otherness" due to time demands (Adler & Adler, 1991), racial isolation (Davis, 2014; Rhoden, 2010; Sellers, Kuperminc, & Damas, 1997), and academic isolation in the form of clustering (Fountain & Finley, 2009; Fountain & Finley, 2011; Schneider, Ross, & Fisher, 2010).

Theoretical Foundation

To frame this study, the researchers draw on Astin's (1984) Theory of Student Involvement. This theory is widely utilized within the current student affairs literature, yet is rarely applied to the student-athlete higher education population subset. To further understand how students grow and develop during college, Astin (1984) considers how undergraduate students interact with their campus environments. This theory presents a modern interpretation of numerous developmental theories in higher education. Astin (1984) posits the level of physical and psychological energy that students devote to the academic experience ultimately influence levels of personal development and learning. Further, he argues students' commitment to physical and psychological components of the college experience occur along a continuum. The quantity and quality of students' interactions with campus outlets influence levels of personal development and holistic learning.

Over the course of the past 25 years Astin's Theory of Involvement has continued to evolve to include concepts of student engagement. Today those who draw on Astin's theory in the context of the contemporary student-athlete experience (i.e. Comeaux & Harrison, 2001; Gayles and Hu, 2009) continue to discuss engagement with multiple campus outlets as an ideal goal. In this modern interpretation, students move beyond group membership or basic

involvement and fully engage in diverse environments to produce holistic and meaningful experience.

Additionally, in 1993 and 1999 Astin revised his theory to suggest students who are actively involved both physically and psychologically during the college experience demonstrate greater overall learning and personal development. For example, a student who is actively involved psychologically may devote consistent energy to academic pursuits and interact frequently with campus stakeholders (i.e. campus academic advisors, career development centers, student organizations). A student who is physically involved may not only engage frequently with extracurricular activities, but also physically visit spaces associated with multiple roles (Astin, 1993, 1999). Building from this definition, scholars (i.e., Comeaux & Harrison, 2001; Gayles & Hu, 2009) posit that an athlete who is both psychologically and physically engaged consistently interacts with campus environments both internal to and outside of athletics. In this process, individuals develop a holistic peer group and mentorship system to enhance life skills and experience, broaden perspectives, and develop stronger personal networks.

To this end, this study draws on the major tenets of Astin's (1984) Theory of Student Involvement to understand how the student-athlete experience influences student learning and development. We draw on this theory to quantify and qualify the educational benefits of the student-athlete experience by considering specific measures of psychological and physical involvement with campus (e.g., achievement striving, toughness, self-discipline, self-esteem, teamwork, leadership, emotional intelligence, courage, and perseverance). This theory provides a lens to understand how levels of involvement with campus appear to differ between student-athletes and general undergraduate student subsets. This higher education theory frames our discussion on how the student-athlete experience may provide additional educational benefits for this higher education population subset and warrants the placement of intercollegiate athletics within higher education. As a segment within the academy that is largely publicly subsidized and highly scrutinized, this research provides an exploratory view into the educational value of intercollegiate athletics with an emphasis on select psychological variables.

Method

Instrument

The population of interest was Division I Football Bowl Subdivision (FBS) student-athletes and active students. In order to draw a broad sample that would facilitate generalizability, the research was conducted through survey methodology. A 37-item instrument was utilized composed of standard demographic questions in addition to 15 embedded subscales measuring psychological, physiological, and intellectual measures. For this study, the established psychological scales of achievement striving, self-discipline (Costa & McCrae, 1992), toughness, leadership, (Hofstee, De Raad, & Goldberg, 1992), self-esteem (Rosenberg, 1965), teamwork, perseverance, courage, and social/emotional intelligence (Peterson & Seligman, 2004) were utilized. These scales have been refined through multiple measures of validity and have demonstrated high reliability coefficients through extensive empirical research. The entire instrument was reviewed by a survey design consultant from the Odum Institute, an organization designed to aid in the advancement of social science research. Additionally, the survey was reviewed by a panel of six individuals deemed experts in the area in an effort to ensure validity

of the instrument as a whole. The panel of experts included three sport administration researchers, a practicing sport psychologist, a university student counselor, and a researcher with a focus in psychological scales.

Data Collection

Surveys were distributed via Qualtrics to a large subset of students participating in lifetime fitness courses and all student-athletes from three institutions representing the Big Ten, Atlantic Coast, and Southeastern conferences. Student-athlete surveys were sent directly to the respondents using institutional email addresses and yielded a response rate of 27.12% ($n = 435$). Non-varsity athlete participants were invited via lifetime fitness instructor emails and yielded ($n = 914$) responses. Due to the inability to track instructor follow-through in dissemination, the response rate for lifetime fitness participants was immeasurable, but the maximum possible number of participants within the courses was approximately 6200 with equates to a minimum possible response rate of 14.74%.

