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2014

## Career maturity and college student-athletes: A comprehensive review of literature

Alan S Kornspan, *University of Akron Main Campus*



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## **Career Maturity and College Student-Athletes: A Comprehensive Review of Literature**

**Alan S. Kornspan**  
University of Akron

Over the past thirty years an abundance of research has examined the career maturity of college student-athletes. However, a review of this literature has been previously unavailable. Therefore, the purpose of the present manuscript is to provide a comprehensive overview of investigations which have assessed the career maturity of college student-athletes. The paper provides a summary of the student-athlete career maturity literature. In particular, the details of the main demographic and psychological variables investigated are presented. Finally, a discussion of the student-athlete career maturity literature and suggestions for future research are provided.

*Keywords:* career maturity, student-athletes, research

### **Learning Objectives**

- The reader will understand the type of research that has been completed on the career maturity of college student-athletes over the past four decades.
- The reader will acquire knowledge of the results of studies that have examined the relationship of various demographic and psychological variables to the career maturity of college student-athletes.
- The reader will gain an understanding of future investigations that can be conducted to further study the relationship of demographic and psychological variables to student-athlete career maturity.

Throughout the past four decades researchers have studied the psychosocial development of college student-athletes (Ewing, 1975; Wisdom, 2006). These investigations have been based upon developmental theories that provided a framework to examine psychosocial and career development (Chickering & Reisser, 1993; Crites, 1974; Super, 1990). Initially, student-athlete research was guided by these theoretical models and analyzed differences in levels of psychosocial development between athletes and non-athletes (Blann, 1985; Sowa & Gressard, 1983). Concurrent with studies examining student-athlete development was the initiation of The National Association for Academic Advisors for Athletics (N4A) in 1975 (National Association of Academic Advisors for Athletics, 2013). Since the mid-1970s, the student-athlete academic advising profession has utilized the knowledge gained from a scientific approach in order to provide practical guidelines to enhance the psychosocial development of college student-athletes (Frank, 2012).

As student-athlete career maturity investigations progressed, correlational research methods and statistical regression analysis were utilized in order to provide scholars and practitioners with an understanding of variables that may predict student-athlete career maturity (Dailey, 1995; McKinney, 1991). In particular, researchers analyzed the associations between numerous predictor variables and career maturity of student-athletes. Specifically, investigators have utilized demographic variables (e.g., gender, race, year in school, revenue/nonrevenue athlete, scholarship status and other variables) in order to determine the association between these variables and student-athlete career maturity (McKinney, 1991; Muczko, 1993). Additionally, more recent research has explored the relationship of psychological variables to student-athlete career maturity (Ahlgren, 2001; Brown & Hartley, 1998; Dailey, 1995; Houle, 2010; Murphy, Petitpas, & Brewer, 1996; Tyrance et al., 2013). In addition to studies that have described career maturity levels of student-athletes, scholars have also explored the impact of educational interventions on this construct (Kennedy, 1985; Libretto, 1979; Stankovich, 1998). These experimental inquiries have provided workshops intended to increase student-athlete career maturity throughout the



course of a prescribed amount of time (e.g., Kennedy, 1985; Selden, 1996; Stankovich, 1998). Although few experimental studies have been initiated, investigations have utilized pre-test/post-test experimental designs to attempt to increase the career maturity of student-athletes.

While there has been over thirty years of research examining the career maturity of college student-athletes, a comprehensive review of this literature is unavailable. Hence, the main objective of the present manuscript is to provide an inclusive overview of studies that investigated the career maturity of college student-athletes. First, the method used to conduct the review of literature is explained. Next, a synopsis of the results of studies which examined the career maturity of college student-athletes is presented. Specifically, details of the student-athlete career maturity literature are described. In particular, an overview of the study characteristics and main demographic and psychological variables that have been investigated are detailed. Finally, the paper concludes with a discussion of the student-athlete career maturity literature and suggestions for future research.

## Method

In order to locate studies that analyzed the career maturity of student-athletes, numerous computerized searches were completed. Specific databases utilized included Google Scholar, Proquest Dissertations, WorldCat, and Sport Discus. When searching for relevant studies, various combinations of the following keywords were used to locate articles, dissertations, and theses: “career maturity”, “athletes”, “student-athletes”, “career development inventory”, “career decision”, and “career decisiveness”. Subsequent to identifying student-athlete career maturity literature, studies were analyzed to determine if they met the following criteria: 1) the sample consisted of college varsity student-athletes, and 2) one of the following career maturity instruments was used as a criterion variable: Career Maturity Inventory (CMI; Crites, 1978); Career Development Inventory (CDI; Super et al. 1981), Career Decision Scale (CDS; Osipow, 1987); Career Thoughts Inventory (CTI; Sampson, Peterson, Lenz, Reardon, & Saunders, 1996), Career Factors Inventory (CFaI; Chartrand, Robbins, Morrill, & Boggs, 1990), or the Career Futures Inventory (CFuI; Rottinghaus, Day, & Borgen, 2005).

