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Linking Perceptions of School Belonging to Academic Motivation and Academic Achievement Amongst Student Athletes: A Comparative Study Between High-Revenue Student Athletes and Non-Revenue Student Athletes

by

Christine Marie Anderson

A dissertation submitted in partial satisfaction of the requirements for the degree of

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in

Education

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:
Professor Frank C. Worrell, Chair
Professor Susan Holloway
Professor Martin V. Covington

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Abstract

Linking Perceptions of School Belonging to Academic Motivation and Academic Achievement Amongst Student Athletes: A Comparative Study Between High-Revenue Student Athletes and Non-Revenue Student Athletes

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Christine Marie Anderson

Doctor of Philosophy in Education

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In this study, I examined the relationship that exists among school belonging, achievement motivation, and academic achievement in a sample of student-athletes at UC Berkeley. The goal of the study was to achieve a deeper understanding of how and why achievement motivation and academic achievement is often discrepant between revenue and non-revenue athletes (Howard-Hamilton & Sina, 2001; Simons, Covington, & Van Rheenen, 1999). By examining the relationship between sense of school belonging and achievement motivation, I aimed to identify an additional factor that may contribute to motivation and achievement differences observed between subgroups in my sample. I also investigated differing motivation profiles in a representative sample of student-athletes. The current study used a 2 x 2 goal achievement framework established by Elliot and McGregor (2001) to provide a deeper understanding of motivation by fusing approach-avoidance and mastery-performance perspectives (Elliot & McGregor, 2001).

Data for this study were collected from 143 college student-athletes at a large public university in the western United States. Respondents were from 17 to 24 years of age and were diverse in regard to gender, ethnicity, class year, sport, and socioeconomic status. Students who agreed to participate completed a brief questionnaire and submitted their responses anonymously.

Motivation profiles were established by clustering scores from four variables: mastery-approach, performance-approach, mastery-avoidance, and performance-avoidance. Four meaningful clusters were identified among the student-athlete sample. A series of multivariate analyses of variance (MANOVAs) and univariate ANOVAs were then used to examine cluster group differences on the variables of perceived school belonging (instructor support, peer support, and general sense of belonging), achievement data, and each motivation cluster. Group differences amongst high-revenue and non-revenue student-athletes in regard to the dimension of school belonging, goal orientation, and achievement level were assessed using multivariate analysis of variance.

Overall the results of the study reveal that four motivational profiles were identified within the student-athlete population using a 2 x 2 approach-avoidance and mastery-performance model. These clusters can be described as High Mastery, Moderate Motivation, High Approach, and High Motivation profiles. Student-athletes rarely reported low levels of motivation on the scale. The differences that were found between clusters were based on students feeling strongly or moderately in regard to motivation. Overall, subscales associated with a sense of school belonging did vary significantly across the four motivational clusters. Student-athletes identified as having a Moderate motivation profile had a weaker sense of support from peers, instructors, and the overall academic community in comparison to students found in the High Motivation and High Approach clusters. Students identified as having a High Approach profile felt the highest level of belonging across measures. No significant difference was found between revenue and non-revenue athletes in regard to distribution among cluster profiles; however, revenue athletes reported significantly lower levels of belonging across subscales and had a lower mean grade point average.

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Linking Perceptions of School Belonging to Academic Motivation and Academic Achievement Amongst Student Athletes: A Comparative Study Between High-Revenue Student Athletes and Non-Revenue Student Athletes

Student-athletes are often considered a unique subpopulation in the educational system based on the various ways they contribute and interact within the campus community (Duderstadt, 2003; Simons, Van Rheenen, & Covington, 1999; Watt & Moore, 2001). As participants in spectator sports, student-athletes serve the valuable role of uniting the campus and those that identify with a college (Duderstadt, 2003). Participation in college athletics may also diversify campuses by providing students from various socioeconomic backgrounds scholarship opportunities to obtain a college degree. Many student-athletes display characteristics such as high self-esteem, leadership, teamwork skills, motivation, and discipline (Chu, 1989; Harris, 1993; Simons et al., 1999). These characteristics are often associated with their experiences navigating the demands that accompany athletic participation. Additionally, student-athletes also graduate at higher rates than non-athletes at the colleges they attend (Watt & Moore, 2001).

Nonetheless, student-athletes can also be considered a group that is at risk for academic underachievement. Collegiate student-athletes are faced with a number of obstacles that may pose challenges to maintaining the motivation to achieve academically. Those students who have more difficulty navigating the demands associated with athletic participation risk academic failure and may also risk losing eligibility to compete athletically at the college level (Duderstadt, 2003). The physical and logistical demands that accompany the role of a student-athlete are beyond those of the typical college student. Students who compete in college athletics are required to practice upwards of 25 hours per week and deal with issues such as fatigue, injury, stigmatization, and social isolation due to their athletic participation (Simons et al., 1999). Student-athletes also often struggle to attend classes regularly while their sport is in season due to their athletic competition schedule (Simons et al., 1999; Watt & Moore, 2001).

Socially, college athletes often have to contend with the assumption that sports are an anti-intellectual endeavor (Simons & Van Rheenen, 2000). Research suggests that both faculty members and peers in college communities often perceive student-athletes to be less academically capable than students in the general college population and separate from the academic community as a whole (De Man, St. James, & Stout, 2006; Engstrom, Sedlacek, & McEwen, 1995). Differences between student athletes and their peers are often identifiable in the classroom. Some student-athletes arrive on campus less prepared to complete a rigorous college course load than their collegiate peers (Astin, 1993; Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996). Having to balance both class work and an athletic schedule, these students may find it difficult to meet the academic standards required in college. The high profile status and physical presence of some student-athletes may also draw unwanted attention to a student's academic performance in the classroom (Simons, Bosworth, Fujita, & Jensen, 2007).

Recent literature suggests that the various physical, logistical, social, and academic demands that often accompany the status of student-athlete can play a role in lowering academic motivation and subsequently academic achievement of certain student-athletes (Simons et al., 1999). The question of why achievement motivation may

suffer in this context is only beginning to be explored. One factor that appears related to these demands is the perceived sense of support and respect a student-athlete feels from his classmates, instructors, and the overall educational community. This perceived sense of support is described in the academic literature as a student's sense of *school belonging*. Multiple findings suggest that school belonging may be related to academic motivation (Goodenow, 1993a; Freeman, Anderman, & Jensen, 2007; Pittman & Richmond, 2007). When students feel socially disconnected from their school, teachers, or peers, the motivation to achieve and, subsequently, academic performance may suffer. Revenue student-athletes may perceive that they are less supported in the classroom, negatively affecting their motivation to perform in this context.

The purpose of this study is to examine the relationship that exists among school belonging, achievement motivation, and academic achievement in a sample of student-athletes, with the goal of achieving a deeper understanding of how and why achievement motivation and academic achievement differ between revenue and non-revenue athletes (Howard-Hamilton & Sina, 2001; Simons et al., 1999). By examining the relationship between sense of school belonging and achievement motivation, I hope to identify factors that may contribute to motivation and achievement differences. I also hope to gain a deeper understanding of how motivational views differ in these groups and whether these views are different from findings reported in previous studies (e.g., Simons et al., 1999).

In the following section, I establish a definition of student-athlete, briefly review literature on achievement motivation and student-athletes, and discuss future directions in exploring a new motivation theory in a student-athlete population. More specifically, the 2 x 2 goal achievement framework by Elliot and McGregor (2001) is reviewed to provide an understanding of motivation through approach-avoidance and mastery-performance perspectives. This perspective suggests that motivational orientation toward achievement is held by the individual as opposed to varying based on specific tasks. To better understand the role of belonging in maintaining motivation, I then examine basic motivation theory and explore the available literature on defining and measuring school belonging. Finally, I briefly review the empirical literature on school belonging and academic motivation in samples of college students.

Defining the Student-Athlete

It is important to first understand the students and teams that make up a population of student-athletes before exploring the differences within the student-athlete population. College sports follow a seasonal calendar (Duderstadt, 2003). In the fall, football has become primetime entertainment for university communities and for spectators across the country. Several other sports such as soccer, water polo, field hockey, volleyball, and cross-country also compete during the fall season. The winter season consists primarily of indoor sports that include ice hockey, swimming and diving, gymnastics, and wrestling. Basketball serves as the premier spectator sport for the winter season, concluding in March with the nationally televised event, March Madness. In the spring, the sporting events again focus on outdoor activities such as baseball, lacrosse, softball, track and field, golf, tennis, and crew.

College teams are not only categorized by season but also by the amount of money the team generates for the school. The majority of college athletic teams generate little to no revenue. In fact, as a whole, college athletics costs a university more money than it generates (Duderstadt, 2003). Sports that do not generate money are referred to as

non-revenue sports. Non-revenue sports include the majority of teams on a college campus. Basketball and football serve as the two primary sports that generate revenue for the university. These sports, also called high-revenue sports, are capable of selling out stadiums and receive frequent media attention.

Differences in academic achievement have been documented between revenue and non-revenue student-athletes. Researchers who study non-revenue sports, which include most female sports (e.g., Astin, 1993; Pascarella et al., 1996; Schulman & Bowen, 2001; Simons et al., 1999), report no differences between student-athlete and non-athletes on academic performance. However, significant differences in academic performance have been reported between athletes in high-revenue sports and students who are not athletes in favor of the non-athletes (e.g., Astin, 1993; Howard-Hamilton & Sina, 2001).

Multiple factors may contribute to the differences in achievement between revenue and non-revenue athletes. Some argue that lower admissions standards place high-revenue student-athletes at an immediate disadvantage in the classroom and that these students struggle because they are academically ill prepared for the rigors of college study (Curtis, 1995). Others believe that the institutional demands placed upon revenue student-athletes at the college level make maintaining both academic and athletic motivation nearly impossible (Duderstadt, 2003). Both arguments appear to have merit and may contribute to the observed differences in academic achievement between revenue student-athletes and their non-revenue counterparts.

Recent literature suggests that the various physical, logistical, social, and academic demands that often accompany the status of student-athlete can play a role in lowering the academic motivation and, subsequently, the academic achievement of revenue student-athletes (Simons & Van Rheenen, 2000; Simons et al., 1999). One factor that appears related to these demands and has yet to be investigated is the perceived sense of support a student-athlete feels from his classmates, instructors, and the overall educational community. Achievement motivation and academic success have been found to be associated with this social contextual factor, also known as school belonging (Wentzel, 1996).

A great deal of contention surrounds the existence of revenue college sports. Some argue that the commercialization of college sporting events has caused revenue-generating sports to become almost professional in nature and inconsistent with the academic mission of college institutions (Watt & Moore, 2001). Consistent with this sentiment and reflective of academic differences, many argue that schools lower academic standards to accept star athletes in these sports regardless of their academic preparation. Once a student, athletes may be exploited for their athletic ability while their college education takes a back seat (Duderstadt, 2003). With only a small percentage of college student-athletes making it to the professional stage, the majority of high-revenue athletes will have to rely on their academic background once their collegiate career is completed (Eitzen, 1999). Thus, the quality of academic preparation that the revenue student-athlete receives is a concern for colleges and universities committed to providing a quality education to all students. Finding the balance between encouraging and supporting the athlete on the field and providing the same level of support in the classroom is often more difficult than it seems.

Achievement Motivation and Student-Athletes

Research investigating the impact of achievement motivation on revenue and non-revenue athletes has provided initial guidance in understanding some of the academic differences that exist between these groups and some of the obstacles that may hinder academic success. Simons et al. (1999) noted that there appears to be a paradox when examining the differences between athletic and academic motivation for revenue student-athletes. Many revenue student-athletes, characterized as self-disciplined, determined, and focused on the playing field, are often unable to transfer these qualities to the classroom. Researchers have started to explore achievement motivation through various theoretical lenses to explain the discrepancy between student-athlete's academic motivation and their motivation with regard to their sport (Covington, 1984; Gaston-Gayles, 2005; Simons et al., 1999). The following section provides a brief review of the available literature related to achievement motivation and student athletes.