Data Analysis

Missing data analysis was conducted in order to address patterns of missingness in the data. Of the 1349 total responses, case-wise deletion was utilized on 10% of the cases which had no information for the independent variables and subsequently no utility. Of the remaining observations, 95% ($n = 1143$) were complete. Given the high completeness rate among usable observations, listwise deletion was used to define the samples used in the analyses. Data were analyzed utilizing multiple one-way analyses of variance with independent variables of intercollegiate athlete status, sex, class standing, race, age, “revenue” sport, grade point average, and participation in youth sport tested. One-way analysis of variance was chosen as the optimal method due to different patterns of missingness on the outcomes that would result in unacceptable information loss if MANOVA were utilized. Additionally, an omnibus hypothesis was not being tested, thus one-way analyses of variance were the most efficient statistical tests for the research questions addressed in the study. In order to address research question 3A, one two-way analysis of variance was utilized. Quantitative data were analyzed utilizing Statistical Package for Social Sciences (SPSS) 20.0.

Results

Sample Demographic Information

The sample was primarily composed of Caucasian ($n = 981$; 80.9%), female ($n = 836$; 68.9%) respondents with a fairly even split in respondent class standing (see Table 1). Every NCAA sport was represented in the athlete sample with a predominance of rowers ($n = 126$; 34.1%) and track and field participants ($n = 52$; 14.1%). The independent variable of “revenue” sport athlete was composed of 19 football and six men’s basketball players ($n = 25$; 6.8%). Based on the target population, these response rates demonstrated over-representation of Caucasian respondents, women, and rowers, and under-representation of African Americans, football players and men. All other sports and categories were reflective of the target population. These

sampling errors are addressed through analysis of the gender, “revenue” sport, and ethnicity independent variables.

Average age for athletes ($M = 19.89$; $SD = 1.490$) and non-athletes were similar ($M = 19.26$; $SD = 1.582$), and the median GPA for both groups was in the 3.0-3.49 category. Both athlete and non-athlete groups shared the median category of participation in organized competitive athletics beginning between 5-8 years old. Athletes indicated a higher number of hours per week spent in organized competitive high school sport with the median of 10+ hours/week, while non-athletes median was within the moderate category of 5-10 hours per week.

Table 1

Demographic Information

		ICA status				All	
		Non-ICA		ICA			
		%	n	%	n	%	n
Sex	Male	31.2%	242	30.9%	114	31.1%	355
	Female	68.8%	533	69.1%	255	68.9%	788
Race	Caucasian	80.1%	620	82.6%	304	80.9%	925
	African-American	4.9%	38	7.9%	29	5.9%	67
	Hispanic	5.3%	41	3.3%	12	4.6%	53
	Asian	6.3%	49	3.1%	11	5.2%	59
	Other	3.5%	27	3.1%	11	3.3%	38
Class Standing	Freshman	27.9%	216	29.3%	108	28.4%	325
	Sophomore	25.1%	194	23.3%	86	24.5%	280
	Junior	23.4%	181	17.9%	66	21.5%	246
	Senior	22.2%	172	24.0%	88	22.9%	262

*ICA=
Intercollegiate
Athlete
 $N = 1143$

Ability to Pursue University Opportunities

A Likert-scale question was utilized to gauge respondent perceptions of their ability to pursue university opportunities. The scale included five categories including never (1), rarely (2), sometimes (3), often (4), and always (5). Significant differences were evident between athletes and non-athletes $F(1, 1142) = 70.73$, $p < .01$ with non-athletes indicating more ability to pursue university opportunities with a mean approaching “often” $M = 3.8$ ($SD = .782$), while the athletes mean was closer to the “sometimes” indicator 3.36 ($SD = .948$). Within the athlete subpopulation, significant differences were evident between “revenue” and “nonrevenue”

athletes $F(1, 251) = 20.234$, $p < .01$ with “revenue” athletes ($M = 2.88$; $SD = 1.013$) nearly a full point below their peer “nonrevenue” athletes ($M = 3.66$; $SD = .857$) in ability to pursue university opportunities with the “revenue” athlete mean residing in the “rarely” range. Other significant differences included seniors and those with a low 2.0-2.49 GPA indicating less opportunity to pursue university opportunities than freshmen and those with GPAs in the 3.0-4.0 range. No significant differences were uncovered within the independent variables of sex, race, and level of participation in youth or high school sport. A complete listing of related means and statistics can be found in Table 2.