After locating studies through the search procedures described, a copy of the dissertation, thesis, or journal article was obtained. After obtaining copies of the studies, a detailed table was developed in order to classify various aspects of the investigations reviewed. An analysis of each investigation was then completed. For each study, the authors, year of publication, type of study, participants, predictor and criterion variables and main findings were recorded.

The focus of the present review of literature was to examine the research that had been conducted on the career maturity of student-athletes participating in collegiate athletics at a university or college in the United States. Specifically, it should be noted that within the NCAA, there are three different levels of athletic competition. For instance, the highest level of collegiate athletics is NCAA Division I athletics. At this competitive level, student-athletes are able to earn scholarships based on athletic performance. Consequently, these student-athletes are expected to place a high amount of effort and intensity into achieving successful athletic performances. The goal of athletics at the NCAA Division I level is to gain prominence in one’s sport both at the regional and national level of competition. At this level of athletic participation, a main emphasis is to provide athletics for spectators within the university and surrounding community (NCAA, 2013a).

In addition to athletes that compete at the NCAA Division I level, student-athletes also participate at the NCAA Division II level. According to the NCAA, student-athletes at this level are provided with a “comprehensive program of learning and development in a personal setting. The Division II approach provides growth opportunities through academic achievement, learning in high-level athletics competition and development of positive societal attitudes in service to community” (NCAA, 2013b, p. 274). Although scholarships are awarded at this level, most NCAA Division II schools have a smaller enrollment than NCAA Division I schools and focus on providing the student-athlete with a smaller teacher to student ratio (NCAA, 2013b). Student-athletes competing at the NCAA Division III level are participating in an athletic environment which focuses on academic success and providing the student-athlete with the most optimal environment in order to be a successful student (NCAA, 2013c). Thus, at this level the competitive season is scheduled to create minimal conflicts with academic course work and there is emphasis on how the participant experiences sport rather than on how sport influences the spectator (NCAA, 2013c). In general, student-athletes that participate in the NAIA and the NJCAA are participating in athletic environments similar to NCAA Division II and NCAA Division III athletics.

## Results

### General Overview of the Career Maturity Studies

Thirty-six studies were located which measured the career maturity of college student-athletes. These investigations included eight published journal articles, one book chapter, 21 doctoral dissertations, five master's theses, and one senior honors research project. Undoubtedly, the popularity of evaluating the career maturity of student-athletes has increased since the late 1970s. For instance, between 1979 and 1989 only four studies were found which measured this construct. These initial studies utilized the CMI to assess career maturity. During the period of the 1990s, investigations evaluating the career maturity of student-athletes increased. Specifically, throughout the 1990s thirteen studies were completed. The first decade of the twenty-first century was comparable in the amount of studies conducted as thirteen studies were located. Similarly, in the first four years of the 2010s, six studies have been completed.

A majority of the studies ( $n = 29$ ; 80.6%) reviewed were descriptive studies which used a survey instrument to assess the career maturity of a sample of collegiate student-athletes. Only a few studies ( $n = 7$ ; 19.4%) utilized an experimental intervention aimed at determining if a career education intervention enhanced the career maturity of college student-athletes. Within both the descriptive and experimental studies reviewed, the most common instruments used to assess career maturity were the Career Maturity Inventory (CMI;  $n = 22$ ; 61.1%), the Career Development Inventory (CDI;  $n = 6$ ; 16.7%) and the Career Decision Scale (CDS;  $n = 5$ ; 13.9%). Thus, 91.7% of the student-athlete career maturity studies ( $n = 33$ ) utilized one of these three measures. Additional instruments used to evaluate the career maturity of student-athletes include the Career Thoughts Inventory (CTI;  $n = 1$ ; 2.8%); Career Factors Inventory ( $n = 1$ ; 2.8%), and the Career Futures Inventory ( $n = 1$ ; 2.8%). Table 1 summarizes the studies that have investigated collegiate student-athlete career maturity.