Expectancy-value theory and student-athletes. Gaston-Gayles (2005) used expectancy-value theory to explore academic and athletic motivation of student-athletes and how motivational views influenced academic achievement. Atkinson (1957) asserted in expectancy-value theory that an individual's motives to achieve in a given domain are the function of his expectancies of success or failure at a given task and the relative value that success or failure will bring to the individual. Atkinson noted that extrinsic factors such as the desire to gain social approval may also play a role in motivation to achieve, especially when an individual is conflicted between striving for success and avoiding failure.

Researchers later used this theory to assess how expectancies and values contribute to the motivation to achieve academically (Eccles Adler, Futterman, Goff, Kaczala, Meece, & Midgley, 1983; Wigfield, 1994). This theoretical approach suggests that the expectancy for academic success is influenced by an individual's confidence in her academic ability and the perceived difficulty level of the task at hand. The value of a task is based on how the task fulfills a need or promotes goal attainment (Eccles et al., 1983). When more than one behavior is possible, the behavior chosen will be the one with the largest combination of expected success and value.

Gaston-Gayles (2005) created and administered a 30-item Likert-type scale based on Atkinson's (1957) expectancy-value theory to 236 Division I student-athletes on a Midwest university campus. The scale was intended to measure academic motivation and athletic motivation using 15 items to address each area. Factor analyses of the scale revealed that a three-factor solution using 27 items was the best fit to the data. The first factor was named Student Athletic Motivation and consisted of 8 items. This factor described the extent that participants were motivated to pursue their sport. The second factor was named Career Athletic Motivation and consisted of 5 items. Items in this subscale reflected a desire to play sports at the Olympic or professional level. The third factor was named Academic Motivation and consisted of 16 items. This factor described the extent to which participants were motivated toward academic tasks. Gayston-Gayles sought to explore the relationship between academic and athletic motivation and whether motivation would predict academic performance. She also checked to see if motivation differences existed based on gender or sport.

The results of the study suggested that academic and athletic motivation were influential in predicting academic performance. Career Athletic Motivation was also a significant predictor of academic achievement. Female athletes presented what Gaston-

Gayles (2005) described as the most balanced motivation profile, with academic goals ranking higher than both career athletic and student athletic motivation scores. Non-White and high-revenue student-athletes both exhibited unbalanced motivational profiles. Non-White student-athletes had higher career and athletic motivation scores in comparison to academic motivation scores. Revenue athletes reported higher athletic motivation in comparison to academic motivation. This study's findings suggest that non-White and high-revenue athletes expect to be more successful on the field than in the classroom and value this success more than academic achievement.

Mastery-performance goal theory and student-athletes. Examining motivation through the lens of goal theory offers another alternative to understanding academic and athletic motivation. Ryska (2002) used this theory to explore whether athletes' motivation orientation would transfer to academic, vocational, and social domains. Mastery-performance goal theory was first introduced by Dweck and Leggett (1988) and suggests that students are motivated to achieve by learning goals or performance goals. Nicholls (1984) identified a similar goal orientation but used different terms (i.e., learning goals and performance goals). Learning goals are focused on mastery of a task and improvement in performing the task through increasing one's competence. Performance goals are focused on displaying one's competence or ability while working on a task, receiving praise, and avoiding negative evaluations. Dweck and Bempechat (1983) also asserted that individuals often hold these different goals simultaneously.

Dweck and Legget (1988) found that students' goal orientations were associated with specific behavioral characteristics. Students motivated by learning or mastery goals respond to academic challenges by focusing on the task at hand rather than their abilities. These students typically view ability as incremental and expect improvement with increased effort. Students motivated by performance goals often focus on personal ability and believe that their ability is fixed. If the student views his ability as high, he will engaged in the task. If a student views his ability as low, he may display symptoms of learned helplessness, or refuse to engage.

Looking at academics and motivation through the lens of a mastery-performance goal orientation has not been explored in a collegiate population of student-athletes. However, Ryska (2002) assessed task-ego identity in athletics, athletic identity, and scholastic, social, career, and behavioral competencies in a sample of 258 high school student-athletes. Results indicated that athletic identity was a negative predictor of academic, social, and behavioral competence among athletes that were high ego-low task in regard to their motivational orientation. Student-athletes with a high task-low ego profile and who had strong athletic identities also had greater academic and vocational competence. These results suggest that athletes who are mastery-oriented on the field may be able to transfer this ability to the classroom. It is not clear if these results will generalize to college athletes.

Self-worth theory and student-athletes. Self-worth theory is another model that has been used to explore academic motivation of revenue and non-revenue student-athletes at the college level. Studies exploring academic self-worth and achievement motivation have specifically been used to gain insight into the types of motivational profiles athletes exhibit and the challenges they face in the classroom. Self worth theory was derived from two separate motivational theories. Atkinson's (1964) theory of approach and avoidance proposed that motivation to achieve is a learned drive created by

two needs based in emotion. Approaching success is driven by hope and pride and avoiding failure by shame and humiliation. Weiner (1974) reinterpreted this model and posited that those motivated to approach success attribute failure to a lack of effort and success to ability and effort. Those motivated to avoid failure attribute failure to a lack of ability and success to luck. Using Weiner's attribution theory model, Covington (1984) proposed four motivational types categorized as success-oriented, overstrivers, failure-avoiders, and failure-acceptors.

Success-oriented students have a strong sense of self-worth. They are intrinsically motivated to achieve and approach success. Failure-avoidant students have a low motivation to approach success, a high motivation to avoid failure, and a low sense of self-worth. Overstrivers have a high but delicate sense of self-worth and avoid failure by approaching success at all costs. Finally, failure-accepting students have a low sense of self-worth and have little concern for approaching success or avoiding failure. Covington (1984) proposed that a crucial aspect of classroom achievement is the need for students to protect their sense of self-worth or personal value. Beyond one's self-perceptions, the individual is also actively processing others' perceptions of her ability. When a student is successful, she proves her competence and ability to herself and her community of peers, thus enhancing or maintaining a sense of self-worth.

In an effort to reassess Covington's motivational model, Simons et al. (1999) administered a 300 item survey to 361 Division I university student-athletes. The survey consisted of several scales to measure background and cognitive factors, motivation, and athletic-academic relationships. The measure of motivation used to establish the four motivational profiles theorized in Covington's self-worth theory was the Approach success – Avoid failure Achievement Questionnaire (AAAQ). This scale consists of 36 Likert-type items that measure the need achievement dimensions of approaching success and avoiding failure. A median split for each dimension was used to create the four motivation profiles.

The authors found that fear of academic failure and relative commitment to athletics play important roles in academic motivation for both revenue and non-revenue athletes. Failure avoidant and failure accepting athletes were more committed to their roles as athletes on campus and also felt that they were more exploited by the university. Interestingly, more failure-avoidant and failure-accepting students were found to be high-revenue athletes. Simons et al. (1999) postulated that because most high-revenue athletes are recruited to a university for athletic ability, their commitment to sport is often already strongly developed. Academic commitment is often more variable for these students and can depend on cognitive factors, past academic history, and social support of academics. Because of the focus placed on high-revenue athletics at the university level, these students also feel a demand to perform and are often persuaded to choose athletic commitments over academics.

Both failure-avoidant and failure-accepting high-revenue athletes used self-handicapping techniques to excuse their academic struggles. According to Simons et al. (1999), failure-accepting students may do so "to conceal their lack of interest in academics, which they can not address publically," whereas failure-avoidant students do so to preserve self-worth (p. 159). Both categories of high-revenue athletes also had a strong belief that they were being exploited by the university system for their athletic ability and not receiving the proper academic support in return. Simons et al. noted that

some accommodations and academic supports are provided for student-athletes; however, many students and faculty members believe that these privileges aren't merited due to the fact that athletes are not serious students.

Simons and Van Rheenen (2000) reported similar findings, suggesting that student-athletes who fail to make the connection between motivational behaviors on the field and in the classroom have weak academic identities and strong athletic identities. Assessing factors such as athletic-academic commitment, feelings of exploitation, academic self-worth, self-handicapping excuses, and several background and academic preparation variables, Simons and Van Rheenen concluded that this disparity may be due to a history of emphasis on athletics, lower academic self-worth, and lower achievement motivation. One of the most important contributions of Simons and Van Rheenen's study is the finding that achievement motivation and feelings of academic and athletic commitment account for a substantial portion of variance in the grade point average of student-athletes in the university system. The critical role that these factors play in a student's academic performance suggests that the challenges student-athletes face in the classroom go far beyond a lack of academic preparation.

Conclusion. Regardless of the motivational model (e.g., Gayston-Gayles, 2005; Ryska, 2002; Simons & Van Rheenen, 2000; Simons et al., 1999), findings suggest that academic motivation plays a critical role in academic success for student-athletes. High-revenue and non-White student athletes appear to consistently display motivational profiles associated with negative academic outcomes. This subset of students display lower feelings of academic self-worth, have less motivation to achieve academically, and feel unsupported by the university system (Simons & Van Rheenen, 2000; Simons et al., 1999). These factors significantly influence academic motivation and performance at the collegiate level. One factor that is not explicitly addressed in this work is perceived school belonging. In their conclusion, Simons and Van Rheenen asserted that, "we need to find ways to encourage these young men and women to feel an integral part of the academic community and thus identify more fully with academic pursuits" (p. 179). By fostering a sense of social connectedness and support from the academic community of a collegiate institution, educators may be providing the first step for student-athletes to achieve both on the field and in the classroom.

Future Directions Exploring Student-Athletes and Motivation

Following in the tradition of achievement goal theory, recent work in the field of motivation has begun exploring the intersection between approach-avoidance goal orientation and mastery-performance goal orientation. This theoretical orientation has not yet been explored in a sample of student-athletes but offers a new perspective. Elliot and McGregor (2001) proposed a 2 x 2 achievement goal framework consisting of mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance goals. This model is based on the assumption that an individual's motivation to achieve is influenced by their interpretation of competence. Competence is the conceptual core of the achievement goal construct and can be differentiated on two dimensions, definition and valence (see Figure 1). As a definition, competence applies to a student's ability to improve one's performance and to develop understanding (intrapersonal - mastery) or to perform better than others (normative - performance). In terms of valence, competence can be viewed in regard to an expectation of a desirable possibility (approaching success) or an undesirable possibility (avoiding failure). Based