Table 2

Perceived Student Ability to Pursue University Opportunities

	Mean 1	SD1	Mean2	SD2	Mean Difference	F	p
Ability to Pursue Opportunities	3.65	.866					
ICA v. Non-ICA	3.36	0.945	3.8	.782	-.440	70.733	.000
Revenue v. Nonrevenue	2.88	1.013	3.66	.857	-.782	20.234	.000
Freshmen v. Senior	3.75	.799	3.51	.898	.243	3.949	.004
2.0-2.49 v. 3.0-3.49	3.25	.943	3.66	.859	-.410	3.567	.023
2.0-2.49 v. 3.5-4.0	3.25	.943	3.69	.861	-.440	3.567	.011

Note. Scale included never (1), rarely (2), sometimes (3), often (4), and always (5)

Note. Non-significant independent variables included sex, race, and participation in youth sport

Personality Constructs

Of nine personality construct scales, five revealed significant differences between athlete and non-athletes; five revealed significant differences between male and females; three indicated differences between those who participated extensively in high school athletics, and those who participated in high school athletics less than 10 hours a week, two scales garnered race-based differences, and one scale indicated differences between “revenue” and “nonrevenue” athletes. The two-way analysis of variance indicated no significant difference between personality constructs and athlete status and class standing.

Each of the athlete-non-athlete comparisons indicated significantly higher personality construct scale scores for the athlete respondents. The largest effect size was in the achievement striving scale $F(1, 1119) = 36.127$, $p < .01$ with the athletes scoring nearly a full point higher than non-athletes. Similar patterns of significance and higher scores for the athlete population were found in the teamwork $F(1, 1105) = 4.217$, $p < .01$, leadership $F(1, 1089) = 27.878$, $p < .01$, valor/bravery/courage $F(1, 1089) = 21.996$, $p < .01$, and perseverance $F(1, 1089) = 8.629$, $p < .01$ scales. Similarly, each of the significant differences based on participation in club or high school athletics demonstrated higher scale scores for those who participated in extensive high school competition categorized as “10+ hours per week”. These scales included achievement striving $F(1, 1119) = 9.908$, $p < .01$, teamwork $F(1, 1105) = 3.221$, $p = .01$, and leadership $F(1, 1089) = 3.10$, $p = .05$.

Gender and ethnicity differences were mixed with female respondents displaying a higher mean score on the toughness $F(1, 1119) = 30.931$, $p < .01$ and self-discipline $F(1, 1110) = 7.664$, $p = .01$ scores while males displayed higher scores in self-esteem $F(1, 1105) = 7.078$, $p = .01$,

leadership $F(1, 1089) = 27.878, p < .01$, and valor $F(1, 1089) = 21.996, p < .01$. The only two scales yielding significant ethnicity differences were achievement striving and perseverance with African-American respondents with significantly higher achievement striving scores than all other measured ethnicities and Asians scoring significantly higher in perseverance than all other ethnicities. A complete listing of scales and significant differences can be found in Table 3.

Discussion & Implications

The purpose of this research was to explore the legitimacy of athletics as a holistic educational endeavor. In order to demonstrate clear educational legitimacy, one would expect to see marked growth through the class standing variable for both athletes and non-athletes with athletes demonstrating additional growth. Based on the lack of significance in the two-way analysis of variance utilizing independent variables of athlete status and class standing, this conclusion cannot be made based on these non-longitudinal self-measures – there does not appear to be growth in these measures for either athletes or non-athletes throughout their collegiate experience. This lack of athlete change over time could provide evidence of a lack of markable growth throughout their university experiences, but a more realistic conclusion for the lack of change in the short four-year window of time may be explained by research that notes many measures of psychological attributes can be relatively stable over time (Costa & McCrae, 1986; McCrae, Costa, Ostendorf, Angleitner, Hrebickova, Avia, et al., 2000) and it is not realistic to expect change given the sampling and measurement techniques used within this study. There are some clear patterns that emerged from the data, however, that provide important implications for researchers and practitioners.

