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ACADEMIC AND ATHLETIC MOTIVATION AS PREDICTORS OF ACADEMIC PERFORMANCE OF DIVISION I COLLEGE STUDENT-ATHLETES

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ACADEMIC AND ATHLETIC MOTIVATION AS PREDICTORS OF ACADEMIC PERFORMANCE OF DIVISION I COLLEGE STUDENT-ATHLETES

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF EDUCATIONAL LEADERSHIP AND POLICY STUDIES

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Dedication

This dissertation is dedicated to my first friend - my sister, Melissa Ann Kassen Garrison. In the words of the late Eleanor Roosevelt, “The purpose of life is to live it, to taste experience to the utmost, to reach out eagerly and without fear for richer and newer experience.” You really can do anything you want to in life. The choice is yours and it’s never too late. I love you.

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Abstract

Division I intercollegiate student-athletes represent a unique population of college students on college campuses today because they face competing demands between the student and athlete roles. Without the proper environment and motivation for academic performance, some Division I student-athletes are unable to obtain a college degree and leave the college environment unprepared for life after college athletics. The purpose of this study was to examine what motivates Division I student-athletes to perform academically as well as athletically. A better understanding of the influence of motivation on student-athletes upon academic performance will help improve instruction and advising, as well as the academic success of student-athletes. Analysis of variance (ANOVA) was used to examine significant means on each of the variables and to examine significant differences among subgroups of student-athletes. Multivariate analysis of variance (MANOVA) was used to look for any effects. Multiple correlation analysis was utilized to examine the relationships between the motivational variables with academic and athletic performance. Finally, multiple regression was utilized to determine whether academic self-efficacy and academic goal orientation predicted the academic performance of student-athletes. Findings indicate that significant differences exist in the motivational orientation of student-athletes when examining gender, recruited status, and starter status. Also, academic self-efficacy was the strongest single predictor of academic performance. It was concluded however, that academic self-efficacy and academic achievement motivation together, more so than independently, could be used to predict the academic performance of Division I student-athletes.

CHAPTER ONE

Introduction of the problem

"For an athlete to function properly, he must be intent. There has to be a definite purpose and goal if you are to progress. If you are not intent about what you are doing, you aren't able to resist the temptation to do something else that might be more fun at the moment."
--John Wooden

Introduction

The National Collegiate Athletic Association's (NCAA) advertising tag line often boasts that, "just about every intercollegiate student-athlete will go pro in something other than sports." However, the dilemma for higher education institutions is that this is not always the case. Despite the fact that intercollegiate student-athletes graduate college at a higher rate than non-student-athletes, not all student-athletes are motivated to earn a meaningful college degree or a degree at all in some cases. Of the 426,770 intercollegiate student-athletes competing in all three divisions of the NCAA, 166,928 student-athletes compete at the highest level in Division I (www.ncaa.org retrieved October 25, 2010), which is seen as the most professionalized model of intercollegiate amateur sport.

As a result, Division I student-athletes are a unique population of college students, unlike their non-student-athlete peers in three specific ways. First, Division I student-athletes are recruited for their athletic ability as opposed to their academic ability. This may lead institutions to "specially admit" those student-athletes who do not meet the academic admission requirements of the institution. Although institutions may use special admissions for other talented groups within the student body, like music, art, or theater majors, those are all academic programs usually

offered by the institution. Student-athletes are the only group of students on campus who are admitted to an institution for reasons other than academics. Second, Division I student-athletes are expected to devote considerate time to their sport in exchange for an athletic scholarship (Carodine, Almond & Gratto, 2001). The NCAA limits playing and practice time for student-athletes to 20 hours per week, but they also spend time on activities that do not count toward this 20 hour limit. Although these activities are voluntary, many student-athletes feel they must participate in them in order to be successful in their sport and therefore, it ends up being a full-time job. As a result, these activities compete with and often times take precedence over their academic requirements as college students. Third, some Division I student-athletes choose to pursue a career in professional athletics, which does not require a college degree. As a result, many student-athletes leave college at the conclusion of their athletic eligibility before graduating, or in some cases, are even able to leave earlier. If they are unable to secure a professional athletics career, this group of student-athletes neither continue in their sport nor earn a college degree. Because Division I student-athletes receive mixed messages about their athletic goals taking precedence over their academic goals, it is not surprising that not all Division I student-athletes are motivated to graduate college. Therefore, it has proven difficult for institutions to reconcile the balance between intercollegiate athletics, in particular for Division I student-athletes, and the goals of higher education.