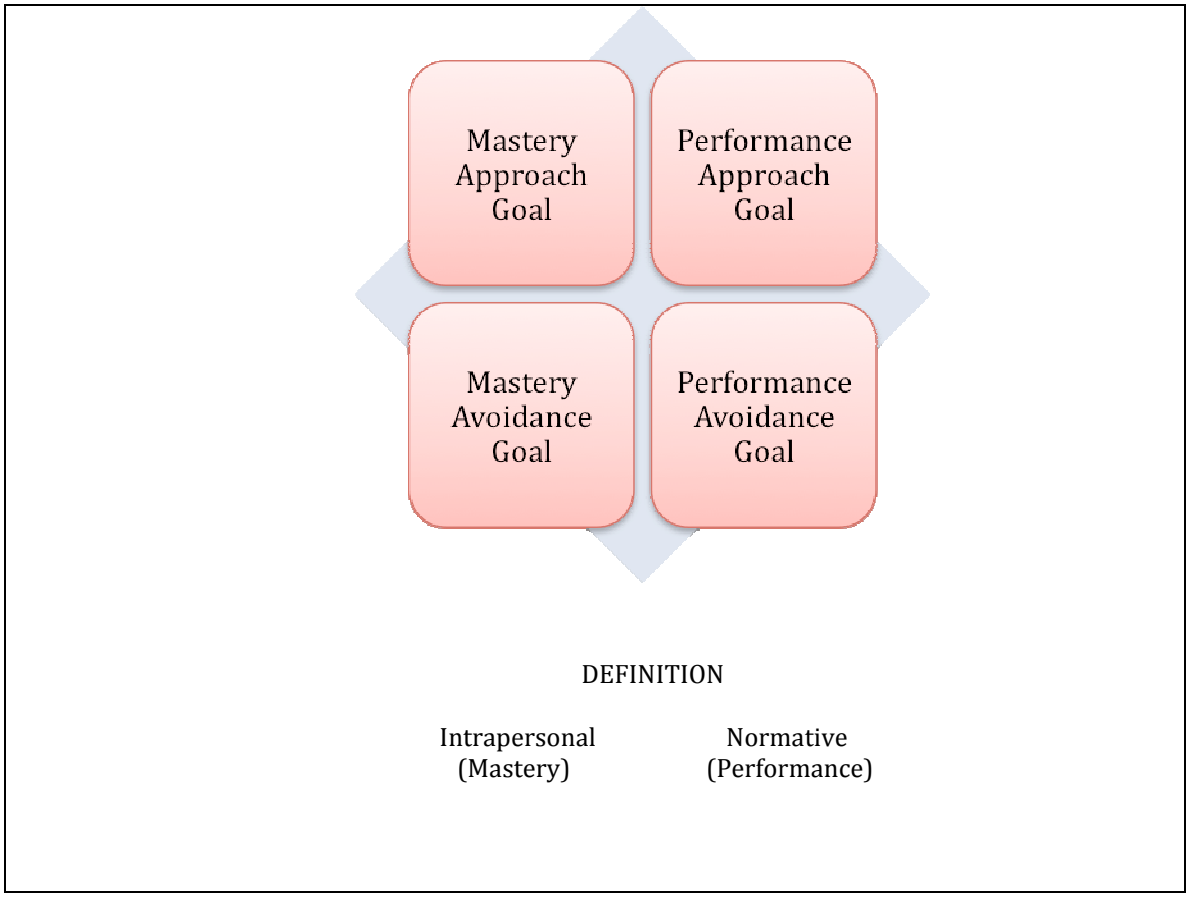

Figure 1. *2x2 Achievement Goal Framework*

on one's interpretation of competence, an individual will embody one motivational style over another.

Mastery-approach goals are based on task-based intrapersonal competence. A student who is mastery-approach oriented focuses on acquiring new skills and improving ability. Mastery-avoidant students have goals based on task-based intrapersonal incompetence. These students are often referred to as *maladaptive perfectionists*, focused on learning as much as possible to avoid negative consequences such as failure (Elliot & McGregor, 2001). Students with performance-approach profiles have goals based on normative competence. These students seek to perform academically to gain favorable judgments from peers and others in the academic community. Finally, a student who is performance-avoidant has goals based on normative incompetence. A performance avoidant student is motivated to perform to avoid negative judgments from peers and others in the academic community.

Wang, Biddle, and Elliot (2005) assessed the applicability of this framework in a physical education by modifying the questionnaire developed by Elliot and McGregor (2001). They also assessed the framework with regard to gender and degree of athletic participation. Achievement goal profiles were examined in relation to psychological characteristics associated with self-determination theory. The results of the study indicted that the 2 x 2 goal factor structure was applicable to physical education across gender and degree of athletic participation. Wang et al. also found that students with high scores across all four achievement-goals reported the (a) highest relatedness and perceived competence, (b) lowest amotivation, (c) least boredom, and (d) most effort, participation in and enjoyment of physical education activities. The opposite was true of students with the lowest scores across motivational goals. The results of this study offer evidence for a unique approach to investigating collegiate student-athletes and academic motivation. This complex motivational theory may serve to generate a more comprehensive understanding of how student-athletes approach academics.

Sense of Belonging and Motivation

Based on previous research, it appears that revenue student-athletes more consistently display motivational profiles associated with negative academic outcomes (Gaston-Gayles, 2001; Ryska, 2005; Simons & Van Rheenen, 2000; Simons et al., 1999), and that differences exist between revenue and non-revenue athletes. The fame and visibility of revenue athletes on a college campus is frequently higher due to media exposure and the sheer physical appearance of both football and basketball players (Duderstadt, 2003). The university, boosters, and fans also place much higher expectations on revenue athletes for athletic performance, which may result in higher feelings of exploitation in this group (Duderstadt, 2003; Simons et al., 1999). Due to their level of visibility on a campus, revenue athletes may also feel more stigmatized as anti-intellectual than their non-revenue peers (De Man, St. James, & Stout, 2006; Engstrom, Sedlacek, & McEwen, 1995). It is possible that the feelings of exploitation and the anti-intellectual stigma are perceived as lack of support from the university, and these may play a role in undermining academic motivation for these athletes. In the following section, I briefly review the link between motivation and a sense of belonging to illustrate the impact that a weak sense of belonging may have on academic achievement.

A sense of belonging to a community of individuals has long been viewed as a basic human need and has been linked to motivation theory. Freud (1930) recognized the need for interpersonal contact between individuals and acceptance as bases for psychological development and predictors of future psychological functioning. Erikson (1968) emphasized the importance of social connectedness in his psychosocial theory by illustrating how biological and psychological maturation are influenced by social demands. Social acceptance, whether in an academic community or with peers, may play an important role during adolescence when children struggle with psychological crisis of industry versus inferiority and identity repudiation versus identity diffusion.

Baumiester and Leary (1995) explored the desire to belong based on the assumption that "human beings have a pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships" (p. 497). Achieving a sense of belonging requires interactions with at least a select few individuals in a relatively stable context. Baumiester and Leary further suggested that the need to belong has a direct influence on cognitive and emotional outcomes. Acceptance and inclusion lead to happiness and contentment whereas rejection and exclusion may lead to feelings of anxiety and depression (Baumeister & Tice, 1990; McAdams & Bryant, 1987). Social bonds must also be marked by positive concern and caring in order to be effective (Reis, Wheeler, Kernis, Spiegel, & Nezlek, 1985). Understanding the importance of belonging as a basic human need and its effect on the cognitive and emotional capacities of an individual highlight the importance of fostering a sense of belonging across social contexts.

Several theorists suggest that there may be a link between the individual's psychological need for social support and achievement motives (Atkinson, 1957; McClelland, 1965; Maslow, 1943). In Maslow's (1943) theory of human motivation, the need for love and belongingness serves as the center of the motivational hierarchy following basic physiological needs and the need for safety. Maslow asserted that a human being "will hunger for affectionate relations with people in general, namely, for a place in his group, and he will strive with great intensity to achieve this goal" (p. 381). Maslow placed the need to belong before esteem needs and the need for knowledge and understanding.

The need for social approval has been noted as an important social motivator by early theorists of the drive-theory tradition (Atkinson, 1957; Maslow, 1943; McClelland, 1965). McClelland (1965) proposed that the motivation to achieve was a learned psychological drive that could be affected and shaped by twelve propositions. In his tenth proposition McClelland asserted that an individual can experience an increase in motivation in an interpersonal atmosphere where he feels supported and respected by others as a capable human being. McClelland used clinical case examples of therapist-client relationships to illustrate this proposition, noting that there was little empirical support at the time outside of the clinical findings (e.g., Ends & Page, 1957; Rogers, 1961).

In Atkinson's (1957) learned-drive theory of motivation, the author explained achievement as the result of the emotional conflict between striving for success and avoiding failure. His expectancy-value theory was rooted in his assertion that an individual's motives to achieve in a given domain are the joint function of expectancies for success and the value of that success. Atkinson asserted that extrinsic factors such as

the desire to gain social approval can also play a role in motivation to achieve, especially when an individual is conflicted between striving for success and avoiding failure.

Although the majority of the recent research inspired by achievement goal theory has focused on academic goal setting and outcomes, it is apparent that the earliest conceptualizations of motivation theory suggest that belongingness and social support also play an integral role in achievement motivation (Atkinson, 1957; Maslow, 1943; McClelland, 1965). In recent years, theories of belonging and motivation have been used to explore the social context in which motives occur and how a social context can influence motivation. Self-determination theory has focused on relatedness as one of three central tenants of motivation (Deci, Vallerand, Pelletier, & Ryan, 1991; Ryan & Powelson, 1991; Ryan, Stiller, & Lynch, 1994). Deci et al. defined relatedness as "developing secure and satisfying connections with others in one's social milieu" (p. 327). In this sense, relatedness is similar construct to belonging. According to Deci et al., motivation and performance will be maximized in a social context where the need for relatedness is satisfied. In an academic environment, children who perceive a secure connection with parents and teachers have higher levels of motivation and self-determination (Grolnick & Ryan, 1989). Ryan et al. (1994) found that the quality of student-teacher relationships is significantly associated with a student's sense of autonomy, personal control, and active engagement in school.

School Belonging and Academic Motivation

In recent years, a small but growing body of literature has emerged on the importance of school belonging, especially during adolescence and early adulthood. School belonging, a student's perception that he or she is being supported, valued, and included in the academic classroom setting by teachers and peers, is also predictive of academic motivation and achievement (Goodenow, 1993a; Wentzel, 1996). Simons et al. (1999) suggested that feelings of exploitation and the perceived lack of academic support may hinder a high-revenue student-athlete's motivation to achieve in the classroom and may lead to feelings of resentment towards the academic community. Additionally, Simons et al. (1999) discussed the commonly held perception by faculty and peers that student-athletes aren't serious students as problematic. It is possible that school belonging is another component that contributes to achievement motivation and academic success of the student-athlete in the university setting.

Multiple findings support the hypothesis that school belonging may be intimately related to academic motivation (Freeman et al., 2007; Goodenow, 1993a; Pittman & Richmond, 2007). School belongingness is a function of the student's subjective perceptual frame. When students feel socially disconnected from their school, teachers or peers, the motivation to achieve and consequently academic performance may suffer. Such may be the case of the college student-athlete, and especially males in high-revenue sports. In the following section, I define school belonging, discuss how this variable is assessed in the available research, and review studies of school belonging and motivation that are applicable to college student populations.

Defining school belonging. Research on school belonging has been difficult to interpret because there are several operational definitions of belonging in the literature. Some researchers have defined school belonging as student perceptions of teacher warmth and peer support in the classroom (e.g., Wentzel, 1994). Others have focused primarily on a student's feelings of importance (e.g., Booker, 2006). Still others have

defined school belonging based on student engagement and participation (e.g., Roeser, Midgley, & Urban, 1996). Recently, there has been a push to consider school belonging as a multi-dimensional construct (Brew, Beatty, & Watt, 2004; Freeman et al., 2007). Brew et al. (2004) proposed a definition of belonging based on a student's sense of social connectedness to school. Brew et al. argued that a sense of belonging have several different meanings to a student. He proposed a definition of belonging based on the six latent factors of relatedness of self with school, belonging with peers, engagement in community, academic engagement, and teacher support, and fairness and safety at school.

Much of the current research about school belonging has settled on the definition proposed by Goodenow (1993a): school belonging is "a student's sense of being accepted, valued, included, and encouraged by others (teachers and peers) in the academic classroom setting and feeling oneself to be an important part of the life and activity of the class" (p. 25). From this viewpoint, peer support, teacher support, and overall belongingness/alienation are the three main factors that constitute a sense of school belonging.

Measuring school belonging. Several measures have been developed to assess school belonging based on various operational definitions. Of these, the Psychological Sense of School Membership Scale (PSSM; Goodenow, 1993b) has been used most frequently. Recent investigations of school belonging at post-secondary levels have also adapted various measures in order to address a more mature population of students (Brew et al., 2004; Freeman et al., 2007).