Within the measures of ability to pursue university opportunities, non-athletes indicated a greater ability to pursue opportunities than athletes, and “nonrevenue” athletes indicated greater ability than “revenue” athletes, though with the “revenue” athlete sample of just 25, these findings should be generalized with caution. This data support Pascarella et al. (1999) who found that men’s basketball and football players are not deriving the same positive outcomes as their athlete peers. An interesting insight into perception of “university opportunities” is demonstrated by these respondents, however, in that their participation in intercollegiate athletics could be viewed as an extensive university opportunity. Perhaps an emphasis on varied experiences could facilitate greater educational outcomes as Gayles (2009) has emphasized – greater involvement, effort, and multiculturalism is more likely to produce greater outcomes. As such, it is critical for athletic administrators and coaches to reflect on strategies for student-athletes to engage with the student life and not get isolated within the athletic culture (Adler & Adler, 1991; Davis, 1994; Duderstadt, 2012; Frey, 2012; Paule, 2010). It may also be helpful to emphasize the opportunities and learning outcomes within athletics as the “university opportunity” experienced by many student athletes within athletics can be tremendous and is often overlooked.

Forwarding Theory

Astin (1999) posited students who are actively involved both physically and psychologically during the college experience demonstrate greater overall learning and personal development. The outcomes of this study did not support this theory when utilizing participation in intercollegiate athletics as a demonstrator of physical and psychological involvement in comparison with a control group of physically active undergraduate students. It is important to

note, however that both the athlete and non-athlete populations did not change significantly throughout their four-year experience despite the greater opportunity expressed by non-athletes to pursue opportunities. In turn, this suggests levels of student engagement are indeed perhaps associated with involvement as Astin continues to suggest in contemporary interpretations of this theory. More specifically, both student-athletes and non-student-athletes who expressed greater opportunities for involvement continue to show stagnant progress with respect to involvement. In turn, sheer involvement in a broader array of opportunities may not coincide directly with engagement; or in other words; a meaningful experience.

Another critical finding from this data is found in the five personality constructs that revealed significant differences between the athlete and non-athlete populations. Athletes scored significantly higher on the scales of achievement striving, teamwork, leadership, valor, and perseverance supporting much of the literature citing the psychological/character-building benefits of physical activity (Bonfiglio, 2011; Hirko, 2009; Howard-Hamilton & Sina, 2001; Pascarella & Terenzini, 2005; Potuto & O'Hanlon, 2007; Singer, 2008; Videon, 2002), and the idea of holistic education through athletic participation (Bonfiglio, 2011). A unique supplement to these findings is the mirroring of significance in the categories of achievement striving, teamwork, and leadership with those who participated extensively in high school or club sport. This finding supports the notion that perhaps many of the holistic benefits of participation in athletics appear to be "set" prior to intercollegiate athletics participation, or perhaps many of the educational outcomes that occur throughout the collegiate experience are not founded in the psychological scales utilized within this study. This again could refute Astin's modern interpretation which suggests higher levels of involvement foster active engagement in a campus community. Moreover, it appears levels of engagement may be determined and influenced much before the higher education experience begins – an interesting finding worthy of future discussion and research.

Overall, findings suggest higher education practitioners must continue to reflect upon how institutions can assist student-athletes to continue to cultivate benefits from intercollegiate athletics based on the platform it provides. As Elizabeth Kiss and J. Peter Euben (2010) recently wrote for *Inside Higher Ed*, "The question is not whether colleges and universities should pursue moral education, but how. Moral (or perhaps immoral) education goes on constantly, if not always self-consciously" (para. 2). To this end, higher education practitioners who work with student-athlete populations must continue to assess program delivery models to ensure student-athletes are able to purposefully engage in not only in athletics and educational endeavors, but also as holistic human beings.

Moving forward, higher education professionals must consider just how to best deliver programs to provide student-athletes with avenues for meaningful academic, athletic, and holistic development. Wolf-Wendel et al. (2001) suggested eight commonalities that make athletic programs successful: (a) student-athletes share common goals: to grow, improve, and ultimately, win; (b) through practices, classes, and living spaces, they engage in intense and frequent interaction; (c) they share common experiences of adversity through hard work, suffering, and sacrifice; (d) in working together to build a team, they recognize that each individual has something important to contribute to their collective success; (e) they hold each other accountable in terms of academic performance; (f) they hold each other accountable in terms of performance on the field, court, etc.; (g) they have coaches who invest time in each individual and truly care about their successes to guide them through their experiences; and (h) through involvement in athletics as children, collegiate student-athletes have exposure to several different

identities at a young age. While commonalities have been identified, the onus to develop, deliver, assess and continually enhance opportunities for student-athletes to grow athletics, educationally and developmentally continues to fall upon higher education and student affairs professionals. To this end, higher education programs must continually undergo stringent assessment and evolve as the intercollegiate athletics continues to change to ensure student-athletes are not just becoming involved, but actively engaging in meaningful activities throughout the higher education experience.