The basic purpose of athletics within higher education is outlined in the *2010-11 NCAA Division I Manual* as one of its two most fundamental policies. NCAA Constitution, Article 1, reads as follows:

> 1.3.1 Basic Purpose. The competitive athletics programs of member institutions are designed to be a vital part of the educational system. A basic purpose of this Association is to maintain intercollegiate athletics as an integral part of the educational program and the athlete as an integral part of the student body and, by so doing, retain a clear line of demarcation between intercollegiate athletics and professional sports" (2010-11 National Collegiate Athletic Association [NCAA] Manual, p. 1).

For athletics to be considered a viable component of higher education, it must demonstrate that it is supporting the core principles of higher education. The NCAA has implemented academic policies to provide guidelines for its intercollegiate athletic programs and over time they have reformed these academic policies to keep member institutions in line with the principles of higher education. However, the goals of higher education and the goals of Division I intercollegiate athletics do not always coincide. One unfortunate side effect of the NCAA academic reform movement is a culture that prefers to find loopholes in the system as opposed to providing student-athletes with a quality education.

Background to the Problem

At first glance, it appears that intercollegiate athletics is meeting the core principles of higher education. The most recent federal graduation rate report published by the NCAA in October 2010 indicates that student-athletes are

graduating one percentage point higher than the general student body. The student-athletes who entered college in 2003 graduated at a rate of 64 percent, while the general student body graduated at a rate of 63 percent. The NCAA boasts that improved graduation rates are a result of the academic reform movement, which has focused on increased academic requirements for both initial and continuing eligibility over the last 25 years. Although the student-athlete graduation rate has increased and is higher than the general student body graduation rate, certain subgroups within the student-athlete population continue to graduate at lower rates than other student-athletes, namely males, minorities, and participants in high profile sports. These student-athlete subgroups have traditionally graduated at lower rates than other student-athlete populations and this has provided much of the impetus for research about them over the years.

Gender has been found to be a significant predictor of academic performance with male student-athletes traditionally graduating at lower rates than female student-athletes (NCAA, 2009), having lower grades than female student-athletes (Simons & Van Rheenen, 2000), and been found to have lower academic motivation than female student-athletes (Simons, Van Rheenen & Covington, 1999; Gaston, 2003; Gaston-Gayles, 2004). Ethnicity has had mixed results as a predictor of academic performance. Although minority student-athletes tend to graduate at lower rates than their non-minority student-athlete counterparts (NCAA, 2009) and have lower grades than non-minority student-athletes (Simons & Van Rheenen, 2000; Gaston-Gayles, 2004), differences exist in regards to academic motivation. Some studies have found minorities to have lower academic motivation than non-minority

student-athletes (Snyder, 1996; Gaston-Gayles, 2004), while other studies have not found a significant difference between minority and non-minority student-athletes in regards to academic motivation (Simons, Van Rheenen & Covington, 1999). Mixed results also exist for type of sport. High profile sport participants, namely in football, baseball, men's basketball, and women's basketball graduate at a lower rate than low profile sport participants (NCAA, 2009). This has been studied as high profile vs. low profile sport or revenue vs. non-revenue sport. While Simons, Van Rheenen & Covington (1999) found high profile sport participants had lower grades than low profile sport participants and Simons & Van Rheenen (2000) and Gaston (2003) found high profile sport participants have lower academic motivation than low profile sport participants, Garrett (2000) did not find type of sport as a significant predictor of academic performance. Because of the conflicting research and differences in academic achievement that still exist within the student-athlete population, it is important to further explore why and what contributes to the differences among minority student-athletes and high profile vs. low profile sport participants.

National groups like the Knight Commission, the Drake Group, the Coalition on Intercollegiate Athletics, the Association of Governing Boards, the National Institute for Sports Reform and the College Athletes Coalition, as well as campus constituents (professors, advisors, administrators, presidents, and even some athletic personnel) have criticized the NCAA for "gaming the system" (Gerdy, 2006). The NCAA has responded over time by gradually increasing academic requirements for initial and continuing eligibility, including GPA, standardized test scores, hours

completed, and progress toward a degree. However, this only treats the symptom and not the problems of intercollegiate athletics. In other words, although the NCAA has taken a step in the right direction to improve academic requirements, the results have created potentially questionable practices, including special admission policies for athletic ability, high school grade inflation and advising student-athletes into easier classes and majors. These practices put the burden and motivation for academic success on individuals other than the student-athlete. Because the NCAA's academic requirements focus on eligibility for intercollegiate competition and not on providing student-athletes with a quality education, they only serve as external motivators, rather than on the internal motivation to achieve academic goals.