**Table 1. Summary of Research on the Career Maturity of College Student-Athletes**

Study	Participants	Instrument	Variables	Selected Findings
Libretto (1979)	36 DI M A	CMI	CMI as dep. measure in intervention study	Exp. Group of A did not improve more than a control group that did not complete that the intervention
Faulkner (1985)	40 DI M A	CDI	CDI as dep. measure in intervention study	Exp. Group of A did not improve more than a control group that did not complete the intervention
Kennedy (1985)	66 DI M A	CMI	CMI as dep measure in intervention study	Exp. group of A improved CM more than a control group that did not complete intervention
Kennedy and Dimick (1987)	112 DI M A 80 M NA	CMI	A vs. NA Race	AA A = C A on CM A < NA on CM When compared to 12 <sup>th</sup> grade norms for CMI A were in 34th percentile
McKinney (1991)	51 DI R A 57 DI NR A 53 ECI N A	CMI	R vs. NR A vs. NA	R A NR A's < ECI on CM R A = NR A on CM
Bals (1992)	77 DI A 68 DII A	CMI	Race YIS	UpC > UnC on CM Race not rel. to CM



Muczko (1993)	73 DI A	CMI	Race	AA A < CA on level of decisiveness in CM
Ludwig (1993)	50 DI A	CMI	G R vs. NR Intervention	RA and NRA improved CM after CM Intervention R A = NR A on CM M A < F A on CM
Wooten, Usher, and Osborne (1994)	41 A 178 NA	CDI	A vs. NA	A = NA on CM
Dailey (1995)	65 DI M A 51 M NA	CMI	GPA FI CCS Career Choice YIS MLE FLE A vs. NA	A < N A on CM GPA rel to CM of A Average scores for A when compared to published norms was the average for a ninth grade student
Patterson (1995)	53 NAIA A 51 NA	CDI	A vs. NA G	A = NA on CM M A = F A on CM
Murphy, Petitpas, and Brewer (1996)	124 DI A	CMI	AI FI G V vs. CS NR A vs. R A	AI and FI rel to CM V A < CS on CM FA > M A on CM NR A > RA on CM When compared to 12th grade norms for CMI A were in 27th percentile
Smallman and Sowa (1996)	125 DI M A	CDI	Race YIS NR A vs. R A	NR A = R A on CM Percentile scores for A in lowest 25% when compared to the norms for CDI CA > on Preferred Occupational Scale CDI than minority A YIS not rel to CM
Selden (1996)	15 DI A	CMI	Intervention	Exp. group of A improved CM more than a control group that did not complete intervention
Brown & Hartley (1998)	114 M DI and DII A	CDI	Realism AI DL	No rel between AI and CM A who selected professional athlete as career choice < CM than A who did not select professional athlete as career choice
Stankovich (1998)	25 DI A 42 NA	CMI	Intervention	Exp. group of A did not improve CM over a control group that did not complete intervention
Van Haveren (1999)	84 DI A 116 N A	CDS	A vs. NA G	A = NA on CI M A > CI than F A

Jaques (2000)	86 DI F A 72 F NA	CMI	A vs. NA PSA AI	F A and F NA = on CM AI rel to CM for FA CM not rel to PSA or playing on national team BB A < CM than Rowing and VB
Keene (2000)	140 DI A	CDS	AI G GPA YIS	GPA rel to CM M A > F A on CI AI not rel to CI YIS not rel to CM
Mayo (2000)	163 DI A	CMI	AI	No rel between AI and CM
Ahlgren (2001)	172 DI A 172 NA	CMI	A vs. NA AI CDMSE CLC EI Race CP G	Fresh. A = Fresh. NA on CM CLC was a significant predictor of CM for senior A and Fresh. A AI not rel. to CM Race not a significant predictor of CM Sr. A = Sr. N A on CM EI not a significant predictor of CM for A CP significant predictor of CM for Fresh. A G significant predictor of CM for Fresh. A CDMSE rel. to CM for A
Hill (2001)	101 DI M A 76 M NA	CMI	A vs. NA CMBMC	A < NA on CM based on CMBMC No differences in CM of A based on CMBC
Kornspan and Etzel (2001)	259 Jr. College A	CMI	Age AI CDMSE CLC G Race YIS	Age and G rel to CM CLC and CDMSE were significant predictors of CM AI not significant predictor of CM Psychological variables were more significant predictors than demographic variables to CM Race not a significant predictor of CM
Rivas (2002)	60 DI A 114 NA	CDI	A vs. NA G FI	A = NA on CM M < F on CM FI not rel to CM of A
Irving (2003)	41 DI A	CDS	CDMSE G Race YIS	M A = F A on CDS CDMSE rel to CI and CC Race not rel. to CI and CC YIS not rel to CI and CC
Hughes (2005)	548 DI A	CMI	COPP G RI TOI YIS	G rel. to CM YIS rel. to CM COPP rel. to CM RI rel. to CM TOI rel. to CM