Limitations

While this study presents many recommendations and implications for higher education professionals, specific limitations must also be presented and considered. First, scholars and higher education professionals must consider that this sample is not representative of the target population. It should be noted there is an overrepresentation of white females – particularly in the athlete population. In addition, there is a noted lack of revenue sport athlete representation. Third, this study provides only a snapshot of the psychological experiences of current student-athletes and does not consider longitudinal data. Fourth, this study only includes Division I-FBS institutions. Moreover, results cannot be widely generalized to other divisions as findings could be very different in other NCAA and governing body divisions. Finally, data could perhaps present a skewed perspective as personality constructs may in fact be relatively stable over time.

Future Research

Moving forward it would be of heightened interest for research to further explore and test the educational value of intercollegiate athletics within institutions modeling an educational approach. This could be approached on a team-by-team design or a study to explore institutional differences. Scholars may also consider a study design that defines the education that is supposed to be happening during the undergraduate experience and explores methods to most effectively foster growth in these areas. Another interesting area of research that can extend the findings within this study is an examination of student levels of engagement at the youth and/or high school levels and how those translate into involvement and growth throughout their university experience. Finally, examining variables within a more representative sample could perhaps uncover significant differences between groups that would further explain how student-athletes purposefully engage in the educational experience and psychologically develop during college.

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Table 3

Personality Construct Scale Scores

	Mean 1	SD1	Mean2	SD2	Mean Difference	F	p	Min	Max
Achievement Striving	35.00	3.185						19	50
ICA v. Non-ICA	35.82	2.856	34.59	3.262	1.230	36.127	.000		
Revenue v. Nonrevenue	36.29	3.593	34.97	3.169	1.322	4.061	.044		
Extensive v. Moderate HS Competition	35.38	2.894	34.26	3.981	1.116	9.908	.002		
Extensive v. Minimal HS Competition	35.38	2.894	34.36	3.151	1.016	9.908	.061		
Extensive v. No HS Competition	35.38	2.894	34.23	3.437	1.146	9.908	.000		
African American v. Caucasian	36.50	3.633	35.00	3.100	1.503	6.489	.006		
Caucasian v. Asian	35.00	3.100	33.55	2.816	1.447	6.489	.013		
African American v. Asian	36.50	3.633	33.55	2.816	2.950	6.489	.006		
African American v. Hispanic	36.50	3.633	34.23	3.285	2.270	6.489	.003		
Toughness	33.35	4.931						18	52
Female v. Male	33.90	5.014	32.08	4.491	1.821	30.931	.000		
Freshman v. Junior	34.10	5.099	32.79	4.648	1.309	3.935	.049		
Freshman v. Senior	34.10	5.099	33.00	4.999	1.099	3.935	.015		
Self-Discipline	30.93	3.493						15	44
Female v. Male	31.12	3.451	30.48	3.551	.648	7.664	.006		
Self-Esteem	28.17	4.896						20	48
Male v. Female	28.79	4.781	27.90	4.923	.897	7.078	.008		
Teamwork	29.02	3.614						19	45
ICA v. Non-ICA	29.35	3.442	28.85	3.687	.500	4.217	.040		
Extensive v. No HS Competition	28.81	3.565	29.76	3.632	-.945	3.221	.014		

	Mean 1	SD1	Mean2	SD2	Mean Difference	F	p	Min	Max
Leadership	29.33	3.290						23	45
ICA v. Non-ICA	30.1	3.159	28.94	3.287	1.160	27.878	.000		
Male v. Female	29.71	3.449	29.17	3.208	.535	5.462	.020		
Extensive v. Moderate HS Competition	29.48	3.265	28.61	2.919	.874	3.100	.048		
Emotional Intelligence	26.24	3.574						17	35
Valor/Bravery/Courage	30.86	5.789						23	50
ICA v. Non-ICA	32.09	3.346	30.24	6.598	1.850	21.996	.000		
Male v. Female	31.69	5.455	30.51	5.894	1.179	8.213	.004		
Perseverance	25.16	3.257						17	40
ICA v. Non-ICA	25.59	2.606	24.93	3.527	.660	8.629	.003		
Asian v. Caucasian	22.77	5.282	25.22	3.065	-2.453	6.718	.000		
Asian v. African American	22.77	5.282	25.81	3.624	-3.043	6.718	.000		
Asian v. Hispanic	22.77	5.282	25.56	2.772	-2.793	6.718	.001		
Asian v. "Other"	22.77	5.282	25.6	3.05	-2.833	6.718	.011		

Note. Independent variables included sex, class standing, race, GPA, "revenue"/"non-revenue" sport athlete, and participation in youth sport