Goodenow (1993b) developed a measure to assess student's perceived belonging or psychological membership in the school environment. The 18-item PSSM was the final product of a scale development process that began with an initial pool of 42 items. The initial set of items was administered to a sample of 454 suburban middle school students and 301 multi-ethnic urban junior high school students. Items that had low variability and detracted from the internal consistency of the total score were dropped in subsequent studies. Scores on the final 18-item scale had internal consistency estimates that ranged from .77 to .88. The final PSSM uses a 5-point Likert format with choices ranging from *not at all true* (1) to *completely true* (5). The scale includes items on perceived liking, personal acceptance, inclusion, respect, encouragement of participation, perceived responsiveness of teachers and students, and feelings of being part of the school.

The PSSM is a commonly used measure for assessing feelings of school belonging in multiple school environments ranging from elementary to college populations (Freeman et al., 2007; Pittman & Richmond, 2007). This measure has been used in conjunction with measures of achievement motivation and academic achievement in various studies to illustrate the role that school belonging and social context play in academic motivation (Booker, 2006; Freeman et al., 2007; Goodenow, 1993b; Pittman & Richmond, 2007).

The definition of school belonging has been expanded in recent studies investigating more mature populations of students. Brew et al. (2004) proposed six factors that they believe contribute to an overall sense of belonging and connectedness to the school environment. These factors include relatedness of self with school, belonging with peers, engagement in community, academic engagement, teacher support, and fairness and safety at school. The measure, titled the Student Sense of Connectedness

Scale (SSCS), was initially administered to a high school population. Mueller (2008) adapted the SSCS in a study of school belonging in college students.

Mueller (2008) found that SSCS scores performed differently in college populations. Factor analyses of the scale suggested that a three-factor 14-item solution accounting for 56% of total variance was the best fit to the data. The first factor was named Relatedness of Self with School and consisted of four items. This factor described student's feelings of belonging to the university and connection to the university community. The second factor was named Instructor Support and Learning Environment and consisted of six items. Items in this subscale reflected student's feelings regarding the level of instructor support they received and the openness of the learning environment provided by the university. The third factor was named Belonging with Peers and consisted of four items. This factor described how valued and welcomed by peers a student felt. Both Mueller's adapted SSCS and Goodenow's (1993a) PSSM appear to measure similar constructs. Given Mueller's sample, the adapted SSCS may be geared toward a more mature population of students.

School belonging and college students. Initial studies exploring school belonging and achievement motivation focused primarily on primary and secondary school students (Anderman, 2003; Goodenow, 1993a; Roeser et al., 1996). Goodenow's (1993a) seminal study of school belonging and motivation has served as a model for future investigations. Addressing the role that belonging plays in the context of middle school, Goodenow (1993a) investigated the effect of school belonging on academic motivation and achievement for 353 6^{th}, 7^{th} and 8^{th} grade students across the course of a year. The association among perceived sense of belonging, academic expectancies for success, and intrinsic interest and value were assessed based on Atkinson's (1957) expectancy-value theory of motivation. Findings indicated that belonging significantly contributed to academic expectancies and value, with perceived support by teachers having the largest influence across grade and gender. Teacher support was also closely related to a student's academic motivation in the classroom. Peer support was not as influential as teacher support in motivating students but was a contributing factor.

Recently, the relationship among school belonging, academic motivation, and achievement has been examined in college students. Pittman and Richmond (2007) investigated a sample of 266-college freshman to explore the relationship between perceived school belonging and academic and psychological adjustment. Participants used the PSSM to report on both their former high-school and current college experiences along with measures of attachment, self-worth, academic success, and work orientation. The authors found that school belonging at the university and high school level were significant predictors of both current academic and psychological adjustment. College students who felt as though they belonged at the university had higher grades, reported higher feelings of self-worth, and had less externalizing and internalizing behavior issues then those students who felt that they did not belong.

Another investigation of school belonging and its influence on college undergraduate populations was conducted by Freeman et al. (2007). In their study, the authors explored the association between undergraduate sense of school belonging and academic motivation. Freeman et al. discussed the need to better define the construct of school belonging on college campuses. Researchers suggested that a multidimensional construct may be required to fully understand belonging at the collegiate level. As a

result, the relationship between school belonging and student perceptions of instructor characteristics was explored. Feelings of belonging at the classroom and campus level were also evaluated. Using a sample of 238 first semester freshman, the authors administered a questionnaire that included items from the PSSM, Motivated Strategies for Learning Questionnaire (MSLQ; Garcia & Pintrich, 1996), and Student Perceptions of Learning and Teaching (SPLT; McKeachie, 1994). The authors found that student belonging was related to academic self-efficacy, intrinsic motivation to achieve, and task value. Students who felt as though they belonged in the classroom also perceived that their instructors were warmer and more organized, and encouraged more participation. An association between a sense of belonging at the campus level and a stronger sense of social acceptance was also identified.

Recently, Mueller (2008) investigated the relationship between college students' sense of school belonging and motivation. Individual differences such as the student's status as a traditional or non-traditional student were also considered. Mueller administered a 72-item online survey to 393 undergraduate students at a large southern university. The survey consisted of several scales to measure demographics, school belonging, and motivational beliefs. As discussed previously, Mueller adapted the SSCS (Brew et al., 2004) to measure school belonging in a college population. Her analysis of the SSCS scale revealed three factors (a) sense of belonging with peers, (b) instructor support and learning environment, and (c) relatedness of self with school. The measure of motivation used was based on Elliot and McGregor's (2001) achievement goal model. The motivation scale consisted of 17 Likert-type items. Mastery approach, performance approach, and performance avoidance items were obtained from Midgley et al. (2000). Mastery avoidance items were obtained from Cury et al. (2006).

Results of the study indicated that group differences did exist between traditional and non-traditional students on campus in regard to the dimensions of sense of school belonging reported. A sense of belonging with peers was more important for traditional students. Mueller (2008) also found that a relationship between belonging and motivation was evident in both traditional and non-traditional populations of college students and differed based on the motivational profile of the student. Specifically, instructor support was predictive of a mastery-approach goal orientation and was a weak predictor of the mastery avoidance orientation. Sense of belonging with peers was predictive of a performance approach goal orientation. Relatedness of self with school was not found to be predictive of any goal orientation measured.

The findings from Pittman and Richmond (2007), Freeman et al. (2007), and Mueller (2008) suggest that school belonging plays a significant role in achievement motivation and psychological adjustment of college students, is associated with students' perceptions of faculty, and may differ depending on individual differences between students. Students who perceived their instructors to be cold and rejecting felt as though they did not belong in the classroom (Freeman et al., 2007). College students with low feelings of belonging have lower academic achievement, are less motivated to achieve, and often display more psychological adjustment difficulties then students who feel as though they belong (Freeman et al., 2007; Mueller, 2008; Pittman & Richmond, 2007).

The Present Study

After considering the various factors that contribute to a student-athlete's college experience, it appears that maintaining academic motivation in the face of a college

athletics career may be a challenge for revenue student-athletes. Only a small amount of literature has explored the characteristics of academic motivation among student-athletes at the college level, and each study has used different theoretical perspectives (Gaston-Gayles, 2005; Ryska, 2002; Simons & Van Rheenen, 2000; Simons et al., 1999). The literature suggests that academic motivation plays a critical role in academic success for student-athletes. High-revenue and minority student athletes appear to consistently display motivational profiles associated with negative academic outcomes. This subset of students display lower feelings of academic self-worth, have less motivation to achieve academically, value athletic success more than academic success, and feel unsupported by the university system (Gaston-Gayles, 2005; Simons & Van Rheenen, 2000; Simons et al., 1999).

Over the past 20 years, achievement goal theory has emerged as a prominent framework for understanding academic achievement and motivation (Dweck & Leggett, 1988; Nicholls, 1983). Elliot and McGregor (2001) proposed a 2 x 2 goal achievement model that may provide a deeper understanding of motivation by fusing approach-avoidance and mastery-performance perspectives (Elliot & McGregor, 2001). Currently, there is no literature on collegiate student-athlete populations using this combined perspective. In the present study, I investigated (a) the academic motivational profiles of college student-athletes using the 2 x 2 goal achievement framework and (b) the relationship of these profiles to academic achievement. Differences between high revenue and non-revenue student-athletes were examined to provide a richer understanding of academic motivation and performance in these subgroups of the student athletes.

In addition to investigating the motivational profiles of student-athletes in regard to mastery-performance and approach-avoidance perspectives, I also investigated the relationship that exists among achievement motivation and perceived sense of school belonging. Research on achievement motivation and college students suggests that a sense of school belonging contributes significantly to a student's level of academic motivation and academic performance (Freeman et al., 2007; Pittman & Richmond, 2007). Previous studies investigating motivation in student-athletes suggest that this population may be at risk for a low perceived sense of belonging due to feelings of exploitation and lack of academic support from the school at large and faculty members (Simons et al., 1999). In her study of school belonging and achievement motivation in college students, Mueller (2008) found that there were group differences between traditional and nontraditional students in regard to dimension of belonging. It is possible that the achievement and motivation differences that exist between high-revenue and non-revenue athletes are similar to the differences between traditional and non-traditional students and that such differences may in turn affect motivation to achieve in the classroom.

The purpose of the current study is to investigate the relationships that exist among achievement motivation, perceived school belonging, and academic achievement in college student athletes. Findings from previous studies on the relationship between motivation and academic achievement in student athletes suggest that revenue athletes report lower levels of motivation and have significantly lower academic achievement than non-revenue athletes (Astin, 1993; Howard-Hamilton & Sina, 2001). Revenue athletes often differ from non-revenue peers in fame and visibility on a college campus

due to media exposure and physical presence (Duderstadt, 2003). The demand for athletic performance is often associated with higher feelings of exploitation on the part of revenue athletes (Simons et al., 1999). It is possible that such factors influence revenue student-athletes' perceived sense of belonging. Weaker feelings of belonging have been consistently associated with lower academic motivation to achieve, resulting in differences in academic achievement (Freeman et al., 2007; Mueller, 2008; Pittman & Richmond, 2007). Previous investigations of college populations of student-athletes and investigations of school belonging in college populations serve as the impetus for three primary research questions.

Research question 1. The first question in the current study is whether meaningful motivation profiles exist within a sample of student-athletes using the achievement-goal model established by Elliot and McGregor (2001) and the statistical method of cluster analysis. Cluster analysis groups objects, including respondents, based on the similarities of their profiles on the measured variables. The measured study variables in the current study are the achievement goal scales: mastery-approach, performance-approach, mastery-avoidance, and performance-avoidance. Past work on achievement goal structures and other 2 x 2 achievement models have frequently used mean or median split methods to create goal profiles (Simons et al., 1999; Roberts, Treasure, & Kavussanu, 1996). Some argue that this method may impose a structure on data that is not really present (Wang et al., 2007).

Utilizing an approach-avoidance framework, Simons et al. (1999) used a median-split method to create motivation profiles and label student-athletes as over striving, success-oriented, failure-avoidant, or failure accepting. This previous work was conducted by Simons et al. at UC Berkeley in the late 1990s and suggested that student-athletes could be categorized into four groups based on their method of analysis. Recent research investigating achievement motivation of college students (Mueller, 2008; Wang et al., 2007) has also created four motivation profiles using an achievement-goal orientation model that fuses the goal orientations of mastery and performance with approach and avoidance. The present study's method of cluster analysis offers a new approach to examining motivational profiles of student-athletes by seeking to find whether meaningful groups exist within the sample rather than by creating them.