Hooper (2006)	125 DI A 9 DII A 44 DIII A 53 NAIA A	CMI	DL	DIII Men's BB > DI, DII, NAIA Men's BB on CM
Gibson (2006)	65 DI A 51 Club A DI school 35 DII A 18 Club A DII school 30 DI A 57 Club A DIII school	CMI	AUT DL SI	CS A = A on CM SI rel. to DI A CM AUT rel. to DI A CM
Heller (2008)	200 DI A	CTI	G AI R vs. NR	M A = F A on CTI RA = NRA on CTI AI rel. to CTI
Whipple (2009)	367 DIII A	CMI	AI FI PPAI G	AI rel to CM FI rel to CM Public AI rel to CM Private AI rel to CM M A = F A on CM When compared to 12 <sup>th</sup> Grade norms for CMI A were in 34th percentile
Houle (2010)	221 DI A	CDS	AI BABPA CDMSE G Race Schol. S	AI rel to CM BABPA rel to CM CDMSE rel to CM Schol. S. rel. to CM F A > MA on CM AA < CA on CM
Linnemeyer and Brown (2010)	101 DI A 104 NA 121 ECI	CMI	A vs. NA ECI	DI A < NA on CM DI A = ECI on CM
Bader (2011)	42 DI AA A 29 AA NA	CMI	CLC AI CB CC A vs. NA	A < NA on CM AI rel. to CM CLC rel. to CM
Hukee (2011)	30 DIII A 50 NA	CFaI	A vs. NA AI	A = NA on CM AI not rel. to CM
Reece (2011)	25 DI A 32 NA	CDS	A vs. NA	A = NA on CI AP rel. to Ccert
Tyrance, Harris & Post (2013)	538 DI A	CFuI	AI G EPP Race R vs. NR	M > CK M > CO Race not rel. to CM AI not rel. to CAd or CK AI rel. to CO EPP rel to CO

*Note.* A = athlete; AP = Athletic Participation; AUT = Autonomous Behavior; BABPA = Belief in Ability to Become a Professional Athlete; CA = Caucasian American; CAd = Career Adaptability; CB = Career Barriers; CC = Career Commitment; Ccert = Career Certainty; CDI = Career Development Inventory; CDMSE = Career Decision Making Self-Efficacy; CDS = Career Decision Scale; CFaI = Career Factors Inventory; CFuI = Career Futures Inventory; CI = Career Indecision; CK = Career Knowledge; CLC = Career Locus of Control; CPP = Certainty of Playing Professionally; CMBMC = Consistent Match between College Major and College Choice; CMI = Career Maturity Inventory; CPP = Certainty of Playing Professionally; CO = Career Optimism; CS = Club Sport Athlete; DI = NCAA Division I; DII = NCAA Division II; dep = Dependent; DL = Division Level;

ECI = Students involved in Extra Curricular Activities; EPP = Expectation to Play Professional Sport; F = Female; FLE = Fathers Level of Education; FI = Foreclosed Identity; Jr. = Junior; M = Male; MLE = Mothers Level of Education; NA= non-athlete; NR= Non-revenue; PPAI = Public and Private Athletic Identity; PSA = Pro Sport Aspiration; R = Revenue; RI = Racial Identity; Schol. S = Scholarship Status; SI = Social Interaction; Sr. = Senior; TOI = Type of Institution Attended; UnC = Underclassmen; UpC = Upperclassmen; YIS = Year in School; V = Varsity Athlete.

## Study Characteristics and Variables

As seen in Table 1, the number of participants in the studies ranged from a total of 15 to 558. National Collegiate Athletic Association (NCAA) Division I athletes were assessed most often ( $n = 30$ ; 83.3%). A limited number of studies have investigated the career maturity of NCAA Division II ( $n = 5$ ; 13.9%), NCAA Division III ( $n = 4$ ; 11.1%), National Association of Intercollegiate Athletics (NAIA;  $n = 2$ ; 5.6%), or National Junior Collegiate Athletic Association student-athletes (NJCAA;  $n = 1$ ; 2.8%). Seventeen studies (47.2%) assessed the career maturity of both athletes and non-athletes, whereas 19 studies (52.8%) only assessed the career maturity of college student-athletes. In addition, all of the investigations ( $n = 36$ ) were conducted with athletes at universities and colleges within the United States.