When people think of athletes, motivation instantly comes to mind. Will, determination, and perseverance describe their motivation to succeed in their sport. Therefore, one would think that student-athletes are without a doubt, confident and motivated individuals. How else can one explain their level of commitment, which often requires numerous amounts of their time and attention? If someone is good at something, they more than likely are confident in their abilities and motivated to perform that task. Student-athletes are more of a question mark though when it comes to their academic performance. There is an extensive amount of research on how pre-college academic variables, such as high school GPA, high school class rank, and standardized tests scores positively correlate with college students' academic success (Lins, Abell & Hutchins, 1966; Moorhead, Brenenstuhl & Catalanello, 1980; Mathiasen, 1984; Waugh, Micceri & Takalkar, 1994; Stumpf & Stanley, 2002; Cohn, E., Cohn, S., Balch & Bradley, 2004; Marsh, Vandehey &

Deikhoff, 2008). However, other studies have not found standardized test scores to predict college graduation for non-traditional students, namely academically at-risk and specially admitted students (Houston, 1980; Sedlacek, 1991; Ting, 1997; White & Sedlacek, 1986; Adebayo, 2008); low-income and first generation students (Ting, 1998); international students (Boyer & Sedlacek, 1988); and ethnic minority students (Fuertes & Sedlacek, 1995; Fuertes, Sedlacek & Liu, 1994; Hood, 1992 & Tracey & Sedlacek, 1984; 1985; 1987; 1989; Ting, 2000; Nasim, Roberts, Harrell & Young, 2005). In fact, pre-college academic variables can only account for a small proportion of the variance in explaining the academic performance of non-traditional student groups. Due to these various results, researchers have questioned whether pre-college academic variables are the best predictors of college academic performance for non-traditional student groups, like student-athletes (Sowa & Gressard, 1983; Engstrom & Sedlacek, 1991; Engstrom, Sedlacek & McEwen, 1995).

Understanding the variables affecting the academic performance of student-athletes is the first step in developing policy and in helping student-athletes achieve academically. Much has been written on the predictors of academic performance for student-athletes (Adler & Adler, 1987; Sellers, 1992; Sedlacek & Adams-Gaston, 1992; Young & Sowa, 1992; Pascarella, Bohr, Nora & Terenzini, 1993; Petrie & Russell, 1995; Garrett, 2000). While most research has focused on academic variables, there is growing evidence supporting the use of motivational factors for predicting the academic performance of student-athletes (Sedlacek & Adams-Gaston, 1992; Snyder, 1996; Eiche, Sedlacek & Adams-Gaston, 1997). Motivation has been

explored in recent years for its predictability of academic performance (Simons, Van-Rheenen & Covington, 1999; Simons & Van-Rheenen, 2000; Gaston, 2003; Gaston-Gayles, 2004).

Motivation drives us and directs our behavior toward achieving our goals, which can give meaning and purpose to one's life (Solberg & Halavari, 2009). According to Ames & Ames (1984) the following five types of behavior patterns related to motivation in education can be identified that help us understand when we say a person is either motivated or not motivated.

1. Direction – the apparent choice among a set of action possibilities is the first indicator of motivation. When an individual attends to one thing and not another, we infer that he or she is motivated in a certain way. It is the direction of choices that infers motivation.
2. Persistence – persistence is the second behavior that forms the basis for motivational inferences. When an individual focuses their attention on a particular task or event for an extended period of time, observers infer varying degrees of motivation.
3. Continuing Motivation – this is when an individual returns to a task they have previously encountered without any outside influence to do so. Continuing motivation is different from persistence because there is an interruption and then a spontaneous return to the task. Maehr (1984) coined the term and identified it as one of the most crucial outcomes for educators – getting a student to stay on and return to the task at hand.

4. Activity – although a perhaps less reliable indicator than the previous three behavioral patterns, activity level spent on a task is important to consider according to Ames & Ames (1984) because amount of activity level on a task also infers motivation.
5. Performance – variation in performance level on a task can also infer motivation. For example, when students who normally perform at an average or lower level in the classroom suddenly improve their work, this may be contributed to an increased amount of motivation. However, it is most likely not the only contributing factor. In fact, choice, persistence, continuing motivation, and activity level are all likely to be reflected in performance.

We have both internal and external motives. Internal motives include needs, cognition, and emotions. Needs serve the individual and motivate whatever behaviors are necessary for the maintenance of well-being and growth. This includes psychological needs such as competence and belongingness. Cognition involves sources of motivation about the way individuals think and refer to mental activities such as beliefs in one's abilities, expectations about the outcome, and self-concept. Emotions govern how we react to the events in our lives. Another way to describe internal motives is as intrinsic motivation, in which the motivation comes from within and for inherent reward, interest, and enjoyment in the activity itself (Vansteenkiste, Lens, & Deci, 2006). External motives, on the other hand, come from the environment. These kinds of incentives also energize and direct behavior, but an individual only takes action when there is either a reward or punishment

involved. External motives can also be described as extrinsic motivation, in which the motivation comes from outside the individual. Extrinsic motivators have been found to undermine intrinsic motivation (Deci, Ryan & Koestner, 1999). Motivation, whether internally or externally driven, is what guides our behavior to achieve our goals.