Research question 2. To gain a deeper understanding of how and why achievement motivation may differ for student-athletes, the second question in the present study is whether students with different motivational cluster profiles have different scores in regard to perceived sense of school belonging. Previous research on achievement motivation and college students has identified the significant impact that a student's sense of school belonging can play on achievement motivation and academic performance (Freeman et al., 2007; Pittman & Richmond, 2007). Studies investigating student-athletes and motivation suggest that this population may be one at risk for a low perceived sense of belonging due to feelings of exploitation and lack of academic support from the school at large and faculty members (Simons et al., 2007).

In the study by Simons et al. (1999), athletes who were categorized as failure-avoidant and failure-accepting displayed low academic self-worth, were more committed to their roles as athletes on campus, displayed more self-handicapping behavior, and also felt that they were more exploited by the university. Mueller (2008) found that a relationship between belonging and motivation was evident in both traditional and non-

traditional populations of college students and differed based on the motivational profile of the student. Different dimensions of school belonging were found to be related to different achievement goal orientations. Specially, instructor support was predictive of a mastery-approach goal orientation and was a weak predictor of the mastery avoidance orientation. Sense of belonging with peers was predictive of a performance approach goal orientation. By examining sense of school belonging and achievement goals at an intraindividual level I hope to come to a better understanding of how perceived sense of school belonging is related to achievement motivation and academic achievement.

Research question 3. Previous studies investigating student-athlete motivation and academic achievement suggest that significant differences exist between high revenue and non-revenue student athletes (Astin, 1993; Howard-Hamilton & Sina, 2001). The current study seeks to contribute to the literature by exploring the impact of sense of school belonging as a contributing factor to this disparity. The third and final question of the present study attempts to answer this question by asking whether differences exist between high-revenue and non-revenue student-athletes school belonging and goal orientation. I hypothesize that high-revenue student-athletes will feel less supported and respected by the academic community at large than their non-revenue counterparts. Furthermore, this study seeks to address if these differences are also related to academic achievement.

Method

Participants

Data for this study were collected from 143 college student-athletes at the University of California at Berkeley, a large public university in the western United States. Examination of the data revealed that 33 surveys were partially incomplete or missing background data, reducing the sample size to 110. Respondents were from 17 to 24 years of age (M = 19.77, SD = .75) and were diverse in regard to gender, ethnicity, class year, sport, and socioeconomic status. Student-athletes from 23 varsity teams agreed to participate in the study. The participants consisted of 57.3% (n = 63) males and 42.7% (n = 47) females.

Participants reported ethnicity as White (51.8%), African-American (25.5%), Multi-Ethnic (10%), Asian-American (5.5%), Latino/Other Hispanic American (3.6%), Middle-Eastern (.9%), and Other (2.7%). More than a third of the respondents were sophomores (39.1%); close to a third were freshmen (26.4%); a fourth were juniors (20%) while a fifth were seniors (10.9%). The majority of the respondents (77.3%) indicated that they came from middle class families. Two-thirds of the participants (68.2%) were non-revenue athletes and 31.8% were revenue athletes. More than a third of the respondents (39.1%) reported receiving full scholarships, 30.9% reported partial scholarships, and 30.0% reported no scholarships. See Table 1 for frequencies and percentages of demographic variables.

Measures

Demographics. Demographic and background variables were collected. Students reported their gender, ethnicity, academic level, scholarship status, and family socioeconomic status. Participants also reported their college and high school GPAs as well as the sport that they played. In major analyses, sport status was coded as dichotomous variable with revenue sports including men's basketball and football and non-revenue including all other sports.

School belonging. Perceived school belonging was measured using Mueller's (2008) adaptation of the Sense of Social Connectedness Scale originally (Brew et al., 2004). The SSCS consists of 14-item Likert-scale. The first factor, *Relatedness of Self with School (RSS)*, includes four items that focus on students' feelings of belonging and connectedness to the university community. The second factor, *Instructor Support and Learning Environment (ISLE)*, includes six items related to students' feelings regarding the level of instructor support they receive and the openness of the learning environment at the university. The third and final factor, *Belonging with Peers* (BwP), includes four items which assess how welcome students feel a member of their university peer groups. Sample items for the three subscales are, "I feel like a real part of this university" (RSS), "I feel comfortable asking instructors about things I do not understand" (ISLE), and "I spend time with students from this university, both in and out of school" (BwP). These three scales reflect similar sense of belonging constructs (Goodenow, 1993b) previously established in the literature to use with primary and secondary school aged populations. Participants responded on 5-point scales ranging from 1 (*not at all true of me*) to 5 (*very true of me*), rather than 7-point scales as originally designed in order to simplify the response options due to time sensitivity.

Internal consistency estimates for the SSCS total score and the three subscale scores are presented in Table 2. Overall, the reliability estimate for the total score was

acceptable, and the scores for the RSS and ISLE subscales had adequate internal consistency estimates. However, the internal consistency estimate for BwP scores was below .70. The proposed three-subscales were used for subsequent analysis despite the unacceptable reliability on the Belonging with Peers subscale. It was believed that the proposed scales would provide a deeper understanding of belonging than the whole scale composite.

Achievement Goal Questionnaire. Achievement motivation was measured using a revised version of the Achievement Goal Questionnaire created by Elliot and McGregor (2001). This 12-item questionnaire was designed to measure achievement goals in a specific undergraduate-level class. There are four subscales within the questionnaire that address the four motivational profiles within the achievement-goal framework. The items were revised by Finney et al. (2004) to reference achievement to the current semester instead of a specific classroom. Items are presented in a Likert-type format ranging from 1 (*not at all true of me*) to 5 (*very true of me*). Sample items for each subscale are "It is important for me to do well compared to other students this semester" (performance-approach), "My fear of performing poorly is what motivates me" (performance-avoidance), "I want to learn as much as possible this semester" (mastery-approach), and "I worry that I may not learn all that I possibly could this semester" (mastery-avoidance).

Internal consistency estimates for the Achievement Goal Questionnaire subscale scores are presented in Table 2. The scores for the performance approach orientation, performance avoidance orientation, mastery approach orientation, and mastery avoidance orientation all had adequate internal consistency estimates. Low-to-moderate correlations among four goal orientations were reported also providing evidence of discriminant validity (see Table 3).

Procedure

Coaches and advisors of the UC Berkeley Student-Athlete Study Center were contacted by e-mail and in person to inform them of the research opportunity and to request their assistance and permission to recruit athletes (see Appendix A). Several advisors agreed to allow their students the option to participate in the study. Due to the variable schedules of student-athletes on campus, data were collected during a scheduled classroom meeting coordinated by the researcher and the head of the Student-Athlete Study Center and during scheduled meetings with advisors. Student-athletes from eleven women's teams (basketball, softball, track and field, volleyball, cross country, soccer, swimming, tennis, crew, gymnastics, and field hockey) and eleven men's teams (football, basketball, baseball, track and field, cross country, soccer, swimming, water polo, tennis, gymnastics, and golf) were asked to participate.

After receiving permission, the researcher visited the scheduled settings to inform the students of the research opportunity (Appendix B). Students listened to a brief introduction about the study and were then invited to participate. Students who agreed to participate received a survey with an information sheet attached regarding the purpose of the study, other relevant information, and the informed consent form (Appendix C). Students were asked to read and sign the consent form and return it with the survey when they had completed both. Information and consent forms were also available for students to take home. To minimize coercion, students were assured that their choice to participate or not participate in this study would not influence their standing as a student or athlete at UC Berkeley. The survey was designed to take between 5-10 minutes to

complete (Appendix C). All participants had the opportunity to win a $100 gift certificate to the Cal store in a raffle to encourage participation. Participants were told to not put their names or other identifying information on the survey. Student responses were guaranteed confidentiality and minimal risks to students will also be assured.

Results

Preliminary Analyses

Descriptive statistics. The descriptive statistics for the study variables are presented in Table 1. High school and college grade point average (GPA) were both self-reported by students. High school GPA ranged from two to five with a mean GPA of 3.49 (*SD* = .47). College GPA ranged from 1.8 to 4 with a mean GPA of 3.00 (*SD* = .42). Results reflect an overall decline in achievement at the college level. These findings may be due to the range difference in high school and college.

As can be seen in Table 2, the Sense of Social Connectedness subscale scores ranged from around two to five with the mean scores close to four. Performance Approach scores ranged from one to five and Mastery Approach scores ranged from two to five. Performance Avoidance and Mastery Avoidance scores ranged from one to five with mean scores for these variables slightly lower than the Approach scores.

Pearson correlations among the study variables are in Table 3. High school GPA was significantly associated with college GPA and Belonging with Peers. College GPA was significantly correlated with Belonging with Peers, Instructor Support, and Relatedness of Self with School. The three Sense of Social Connectedness subscales were positively and moderately correlated with each other. Correlations among the three subscales of the Achievement Goal Questionnaire were more modest.

Primary Research Questions

Preparing data for cluster analysis. To prepare data for clustering, the four motivation subscale scores were standardized and inspected for outliers. Mean scores on composites for all participants were transformed into *z*-scores. Cases with standard scores above an absolute value of three were considered outliers (Barnett & Lewis, 1994). The college GPA of two respondents were higher than |3.00| and these cases were deleted from subsequent analyses. Univariate normality was also assessed. Non-normality was defined by skew indices (skew statistic/SE) above three and kurtosis values between 10 and 20 (Kline, 2005). All variables within the data sample had skew indices below three and kurtosis indices below ten. These findings suggest that none of the variables were non-normal, and. all variables were used in subsequent analyses.

Motivation profiles of student athletes. To address the first research question regarding the presence of four distinct motivational profiles within the population of student-athletes at UC Berkeley, a cluster analysis using Ward's method was conducted to determine the number of clusters using the standardized Performance Approach, Performance Avoidance, Mastery Approach, and Mastery Avoidance scores. The resulting dendogram indicated that four clusters could be formed before the distance at which clusters were linked became too large. Using the results of the dendogram, a K-means analysis was then conducted. The means and standard deviations of the four measures for each cluster are presented in Table 4. As can be seen in the table, the first cluster had Performance mean scores lower than 3.0 and Mastery mean scores above 3.0. Thus, this cluster was labeled High Mastery.

The second cluster had moderate mean scores—ranging from around 2.7 to 3.0—on all four subscales. Thus, this cluster was labeled Moderate Motivation. The third cluster had high Performance and Mastery Approach mean scores (above 4.0) and lower Performance and Mastery Avoidance mean scores (below 3.0). Accordingly, this cluster

was labeled High Approach. The fourth cluster had high mean scores—above 4.0—on all four subscales. Therefore, this cluster was labeled High Motivation.

A cross-tabulation procedure was conducted to determine whether the motivation clusters were invariant across revenue categories. The cross-tabulation results are presented in Table 5. The findings reveal that motivation cluster did not vary significantly across revenue groups, χ^2 (3) = 2.61, p = .456. Almost half of the revenue athlete participants displayed Moderate Motivation profiles, and a quarter of this group was in the High Motivation cluster. Non-revenue athletes were more evenly dispersed across Moderate Motivation, High Approach, and High Motivation clusters. The smallest percentage of both revenue and non-revenue athletes was in the High Mastery cluster.

Cluster group differences on sense of belonging and achievement. To address the question of whether athletes with different motivational cluster profiles have different scores on perceived sense of school belonging, multivariate analyses of variance (MANOVA) were conducted. Each cluster was examined independently with the three Sense of Social Connectedness Scale subscale scores as dependent variables. The means and standard deviations for the subscales are shown in Table 4.

The univariate ANOVA findings are summarized in Table 6. The findings reveal that motivation clusters differed significantly on the three SSCS subscale scores. Post-hoc Tukey test results revealed that the mean Belonging scores for respondents in the Moderate Motivation cluster were significantly lower than the mean scores for those in the High Approach cluster (d = .21) and the High Motivation cluster (d = .12). These results suggest that student athletes with Moderate Motivational profiles perceive themselves to be less connected to their peers in the classroom and feel less valued as a member of their peer groups. Students with High Approach and High Motivation profiles reported significantly higher levels of peer belonging in comparison to those students in with Moderate Motivation beliefs (d = .21 and d = .12, respectively). These students reported spending more time with their classmates, having close friends, and feeling welcome to participate in school activities.