## Variables Assessed Within the Student-Athlete Career Maturity Literature

Thirteen of the 36 studies (36.1%) determined if there were differences between a sample of student-athletes and non-athletes on a career maturity measure. In addition, researchers have analyzed variables that may be associated with the career maturity of college student-athletes. Overall, thirty variables were identified which have been studied in relationship to student-athlete career maturity. Specifically, 12 demographic variables were identified that were correlated with the career maturity of collegiate student-athletes. In particular, the most common demographic variables that have been examined were gender ( $n = 14$  studies; 38.9%), athletes versus non-athletes ( $n = 13$  studies; 36.1%), race ( $n = 9$  studies; 25%), year in school ( $n = 7$  studies; 19.4%), revenue athlete versus non-revenue athlete ( $n = 6$  studies; 16.7%), and GPA ( $n = 2$  studies; 5.6%). In addition to the study of how demographic variables relate to the career maturity of college student-athletes, 16 psychosocial variables have been assessed in relation to career maturity. The most frequent psychosocial variable investigated was athletic identity ( $n = 13$  studies; 36.1%). Additional variables explored included: Plans or Expectation to Play Professionally ( $n = 5$  studies; 13.9%), Foreclosed Identity ( $n = 4$  studies; 11.1%), Career Decision Making Self-Efficacy ( $n = 3$  studies; 8.3%), and Career Locus of Control ( $n = 3$  studies; 8.3%). Additionally, 12 psychosocial variables were only investigated in one study.

## Demographic Variables

**Athlete vs. Non-Athlete.** Thirteen studies (36.1%) have investigated whether or not college student-athletes were less career mature than non-athletes. NCAA Division I athletes were found to be less career mature than non-athletes in six studies. In particular, two studies (e.g., Kennedy & Dimick, 1987; Hill, 2001) examined differences between NCAA football and basketball players and non-athletes. The findings from this research indicated that NCAA Division I football and basketball players had a lower level of career maturity than non-athletes. Additionally, Dailey (1995) discovered that NCAA Division I swimmers and gymnasts were less career mature than non-athletes.

In addition to studies which have analyzed the career maturity differences between athletes and non-athletes, six investigations have compared the scores of college student-athletes to the published norms of a career maturity instrument. When comparing the results of student-athlete career maturity scores to published norms, investigations by Kennedy and Dimick (1987), Wooten et al. (1994), Dailey (1995), Murphy et al. (1996), Smallman and Sowa (1996), and Whipple (2009) revealed that student-athletes scored below the norms of the general population. In particular, the results of Smallman and Sowa's (1996) study revealed that student-athletes' career maturity scores were at or below the 25th percentile based on the norms for the CDI. Similarly, the average CMI score of the college student-athletes sampled by Murphy et al. (1996) were at the 27th percentile as compared to CMI norms for seniors in high school. Although most of the studies compared NCAA Division I athletes to the published norms, Whipple (2009) found that the mean score of the NCAA Division III athletes surveyed was at the 34th percentile for the norms of the CMI.



**Gender.** Career maturity research with college students has indicated a relationship between gender and career maturity (Luzzo, 1995; Prideaux & Creed, 2001). For instance, female college students are more likely to be career mature than males (Luzzo, 1995). Specifically, fourteen studies (38.9%) in the present review of literature assessed the relationship between gender and career maturity. In particular, eight out of the ten studies that investigated the association between gender and the career maturity of NCAA Division I athletes found that males were more likely to be less career mature than females (Ahlgren, 2001; Houle, 2010; Hughes, 2005; Keene, 1999; Ludwig, 1993; Murphy et al. 1996; Rivas, 2002; Van Haveren, 1999). In contrast, a relationship between gender and career maturity was not found in studies which sampled NCAA Division II and Division III athletes and NAIA athletes (Irving, 2003; Patterson, 1995; Whipple, 2009).

**Race.** Researchers have studied the relationship between ethnicity and career maturity of college students (Luzzo, 1991). Nine studies (25%) have assessed the association of race to the career maturity of college student-athletes. Kennedy and Dimick (1987), Bals (1992), and Irving (2003), found that race was not related to the career maturity of college student-athletes. In addition, Kornspan and Etzel (2001), Ahlgren (2001) and Tyrance et al. (2013) found that race was not a significant predictor of student-athlete career maturity. In contrast, Muczko (1993), Smallman and Sowa (1996), and Houle (2010), found an association between these variables. Specifically, Houle (2010) found that Caucasian student-athletes scored higher on a career maturity measure the African-American student-athletes while Smallman and Sowa found that Caucasian athletes scored higher on the Knowledge of Preferred Occupational scale of the CDI than minority athletes. Muczko (1993) found that Caucasian athletes scored higher on the involvement subscale of the CMI than African-American athletes.