Post-hoc Tukey test results reveal that the mean Support score for respondents in the High Approach cluster was significantly higher than the mean score for those in the Moderate Motivation cluster (d = .31) and the High Motivation cluster (d = .18). Students with high expectations of success across *both* mastery and performance based tasks reported feeling higher levels of instructor support and respect and also feel more comfortable in their learning environment than many of their peers.

Post-hoc Tukey test results reveal that the mean Relatedness scores for respondents in the Moderate Motivation cluster was significantly lower than the mean scores in the High Approach cluster (d = .12) and the High Motivation cluster (d = .18). These results suggest that student athletes with moderate scores across all motivational profiles perceive themselves to be less connected to the university as a whole than their peers with High Approach and High Motivation profiles.

A one-way analysis of variance (ANOVA) was used to determine whether motivation clusters varied significantly in terms of college GPA. The means and standard deviations for GPA are displayed in Table 7. The findings reveal that college GPA did not differ significantly across motivation clusters, F (3,106) = 1.23, p = .303.

Do revenue and non-revenue athletes differ on profiles and other outcomes? A MANOVA was also conducted to determine whether revenue and non-revenue athletes

differed significantly in terms of the four motivation profiles. The MANOVA was not significant, F (4,105) = .43, p > .05. The means and standard deviations for the subscales are shown in Table 8. A MANOVA was conducted to determine whether revenue and non-revenue athletes differed significantly on the three Sense of Social Connectedness Scale subscale scores. The means and standard deviations for the subscales are also shown in Table 8. The MANOVA on the three SSCS subscale scores was significant, F (3,106) = 4.83, p = .003. Post-hoc analyses indicated that revenue athletes had significantly lower Belonging scores (d = .04), significantly lower Support scores (d = .08), and significantly lower Relatedness scores than non-revenue athletes (d = .11).

An independent t-test procedure was used to compare revenue and non-revenue athletes on college GPA. The means and standard deviations for college GPA are presented in Table 7. Revenue athletes had significantly lower GPAs than non-revenue athletes, t (52) = 8.08, p = .001, d = .30.

Discussion

The purpose of the current study was to investigate the relationships that exist among achievement motivation, perceived school belonging, and academic achievement in college student athletes. The goal of the study was to achieve a deeper understanding of differences between revenue and non-revenue athletes (Howard-Hamilton & Sina, 2001; Simons et al., 1999). Three research questions were posed. The first question was whether meaningful motivation profiles existed within a sample of student-athletes using the statistical method of cluster analysis. Four motivational profiles were identified within the student-athlete population using a 2 x 2 approach-avoidance and mastery-performance model. These clusters were High Mastery, Moderate Motivation, High Approach, and High Motivation. Student-athletes rarely reported low levels of motivation on the scale.

The second question was whether students with different motivational cluster profiles had different scores in regard to perceived sense of school belonging. Overall, subscales associated with a sense of school belonging did vary significantly across the four motivational clusters. Student-athletes identified as having a Moderate Motivation profile had a weaker sense of support from peers, instructors, and the overall academic community in comparison to students found in the High Motivation and High Approach clusters. Students identified as having a High Approach profile felt the highest level of belonging across measures.

The third and final question of the present study addressed whether differences existed between high-revenue and non-revenue student-athletes in regard to school belonging and goal orientation. I hypothesized that high-revenue student-athletes feel less supported and respected by the academic community at large than their non-revenue counterparts. No significant difference was found between revenue and non-revenue athletes in regard to goal orientation subscale scores or to distribution among cluster profiles; however, revenue athletes reported significantly lower levels of belonging across subscales and had a lower mean grade point average.

Contributions from the Present Study

Motivational profiles of student-athletes. The current study used a 2 x 2 goal achievement framework established by Elliot and McGregor (2001) to assess whether meaningful motivation profiles existed within a sample of student-athletes. Four motivational profiles were found in the student-athlete sample based on individual differences in motivational beliefs. These profiles appear to be complex, reinforcing Dweck and Bempechat's (1983) assertion that individuals often hold different goals simultaneously.

Student-athletes in the High Mastery cluster (i.e., high mastery orientation and low performance orientation reported high levels of importance on mastering academic material, understanding the content of the coursework, and learning as much as possible throughout the semester. The Moderate Motivation cluster of student-athletes felt that mastering course material and achieving better grades than other students were both somewhat important. These students also were somewhat fearful of performing poorly on tests and not learning as much information as they should. The High Approach cluster of students wanted to do better academically than most students but also wanted to learn as much as possible during the course of the semester. The High Motivation cluster of students were focused on both *developing* and *demonstrating* their competence in an

academic setting. They were also fearful of not making the grade and not getting as much out of their educational experience as they could.

The current findings add to the literature by providing another account of the varying academic profiles maintained by student-athletes in a collegiate setting. Results of the cluster analysis suggest that these four motivation profiles exist in the population of student athletes. Simons et al. (1999) also described four motivational profiles for student-athletes. The current findings differ from those reported by Simons et al. in the theoretical and statistical approach used to identify these profiles. Simons et al. created four motivational profiles using Covington's self-worth theory (1992), identifying motivation through success orientation and failure avoidance. Elliot and McGregor's (1999) achievement-goal orientation model fuses the goal orientations of mastery and performance with approach and avoidance. Both models include an approach-avoidance perspective, allowing for comparison.

The clusters found in the current study share similarities based on the approach-avoidance conception of motivation. In Covington's theory of self-worth (1992) students motivated by a high approach for success and a high avoidance of failure were deemed overstrivers. Based on the definitions of the current model, students in the High Motivation cluster may also merit this description. These students were focused on both developing and demonstrating their competence (success oriented) and were also fearful of not making the grade and not getting as much out of their educational experience as they could (failure avoidant). Students in the High Approach cluster were motivated to approach success for both mastery and performance based tasks and were less fearful of failure. These students may be most closely related to the success-oriented profile based on the self-worth model.

Another difference between the current study and the study by Simons et al. (1999) is the statistical approach used to assess motivational data. As discussed previously, cluster analysis allowed me to group students on the basis of similar motivation scores. Past work with achievement goal structures and other 2 x 2 achievement models has frequently used mean or median split methods to create goal profiles (Roberts, Treasure, & Kavussanu, 1996; Simons et al., 1999). Simons et al. (1999) used the median split method to create four motivational profiles. By doing so, Simons et al. assigned students to group profiles based on the median scores rather than individual commonality. This method of analysis made it possible to identify groups of students that met low motivation profiles, such as failure accepting students. Some researchers (e.g., Wang et al., 2007) have argued that this method may impose a structure on data that is not really present.

For example, in the current study student-athletes rarely reported low levels of motivation on the scale. The differences that were found between clusters were based on students feeling strongly or moderately motivated. There are two possible explanations for these findings. It is possible that student-athletes at UC Berkeley always held moderate to high motivational beliefs about school but the method of analysis used to classify students imposed a structure in which students with moderate motivation were assigned to low motivation profiles. It is also possible that student-athletes at UC Berkeley have higher scores on achievement motivation now than they did 10 years ago when Simons et al. (1999) examined their motivation.

During this time, UC Berkeley has created multiple supports to assist student-athletes in their education. The Athletic Study Center was established at UC Berkeley in 1999 with the mission of encouraging student-athletes to "integrate, participate, and become vested members in the academic community" (Mission Statement, 2010). The Athletic Study Center staff provides student-athletes with a range of programs including advising, tutoring, career planning, internships, research, and professional training. With these supports in place, student-athletes may now feel more confident and invested in their academic experience.

Achievement motivation and school belonging. The second research question in the current study explored whether meaningful relationships exist among motivational cluster on academic achievement and perceived sense of school belonging. Belonging subscale scores did vary significantly across the four motivational clusters. Students with High Approach and High Motivation profiles reported significantly higher levels of peer belonging in comparison to those students with Moderate Motivation profiles. These students reported spending more time with their classmates, having close friends, and feeling welcome to participate in school activities. These results differ from Mueller's (2008) findings which suggest that only students with performance approach goal orientations feel significantly more support from their peers. The current study suggests that peer support and feedback assist in motivating both mastery and performance oriented students and contribute toward a success-oriented approach to learning.

Perceived instructor support was associated with an approach oriented motivational profile. The support scores for respondents in the High Approach cluster were significantly higher than the scores for those in the Moderate Motivation cluster and those in the High Motivation cluster. Students who were high in approach to mastery and performance tasks and low in avoidance to mastery and performance tasks reported feeling higher levels of instructor support and respect and greater comfort in the learning environment. These results again differ from Mueller (2008), who found that instructor support was significantly associated only with a Mastery-Approach perspective. The current study suggests that instructor support may influence the success-oriented approach students have toward learning in both mastery and performance based tasks.

Finally, perceived sense of relatedness was associated with approach oriented students and students with high scores across all measures of motivation. The relatedness score for respondents in the Moderate Motivation cluster was significantly lower than the scores for those in the High Approach and High Motivation clusters. The two latter groups of students reported a high level of belonging to the university, a strong connection to the university community, and a high level of caring for the university. Mueller (2008) did not find a significant association between relatedness and any motivation profile.

Students in the High Approach cluster felt the highest level of support and belonging from the school community. These students are described as holding an approach-oriented motivational perspective. Their concept of competence carries a positive valence in both performance and mastery oriented tasks. They wish to perform better than other students and to gain as much knowledge for themselves as possible. Results from the present study suggest that students who feel well supported by their peers and instructors feel more confident at approaching learning. Their sense of support

and respect from the community may allow these students to view competence more positively, resulting in a success-oriented approach.

Students in the Moderate Motivation cluster felt the least amount of support overall from the academic community. These students are described as having a moderate mastery and performance oriented profile. Their concept of competence was not strongly associated with either mastery or performance perspectives. Students with Moderate Motivation profiles felt that mastering course material and achieving better grades than other students were both somewhat important. They were also somewhat fearful of performing poorly on tests and not learning as much information as they should. Of all the clusters observed, students with the Moderate Motivation perspective appear to be the least engaged with the learning process. It is possible that this group of students feels less engaged in learning due to weaker feelings of support from the school community. Conversely, it is also possible that students who feel moderately motivated about achievement also feel that it is less important to engage with peers and faculty in the academic community.

The differences between Mueller (2008) and the current study can be attributed to the method of analysis and the sample of participants. The current study contributes to the findings by Mueller by further describing how sense of school belonging relates to motivation profiles. It also addresses a unique population at the collegiate level. It is possible that results may differ when investigating the general college population using the same method.

The question of whether motivation clusters varied significantly in terms of college GPA was also addressed. The findings reveal that college GPA did not differ significantly across motivation clusters. Although no significant differences were found, mean scores reveal that student-athletes in the High Approach cluster had the highest GPA of each group followed by the High Motivation cluster. Students in the Moderate motivation cluster and the High Mastery cluster reported the lowest mean GPA of the sample. It is possible that the mean GPA did not differ significantly because of the various academic supports and guidance student-athletes receive at UC Berkeley. Additionally, all NCAA student-athletes are required to achieve cumulative grade-point averages that equal 90 to 100% of the cumulative minimum grade point average required for graduation depending on their year of play (NCAA regulations, 2010). This regulation ensures that the majority of student-athletes on a college campus maintain a C average or higher. As a result, there may be less of a range in the mean GPA reported by student-athletes on the whole.