**Year in School.** The career maturity literature has suggested that as individuals progress in school the more career mature they become (Naidoo, 1998). Seven student-athlete career maturity studies (19.44%) have assessed the association of academic classification to career maturity. Bals (1992) and Hughes (2005) found a relationship between year in school and career maturity. However, Dailey (1995), Smallman and Sowa (1996), Keene (2001), and Kornspan and Etzel (2001) did not find a relationship between year in school and the career maturity of student-athletes.

**Revenue Athlete Versus Non-revenue Athlete.** Scholars have hypothesized that revenue student-athletes may be less career mature than non-revenue athletes. For instance, revenue sport athletes may be focused on trying to become a professional athlete and thus have little desire to plan for a career outside of athletics (Linnemeyer & Brown, 2010; Murphy et al., 1996). To analyze this hypothesized relationship, four studies (11.1%) have assessed career maturity differences between revenue student-athletes and non-revenue student-athletes. The results of investigations completed by McKinney (1991), Ludwig (1993), and Smallman and Sowa (1996) revealed no differences between revenue student-athletes and non-revenue student-athletes on a career maturity measure. Conversely, the findings of the Murphy et al. (1996) study indicated that non-revenue student-athletes scored higher on a career maturity measure than revenue student-athletes.

**Grade Point Average.** Career maturity research has indicated that academic success is associated with higher career maturity (Powell & Luzzo, 1998). The relationship of grade point average to the career maturity of student-athletes has been assessed in two studies (5.6%). Dailey (1995) found that grade point average was not related to the career maturity of swimmers and gymnasts. However, Keene (2001) discovered that grade point average was negatively related to career indecisiveness of student-athletes.

**Time and Active Levels of Involvement.** Scholars have suggested that student-athletes may have difficulty in developing mature career plans because of the time demands placed on them (Linnemeyer & Brown, 2010). Two investigations (5.6%) have attempted to determine the relationship between demands on a student-athletes' time and career maturity by comparing student-athletes to other college students that have similar time demands (e.g., marching band students, fine arts students). McKinney (1991) observed that students in the marching band scored higher on a measure of career maturity than student-athletes. The results of the Linnemeyer and Brown (2010) study, however, revealed that student-athletes did not score significantly lower on career maturity than fine arts students.



## Psychosocial Variables

**Athletic Identity.** Researchers have hypothesized that if college student-athletes are excessively absorbed in their role as an athlete, they may not devote the time or have the inspiration to concentrate on developing mature career plans (Murphy et al., 1996). To test this hypothesis, thirteen student-athlete career maturity studies have utilized the Athletic Identity Measurement Scale (AIMS; Brewer, Van Raalte, & Linder, 1993) to determine if this construct is associated with career maturity. The Murphy et al. (1996) study was the first to examine the relationship between athletic identity and career maturity. Since this initial investigation, twelve additional studies have explored this association. Eight studies have discovered that athletic identity was related to career maturity, while five investigations did not find a relationship between this construct and career maturity.

**Expectations to Play Professional Sport.** Scholars have speculated that athletes who expect to become a professional athlete may have a lower level of career maturity than those who do not anticipate a professional career (Brown & Hartley, 1998; Linnemeyer & Brown, 2010). Kennedy and Dimick (1987) and Smallman and Sowa (1996) asked student-athletes if they expected to compete professionally. Kennedy and Dimick (1987) found that 48% of the NCAA Division I men's basketball and football players surveyed expected a professional sport career. Similarly, Smallman and Sowa (1996) reported that 34% of the student-athletes sampled had expectations of playing professional sport. Although these initial studies asked student-athletes about their intentions to play professional sport, they did not statistically analyze the relationship between expectations to play professionally and career maturity.

Overall, five studies (13.9%) were located that examined the relationship between a student-athletes' expectations to play professionally and career maturity. Brown and Hartley (1998) conducted the initial investigation to examine this relationship. These authors noted a negative relationship between expectation to play professionally and career maturity. Similarly, Hughes (2005) observed that the more certain a sample of NCAA Division I athletes were that they would play professionally the less career mature. In addition, Houle's (2010) research indicated a significant relationship between career maturity and one's belief that they would be able to support themselves financially as a professional athlete. In contrast, the results of the Jacque (2000) investigation did not yield a relationship between expectations of playing professional sport and career maturity.

**Career Self-Efficacy.** Researchers have hypothesized that being confident in one's ability to make career decisions is related to one's level of career maturity. For instance, the more confident one becomes in their ability to make career decisions the more likely they will become involved in the career decision making process (Kornspan & Etzel, 2001). Four studies have assessed the relationship between career maturity and the career decision making self-efficacy of college student-athletes. Ahlgren (2001), Kornspan and Etzel (2001), Irving (2003), and Houle (2010) all found a positive relationship between career decision making self-efficacy and career maturity.