Group differences between revenue and non-revenue athletes. The final analysis of the current study involved investigating group differences between revenue and non-revenue student-athletes on school belonging, goal orientation, and academic achievement reported. It was hypothesized that differences would exist in regard to motivational status and academic achievement (Simons et al., 1999). Due to the visibility of high-revenue student-athletes, the stigma that often accompanies their role as an athlete on campus, and the physical and logistical demands of participating in college athletics, I hypothesized that high-revenue student-athletes would feel less supported and respected by the academic community than their non-revenue counterparts.

Results of the study revealed that the distribution of revenue and non-revenue student athletes among motivational clusters did not vary significantly. However, the

pattern of distribution across clusters did reveal some variation between revenue and non-revenue athletes. Almost half of the revenue athlete participants held Moderate Motivation profiles, reporting moderate mastery and performance motivation beliefs. This profile was associated with weaker feelings of peer support, instructor support, and relatedness of self with school. A quarter of revenue athletes were found in the High Motivation cluster, displaying profiles consistent with high scores across all areas. This profile identified with higher feelings of peer support and relatedness. Fewer revenue athletes reported High Approach profiles. Non-revenue athletes were more evenly dispersed across Moderate Motivation, High Approach, and High Motivation clusters, and generally reported higher mean scores across the four subscales of motivation measured in the Achievement Goal Questionnaire.

The lowest percentile of each athlete group was found in the High Mastery cluster, which is based on high mastery scores and low performance scores. Interestingly, in this sample, few student-athletes had high scores on mastery goals alone. Rather, the motivational profiles of student-athletes involved both performance and mastery oriented approaches to learning. It is not clear if this distribution is specific to this sample of student-athletes or to student-athletes as a whole. The competitive drive often characteristic of student-athletes may influence academic goals to be both performance- and mastery-oriented. No cluster was identified as performance oriented. This finding suggests that student-athletes' desire to outperform their peers is also accompanied by an intrinsic desire for knowledge.

Differences between revenue and non-revenue athlete groups on school belonging were also assessed. The findings indicate that revenue athletes felt significantly less supported by their peers within the academic community than non-revenue athletes. These students perceived themselves to be less connected to their peers in the classroom and feel less valued as a member of their peer groups. Revenue athletes also felt significantly less supported in the classroom than non-revenue athletes. Non-revenue athletes reported feeling higher levels of instructor support and respect and also reported feeling more comfortable in their learning environment. Lastly, revenue athletes reported significantly less relatedness than non-revenue athletes, suggesting that revenue athletes feel less connected to the academic community and the school as a whole. Results also indicate that revenue athletes had significantly lower college GPAs than non-revenue athletes.

The differences observed between revenue and non-revenue athletes support the hypothesis of this study, but are also unsettling. Despite the many supports in place for student-athletes at UC Berkeley, revenue athletes continue to feel less supported by peers, instructors, and the school community as a whole. Based on the results of the present study, these weaker feelings of support are associated with a more disengaged perspective on learning. The reasons why revenue student-athletes feel less support have not been explored empirically. Simons et al. (1999) reported that many revenue student-athletes felt exploited by the university for their sport and believe they do not receive the proper academic support in return. Research suggests that both faculty members and peers in college communities often perceive student-athletes to be less academically capable than students in the general college population and separate from the academic community as a whole (De Man, St. James, & Stout, 2006; Engstrom, Sedlacek, & McEwen, 1995). Student-athletes are also often aware of the anti-intellectual stigma

attached to their status and attuned to the feelings that instructors and peers hold about their academic ability (Simons et al., 2007). Furthermore, revenue student-athletes may view themselves as outsiders in the academic community simply due to the social isolation that frequently occurs because of scheduling and competitions (Simons et al., 1999). All of these reasons are plausible contributors to the weaker sense of school belonging reported by revenue athletes.

Limitations

The present study has certain limitations that should be taken into account when considering its contributions. Due to the nature of the data collection, participants who agreed to fill out the survey were self-selected. It is possible that those who chose not to participate would have reported different scores on belonging and achievement. Additionally the sample included only a third of the total student-athlete population on campus. Participants were felt to be representative of the whole based on descriptive statistics; however, it is possible that the sample is not truly representative.

Because data were collected at UC Berkeley, it is difficult to generalize these findings to other collegiate populations due to differing admissions standards at other Division I institutions and the level of academic support provided by the university through the Athletic Study Center. The use of the student-athletes as the sole participants in the current study is also somewhat limiting. Future research exploring motivation and school belonging in student-athlete populations may look to replicate these findings at other institutions and to include non-athlete students as an additional point of comparison. The fact that GPA was self-reported in the current study may also serve as a limitation. It is possible that students did not accurately report their GPA due to a lack of knowledge or to avoid being perceived as low achievers. Lastly, the reliability of the Belonging with Peers subscale scores was low. Future research exploring belonging with a sample of student-athletes should consider alternative measures to assess belonging or develop a specific scale directed at measuring belonging within this student population.

Conclusions and Future Directions

The present study has both encouraging and unsettling findings. The results of the study indicate that four motivational profiles are present in the student-athlete population. Student-athletes identified as having moderate achievement motivation reported feeling a weaker sense of support from peers, instructors, and the overall academic community. Students with stronger motivational belief and success-oriented approach to learning felt the highest level of belonging across measures. No differences were found between revenue and non-revenue athletes in regard to distribution among motivational profiles; however, revenue athletes reported significantly lower levels of belonging across subscales and had a lower mean grade point average. The current study suggests that these weaker feelings of support are associated with a more disengaged perspective on learning.

As discussed in the previous section, the reasons why revenue athletes report a weaker sense of school belonging in comparison to non-revenue peers has not been empirically investigated. It will be important to assess these reasons in future studies to provide a concrete and explicit understanding of why revenue student-athletes feel less supported and connected to their academic community. Future research may require a qualitative approach to achieve this goal. Once we understand *why* revenue athletes feel

less supported, we can address *how* to foster a stronger sense of belonging for this group within the academic community.

The present study suggests that student-athletes' achievement motivation is significantly associated with feelings of support and respect from the academic community. Despite a high level of academic support in place for student-athletes at UC Berkeley, revenue student-athletes feel a weaker sense of school belonging in comparison to their peers. Almost half of this sample also reported moderate motivation profiles, associated with lower levels of academic engagement. As only a small percentage of student-athletes attain positions in professional leagues, the majority of revenue athletes will have to rely on their academic background once their collegiate career is completed (Eitzen, 1999). It is important that university communities support student-athletes not only on the road to a championship title, but also on their educational journey. Promoting a sense of belonging by providing support, feedback, respect, and guidance are necessary steps to fueling academic motivation and providing student-athletes the confidence to achieve.

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Table 1

Frequencies and Percentages of the Demographic Variables (N = 110)

Variable	Frequency	Percentage
Gender		
Male	63	57.3
Female	47	42.7
Year in college		
First	29	26.4
Second	43	39.1
Third	22	20.0
Fourth	12	10.9
Fifth	4	3.6
Ethnicity		
Asian American	6	5.5
Black/African American	28	25.5
Latino/Other Hispanic American	4	3.6
Middle Easter/Arab American	1	.9
White/Caucasian American	57	51.8
Multi-ethnic	11	10.0
Other	3	2.7
Socio-economic status		
Poor	1	.9
Working class	10	9.1
Lower middle class	12	10.9
Middle class	42	38.2
Upper middle class	31	28.2
Lower upper class	6	5.5
Upper class	8	7.3
Sport		
Water polo	15	13.6
Field hockey	7	6.4
Track and field	12	10.9
Gymnastics	4	3.6
Volleyball	1	.9
Softball	3	2.7
Rugby	4	3.6
Golf	1	.9
Crew	7	6.4
Swimming	5	4.5
Badminton	1	.9
Tennis	4	3.6
Lacrosse	1	.9
Diving	2	1.8
Soccer	7	6.4
Baseball	1	.9
Basketball	9	8.2
American Football	26	23.6
Scholarship Status		
None	33	30
Partial	34	30.9
Full	43	39.1

Table 2

Descriptive Statistics for the Study Variables (N = 110)

Variable	Range	Mean	SD	Item N	Alpha
High school GPA[a]	2.00 to 5.00	3.49	.47	--	--
College GPA	1.80 to 4.00	3.00	.42	--	--
Sense of social connectedness scale	2.43 to 5.00	3.89	.55	12	.85
Belonging with peers	2.00 to 5.00	3.97	.67	4	.87
Instructor support	2.50 to 5.00	3.84	.55	6	.69
Relatedness of self with school	1.75 to 5.00	3.90	.82	4	.59
Achievement goal questionnaire					
Performance approach	1.00 to 5.00	3.62	1.02	3	.89
Performance avoid	1.00 to 5.00	3.19	1.08	3	.82
Mastery approach	2.00 to 5.00	3.72	.80	3	.81
Mastery avoid	1.00 to 5.00	3.13	.90	3	.73

[a] $n = 107$.

Table 3

Pearson Correlations between the Study Variables (N = 110)

Variable	1	2	3	4	5	6	7	8
1. High school GPA[a]	.48 *							
2. College GPA								
Sense of Social Connectedness								
Scale	.32 *	*						
3. Belonging w peers	.14	.36 *	.57 *					
4. Instructor support	.20	.38 *	.42 *	.65 *				
5. Relatedness of self		.43						
Achievement Goal Questionnaire	.17		.42 *	.36 *	.21			
6. Performance approach	-.10	.20	.10	-.01	.05	.39 *		
7. Performance avoid	.19	-.10	.30 *	.39 *	.20	.39 *	.02	
8. Mastery approach	-.02	.13	.06	-.13	-.02	.13	.42 *	.22
9. Mastery avoid		-.14						

[a] $n = 107$

* $p < .001$

Table 4

Means and Standard Deviations of Motivation Measures and SSCS Subscale Scores across the Four Motivation Clusters

Measure	High Mastery (N = 13)		Moderate Motivation (N = 42)		High Approach (N = 22)		High Motivation (N = 33)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Motivation Measures								
Performance approach	2.82	1.13	2.92	.77	4.59	.47	4.19	.55
Performance avoidance	1.97	.62	2.95	.74	2.70	.95	4.31	.62
Mastery approach	4.44	.48	3.04	.50	4.21	.57	3.96	.73
Mastery avoidance	3.44	.75	2.79	.62	2.40	.66	3.95	.71
SSCS Subscales								
Belonging with peers	4.12	.47	3.63	.68	4.32	.58	4.11	.61
Instructor support and learning environment	3.85	.44	3.58	.55	4.28	.42	3.87	.47
Relatedness of self with school	3.79	.58	3.61	.86	4.24	.71	4.09	.80

Table 5

Cross-tabulation Results for Motivation Cluster by Revenue

Type of Athlete	Cluster			
	High Mastery *N* (%)	Moderate Motivation *N* (%)	High Approach *N* (%)	High Motivation *N* (%)
Non-revenue	9 (12.0)	25 (33.3)	17 (22.7)	24 (32.0)
Revenue	4 (11.4)	17 (48.6)	5 (14.3)	9 (25.7)

Table 6

ANOVA Results for SSCS Subscales (N = 110)

Variable	df	MS	F	Sig.
Belonging with peers	3	2.83	7.39	.000
Error	106	.38		
Instructor support and learning environment	3	2.38	9.85	.000
Error	106	.24		
Relatedness of self with school	3	2.50	4.05	.009
Error	106	.62		

Table 7

Means and Standard Deviations for College GPA across Motivation Clusters and Athletes

Cluster	Mean	SD
High Mastery	2.94	.36
Moderate	2.94	.42
High Approach	3.14	.43
High	3.00	.44
Type of Athlete		
Non-Revenue	3.15	.32
Revenue	2.66	.43

Table 8

Means and Standard Deviations for Motivation Profiles and SSCS Scores across the Revenue and Non-Revenue Athletes

Subscale Scores	Non-Revenue		Revenue	
	M	*SD*	*M*	*SD*
Motivation Profiles				
Performance approach	3.68	1.03	3.50	1.02
Performance avoidance	3.22	1.09	3.13	1.07
Mastery approach	3.78	.79	3.58	.83
Mastery avoidance	3.14	.86	3.12	.97
SSCS Subscale Scores				
Belonging with peers	4.06	62	3.76	.73
Instructor support and learning environment	3.94	.52	3.60	.54
Relatedness of self with school	4.08	.74	3.51	.85

Appendix A

Letter of Introduction to Coaches and Advisors

Dear Coach,

My name is Chrissy Anderson and I am a graduate student here at UC Berkeley working with Professor Frank Worrell in the Graduate School of Education. Before attending Cal for grad-school, I was an undergraduate student-athlete at Duke University. This fall I am conducting a study about how student-athletes view their academic experiences here at Cal and I would like to ask for your assistance in recruiting your athletes to participate.

About the Study
The purpose of this study is to explore student-athletes perceptions of school belonging and achievement motivation at Cal. School belonging refers to students' sense of being supported, valued, and included in the academic classroom setting by teachers and peers. Findings from this study will be used for scientific publications, presentations at meetings of scientists interested in the study of student-athletes, and shared with faculty and staff at UC Berkeley.

I would like to schedule a time to attend a previously scheduled team meeting or a time that would be convenient for your team to meet to introduce the study to your athletes and distribute it. The survey should take roughly 5-10 minutes to complete.

Study Benefits
There are no direct benefits to the participants. It is hoped that this study will contribute to the existing literature on student-athletes and their role as students in the university system. Additionally, these results of this study may be used by programs at Cal such as the Student-Athlete Study Center to educate faculty and other members of the campus community who work with student-athletes on the importance of developing a sense of belonging within the academic community for students atypical to the general student population.

Risks from Study Participation
There is little risk that confidentiality may be breached due to the fact that students will not be asked to submit their name on the survey document. Subjects may experience some psychological discomfort if they harbor a low sense of belonging at the school or in the classroom. In order to address this, the Lead Investigator will stay after each session and debrief with any student-athletes who feel the need to discuss the survey further.

Confidentiality
All subjects will be identified using a unique ID number found in the Lead Investigators program database. This ID number will be removed once a data set is created. No personally identifiable information will ever be presented, distributed, or published. Participants will not be requested to give their names on the survey.

After this research is completed, I may save the data collected for future research by myself and research colleagues; however, the same confidentiality guarantees given here will apply to future storage and use of the materials.

Compensation
Students can participate in a raffle for a $100 gift certificate to the campus store. Information included in the raffle will be the student's name and team. Students will be reminded that this information will not be included and has no relation to the survey administered. There will be no way to match a name submitted for raffle to any specific survey completed. The Lead Investigator will select the raffle winner when the surveys have been completed. Participants will only be eligible for the raffle if they complete the entire interview. Participants who choose to stop in the middle of the interview will not be eligible.

Additional Information
If you have questions or concerns about this study, please feel free to contact me. I can be reached at 510-552-0045 or cma6@berkeley.edu. If you have any questions about your athlete's rights or treatment as a research participant in this study, please contact the University of California at Berkeley's Committee for Protection of Human Subjects at 510-642-7461, or e-mail subjects@berkeley.edu.

Thank you for your time. I hope we can schedule a time to speak soon.

Sincerely,
Christine Anderson, M.A.
Lead Investigator

Appendix B

Script for Recruiting Athletes

My name is Chrissy Anderson and I am a graduate student here at the University of California, Berkeley. Before attending Cal for grad-school, I was an undergraduate student-athlete at Duke University. That experience and my time here at Cal lead me to be interested in studying college student-athletes. This fall I am conducting a study about how student-athletes like you view your academic experiences here at Cal and I wanted to invite you to participate. If you agree to participate, I will be distributing a survey that should take roughly 5-10 minutes to complete. Students who complete the survey will also be eligible to enter their names in a raffle to receive a $100 gift certificate to the Cal Student Store. You should know that all of your answers to the questions on the survey will be confidential and will not affect your participation in school or sports in any way. Each survey will be completed anonymously. Research can contribute a great deal to understanding the college experience for student-athletes. If this sounds like something you'd like to do please let me know and I will begin distributing the materials. There is an informed consent document on the first page of the survey. I'd like for you to read over this first before you agree to begin.
Do you have any questions?

Appendix C

Informed Consent Document for Student-Athletes

University of California at Berkeley
Consent to Participate in Research
Student-Athlete Survey of Academic Attitudes

Introduction and Purpose
My name is Chrissy Anderson and I am a graduate student here at UC Berkeley working with Professor Frank Worrell in the Graduate School of Education. Before attending Cal for grad-school, I was an undergraduate student-athlete at Duke University. This fall I am conducting a study about how student-athletes view their academic experiences here at Cal and would like to ask you to participate.

Procedures
If you agree to participate in my research, I will ask you to complete the attached survey/ questionnaire. The survey will involve questions about school, your experiences as a student here at Cal, and should take about 5-10 minutes to complete. Questions will address your feelings of belonging in the classroom and with your peers at Cal, your goals for learning over the current semester, your feelings about grades and test performance, and how athletics may influence your own academic performance. I will stay until all the surveys are completed to collect materials and to answer any questions you may have.

Benefits
There are no direct benefits to participating in this study. It is hoped that these results will contribute to the existing literature on student-athletes and their role as students in the university system. Additionally, the results of this study may be used by programs at Cal such as the Student-Athlete Study Center to educate faculty and other members of the campus community who work with student-athletes.

Risks/Discomforts
It is possible that some of the research questions may make you uncomfortable or upset. You are free to decline to answer any questions you don't wish to, or to stop participating at any time. The Lead Investigator will stay after each session and debrief with any student-athletes who feel the need to discuss the survey further. As with all research, there is a chance that confidentiality could be compromised; however, we are taking precautions to minimize this risk.

Confidentiality

Your study data will be handled as confidentially as possible. Each survey will be unidentifiable. Participants will not be requested to give their names on the survey. No personally identifiable information will ever be presented, distributed, or published. When the research is completed, I may save the data for use in future research done by

myself or others. Only the Lead Investigator will have access to this database. I will retain these records for up to 1 year after the study is over.

Compensation
You will not be paid for taking part in this study; however, students can participate in a raffle for a $100 gift certificate to the Cal Student Store. Information included in the raffle will be the student's name and team. This information will not be included and has no relation to the survey administered. There will be no way to match a name submitted for raffle to any specific survey completed. A raffle winner will be selected when all surveys have been completed. Participants will only be eligible for the raffle if they complete the entire survey. Participants who choose to stop in the middle of the survey will not be eligible.

Rights
Participation in research is completely voluntary. You are free to decline to take part in the project. You can decline to answer any questions and are free to stop taking part in the project at any time. Whether or not you choose to participate, to answer any particular question, or continue participating in the project, there will be no penalty to you. There will be no loss of benefits to which you are otherwise entitled.

Questions
If you have any questions about this research, please feel free to contact me. I can be reached at cma6@berkeley.edu.

If you have any questions about your rights or treatment as a research participant in this study, please contact the University of California at Berkeley's Committee for Protection of Human Subjects at 510-642-7461, or e-mail subjects@berkeley.edu.

If you agree to take part in the research, please keep one copy of this form for future reference. Please sign the following form and return to me when the survey is completed. Continue on to the next page and begin!

Signature:

Appendix D

School Belonging and Motivation Survey

College Student-Athlete Survey, Fall 2009

Thank you for agreeing to participate in this survey. As a part of the process you will have the option to submit your name for the raffle.

Please note that your answers to the following questions are confidential and will not affect your participation in school or sports in any way.

Individual student data will not be shared with any instructors, coaches, or administrators; only aggregated data (e.g., averages, frequencies) without identifying information will be used for research purposes.

The questions ask you for your opinions and attitudes in a variety of areas, with a particular emphasis on your interaction in sports and athletic programs at U.C. Berkeley.

Please think about the questions carefully and answer them as accurately as you can. Be sure to read the directions before you begin each section.

You should use a dark pencil or pen, and make sure that the bubbles you complete are dark.

Thank you for your participation!

Part One
Please select the option that best describes you:

1. Gender
   - o Male
   - o Female

2. Age
   - o 18
   - o 19
   - o 20
   - o 21
   - o 22
   - o 23
   - o 0ther _____

3. Your academic standing
   - o 1st year/freshman
   - o 2nd year/sophomore
   - o 3rd year/junior
   - o 4th year/senior
   - o 5th + year/other

4. Your high school GPA: _____

5. Most recently reported GPA at UC Berkeley: _____

6. Your ethnic background (choose one):
   - o Asian American
   - o Black/African American
   - o Chicano/American
   - o Mexican
   - o Latino/Other Hispanic American
   - o Middle Eastern/Arab American
   - o White/Caucasian American
   - o Multi-Ethnic (list): _____ _____
   - o Other (list): _____ _____

7. How would you describe your family's economic status?
   - o Poor
   - o Working class
   - o Lower middle class
   - o Middle class
   - o Upper middle class
   - o Lower upper class
   - o Upper class

8. What is your primary sport here at Cal?

_____

9. Are you a scholarship athlete? Please select the option that best describes you:
   - o Non-scholarship
   - o Partial Scholarship
   - o Full Scholarship

Please take a moment to think about your academic experience at Cal. Please select the number that you think best describes your experience at UC Berkeley.

1 Not at all true	2 Not True	3 Somewhat True	4 True	5 Very True

	1	2	3	4	5
1. I spend time with students from this university, both in and out of school.	O	O	O	O	O
2. My instructors give me the help I need with my coursework.	O	O	O	O	O
3. I have one or two close friendships with classmates from this university.	O	O	O	O	O
4. I feel a strong connection to this university.	O	O	O	O	O
5. I feel comfortable asking instructors about things I do not understand.	O	O	O	O	O
6. I make it a priority to contribute to this university in a positive way.	O	O	O	O	O
7. I feel comfortable sharing thoughts, opinions or feelings with other students at this university.	O	O	O	O	O
8. I feel like a real part of this university.	O	O	O	O	O
9. I feel welcome to participate in extra-curricular university activities.	O	O	O	O	O
10. This university offers learning opportunities that interest me.	O	O	O	O	O
11. Instructors speak to me in a respectful manner.	O	O	O	O	O
12. I want to be a part of things that students are doing at this university.	O	O	O	O	O
13. At this university, I experience a sense of belonging.	O	O	O	O	O
14. I care about this university.	O	O	O	O	O

The following statements concern your attitudes toward learning **this semester**. Please select the number that you think best describes your experiences this semester at UC Berkeley.

1 Not at all true	2 Not True	3 Somewhat True	4 True	5 Very True

	1	2	3	4	5
1. My goal this semester is to get better grades than most of the other students.	O	O	O	O	O
2. I just want to avoid doing poorly compared to other students this semester.	O	O	O	O	O
3. Completely mastering the material in my courses is important to me this semester.	O	O	O	O	O
4. I am afraid that I may not understand the content of my courses as thoroughly as I'd like.	O	O	O	O	O
5. It is important for me to do well compared to other students this semester.	O	O	O	O	O
6. I want to learn as much as possible this semester.	O	O	O	O	O
7. The fear of performing poorly is what motivates me.	O	O	O	O	O
8. The most important thing for me this semester is to understand the content in my courses as thoroughly as possible.	O	O	O	O	O
9. I worry that I may not learn all that I possibly could this semester.	O	O	O	O	O
10. I want to do better than other students this semester.	O	O	O	O	O
11. I am definitely concerned that I may not learn all that I can this semester.	O	O	O	O	O
12. My goal this semester is to avoid performing poorly compared to other students.	O	O	O	O	O