**Career Locus of Control.** Research studies have indicated that college students with an external locus of control are less likely to have mature career attitudes than those with an internal locus of control (Luzzo & Ward, 1995). In particular, three studies (8.3%) have analyzed the relationship of career locus of control to the career maturity of student-athletes. Ahlgren (2001), Kornspan and Etzel (2001), and Bader (2011) found that career locus of control was a significant predictor of career maturity for college student-athletes. All three studies utilized the Career Locus of Control Scale (Trice, Haire, & Elliot, 1989) to measure this construct.

**Foreclosed Identity.** Scholars have suggested that the athletic environment may not afford the student-athlete the opportunity to participate in various career exploration activities since they have numerous demands placed on them (Murphy, et al. 1996). Therefore, student-athlete researchers have assessed the relationship between a foreclosed identity and career maturity. Dailey (1995) and Rivas (2002) did not find a relationship between foreclosed identity and career maturity. Conversely, investigations by Murphy et al. (1996) and Whipple (2009) revealed a negative relationship between these constructs. Thus, these researchers found that as one's level of foreclosed identity increases they are more likely to have a lower level of career maturity.

**Experimental and Quasi-Experimental Studies.** Six studies (16.7%) have been performed to ascertain if career development interventions improved the career maturity of college student-athletes. Results of investigations completed by Kennedy (1985), Ludwig (1993), and Selden (1996) indicated that a career development intervention



enhanced career maturity. In contrast, experiments carried out by Libretto (1979), Faulkner (1985), and Stankovich (1998) did not increase the career maturity of college student-athletes.

## Discussion

The purpose of the present review of literature was to provide an overview of studies which examined the career maturity of college student-athletes. Specifically, investigations were identified and a descriptive table was developed to classify various aspects of the research. An analysis of the results revealed that 36 studies were conducted. A preponderance of the investigations utilized descriptive methodology in which college student-athletes and non-athletes completed a survey packet which included a career maturity assessment instrument.

Results of the literature reviewed identified six main demographic variables and five common psychosocial variables used frequently by researchers to determine associations between these variables and career maturity. In particular, the demographic variables utilized most often included gender, athlete versus non-athlete, race, and year in school.

Almost all of the research that explored the relationship of gender to the career maturity of NCAA Division I student-athletes reported an association. Thus, NCAA Division I male student-athletes were likely to be less career mature than NCAA Division I female student-athletes. This finding is congruent with previous career maturity literature which examined the relationship between gender and career maturity (e.g., Lau, Low, & Zakaria, 2013; Luzzo, 1995; Prideaux & Creed, 2001).

The present review of studies also discovered that the athlete versus non-athlete variable was investigated frequently. The predominant finding was that NCAA Division I athletes are more likely to be less career mature than non-athletes. In addition, numerous scholars have noted that additional student-athlete career maturity research is needed at various levels and divisions within collegiate sport (Ahlgren, 2001; Hooper, 2006; Stankovich, 1998; Tyrance et al., 2013). For instance, limited studies have investigated the career maturity of NCAA Division II and III, NAIA, and NJCAA athletes.

In addition to studies that have analyzed the association between college sport participation and career maturity, additional demographic variables studied in relation to this construct were race, year in school, and revenue versus non-revenue student-athlete. The results of the present review indicated that the majority of the student-athlete career maturity studies did not find that race was a significant predictor of student-athlete career maturity. Similarly, few investigations found a relationship between year in school and career maturity and revenue/non-revenue sport athlete and career maturity.

The current review of literature also identified the psychological variables which have been correlated with student-athlete career maturity. The five most common psychological variables were athletic identity, professional sport expectations, career decision making self-efficacy, foreclosed identity, and career locus of control.

Overall, 13 studies analyzed the relationship between athletic identity and career maturity. Not surprisingly, athletic identity was the most frequently investigated psychological predictor variable. This is consistent with Park, Lavalley, and Tod (2013) who specified that 35 investigations examined the relationship of athletic identity to an athlete's transition out of athletics. In contrast to the significant relationship identified between athletic identity and career transition (Park et al., 2013); studies that evaluated the association of athletic identity to career maturity garnered inconsistent findings.

Clearly, additional research is necessary to clarify the relationship between athletic identity and career maturity. For instance, an area fruitful for research is based upon Brown and Hartley's (1998) contention that a student-athlete's level of career maturity may be moderated by student-identity. Specifically, these scholars suggested designing investigations to understand the relationships between athletic identity, student identity and career maturity. Recently, a similar study was conducted by Finch (2009) who examined the relationship of student-identity, athletic identity, and career self-efficacy in a sample of NCAA Division I college student-athletes. His results showed that student-identity was a moderating variable and related to career self-efficacy; however athletic identity was not related to career self-efficacy.

An additional noteworthy finding of the present review of literature is that all three studies which analyzed the relationship between career locus of control and career maturity indicated a relationship between these variables. This finding is consistent with past career maturity literature which found this measure to be associated with career maturity (Luzzo & Ward, 1995). Future researchers should investigate the relationship of career locus of control to the career maturity of college student-athletes at all levels of collegiate athletics. Also, scholars should continue to determine the variables which contribute most to the prediction of student-athlete career maturity. By understanding if variables such as career locus of control contribute most to the prediction of career maturity, researchers and



practitioners can decide what types of interventions are effective in enhancing the career maturity of college student-athletes.

Another important finding of the present review of literature was that few studies analyzed the effects of an intervention on enhancing the career maturity of college student-athletes. This is consistent with the findings of Park, Lavalle, and Tod (2013) who found that few experimental interventions had investigated the career transitions of athletes. Additionally, Park et al. (2013) suggested the importance of conducting more experimental interventions. Similarly, scholars have also noted the need for more pre-test/post-test experimental studies to assess the impact of career development interventions on increasing the career maturity of college student-athletes (Dailey, 1995; Heller, 2008; Houle, 2010).

Another type of study not evident in the current review of literature is longitudinal studies. Scholars have suggested the need for future research to begin to utilize longitudinal designs when assessing the career maturity of student-athletes (Ahlgren, 2001; Dailey, 1995; Hughes, 2005; Hooper, 2006; Houle, 2010; McKinney, 1991; Murphy et al. 1996). For instance, Ahlgren (2001) suggested that future studies can provide identical career maturity measures at various points throughout a student-athletes' college career to better understand developmental changes. An example of a longitudinal study that supports Ahlgren's (2001) recommendation was conducted by Fraser, Fogarty, and Albion (2010). Utilizing the same assessment instruments at both pre-test and post-test, these researchers measured athletic identity, life satisfaction, and career indecision of elite athletes at pre-test and then assessed the same athletes after retirement from sport three years later.

In addition to conducting longitudinal studies and more experimental interventions, future research should also utilize mixed method approaches to data collection. Mixed methods research is a methodology that combines more than one type of research design (Thomas, Nelson, & Silverman, 2011). For example, researchers may conduct an experimental intervention and then also utilize qualitative interviews in order to understand a participant's perception of the intervention. Alternatively, investigators can carry out descriptive studies and then use qualitative semi-structured interviews to determine if the qualitative data is congruent with the quantitative results (Thomas, Nelson, & Silverman, 2011). This type of design allows for strengths and weaknesses of one type of research method to be combined with another approach in order to help strengthen the overall findings of the data gathered (Crosswell & Clark, 2010).

Future researchers may want to model mixed methods student-athlete career maturity studies based upon the work of Luzzo (1995) and Dailey (1995). For instance, Luzzo (1995) assessed the relationship of gender to career maturity using the CMI. Also, he conducted qualitative interviews with almost one third of the sample. Similarly, Dailey (1995) assessed the career maturity of student-athletes using the CMI and also conducted semi-structured interviews with student-athletes.

From a practical standpoint, academic advisors, counselors and other academic support service professionals working with NCAA Division I student-athletes should be aware of a student-athletes' career plans. In particular, when providing career counseling, a discussion with the student-athlete about their career goals and aspirations seems important. Certainly, encouraging student-athletes to make career decisions based on their own goals and interests appears consistent with the literature reviewed. Additionally, based on the results of the present review of literature, continuing to provide specialized career development programming for NCAA Division I student-athletes seems warranted.

As more descriptive, mixed method, longitudinal and experimental studies examine the career maturity of student-athletes, researchers and practitioners will gain knowledge of the type of interventions to consider in developing career education programs for student-athletes. As Ahlgren (2001) noted, the NCAA and CHAMPS/Life skills program has been designed to support the career development of college student-athletes. Thus, academic advising professionals and college student-athletes can continue to benefit from the student-athlete career maturity research conducted (Ahlgren, 2001).



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## Biography

Alan S. Kornspan, Ed.D. received his doctorate from West Virginia University in Sport Behavior. Alan is an Associate Professor in the School of Sport Science and Wellness Education at the University of Akron.