Self-efficacy is considered primarily a cognitive evaluation of one's capabilities to perform a task and involve judgments in reference to a specific goal (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). In other words, when approaching a task, self-efficacy is the way one views their capability to accomplish that task. Based upon this information, individuals decide which tasks to approach and low long to persist on a task. Individuals tend to avoid tasks that they believe they cannot complete successfully, but become engaged in tasks that they believe they can complete successfully (Schunk, 1996). Self-efficacy has been found to relate to positive learning outcomes in education settings (Pintrich & DeGroot, 1990; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Greene & Miller, 1996; Gaston, 2003; Linnenbrink & Pintrich, 2003; Choi, 2005) and in youth sport settings (Duda, 1993; Roberts, 1992; Steinberg, Singer & Murphy, 2000).

Achievement motivation theorists focus their research on the intrinsic need for competence (Elliot & Harackiewicz, 1996). Integral to competence is the issue of valence, when individuals strive to either attain competence or strive to avoid incompetence. Valence can be either positive or negative. Positive valence occurs when an individual perceives a task as attractive and as a result chooses to approach that task. Negative valence occurs when an individual perceives a task as aversive

and as a result chooses to avoid that task (Feather, N.T., 1988). Personal values and motives will also influence the type of valence an individual will adopt. Therefore, an individual's internal or external motives will influence whether they see a task as desirable and worth approaching or as undesirable and to be avoided or terminated. This distinction between approach motivation and avoidance motivation is a fundamental and basic concept of competence-relevant motivation (Elliot, 2005).

Achievement goal theory has emerged as an important approach for understanding how people define, approach, experience, and respond to achievement situations like in school, work and sport (Van Yperen, 2006). Achievement goal theory defines two types of competence based goals – either mastery or performance. A person with a mastery goal orientation focuses on one's own past attainment or maximum potential attainment while a person with a performance goal orientation focuses on their attainment in relation to others (Elliot & McGregor, 2001). When put into achievement situations, individuals will tend to adopt a mastery-approach goal, mastery-avoidance goal, performance-approach goal, or performance-avoidance goal. Goal orientation has been found to relate to learning outcomes in educational settings (Nicholls, 1984; Maehr, 1984; Dweck, 1986; Dweck & Legget, 1988; Ames & Archer, 1988; Greene & Miller, 1996; Elliot & Church, 1997; Elliot, 1997, 1999; Elliot, McGregor & Gable, 1999; Pintrich, 2000; Elliot & McGregor, 2001; McGregor & Elliot, 2002; Midgley, 2002; Harackiewicz, Barron, Pintrich, Elliot & Thrash, 2002) and in sport settings (Dweck, 1986; Jagacinski & Nicholls, 1984; Halvari, 1990, 1991; Duda & Nicholls, 1992; Thomassen & Halvari, 1996; Halvari & Kjormo, 1999; Jagacinski & Duda, 2001; Ryska, 2002; Standage, Duda, &

Ntoumanis, 2003; Ryska & Vestal, 2004; Leppel, 2006; Solberg & Halvari, 2009). Because of their role in academic and athletic motivation, self-efficacy and achievement goal theory can be used to provide an explanation for the academic and athletic performance of student-athletes. Specifically, by examining the academic and athletic self-efficacy as well as the academic and athletic achievement goal orientation of student-athletes, we may better understand what motivates them academically and athletically.

Problem Statement

Division I intercollegiate student-athletes represent a unique population of college students on college campuses today. They face competing demands between their role as a student and their role as an athlete. The purpose of college athletics within higher education is not to win sports contests or produce professional athletes, but in fact is to "maintain intercollegiate athletics as an integral part of the educational program and the athlete as an integral part of the student body and, by so doing, retain a clear line of demarcation between intercollegiate athletics and professional sports" (2010-11 NCAA Manual, p. 1). In an ideal world all Division I student-athletes would want to earn a meaningful college degree in order to go on and become productive members of society. In reality, while many student-athletes strive to earn a college degree, others are not motivated to attend college to obtain an education. This is especially true of those student-athletes in high profile sports with the opportunity to pursue a career in professional athletics (www.ncaa.org retrieved November, 23, 2009). The NCAA academic reform movement has further created a culture in which the goals of higher education are not reinforced. Eligibility

requirements serve as external motivators for academic performance, instead of providing student-athletes with a quality education by fostering internal motivation. Without the proper environment and motivation for academic performance, some Division I student-athletes are unable to obtain a college degree and leave the college environment unprepared for life after college athletics.

Purpose of the Study

High school performance and test scores are used to assess the academic potential of student-athletes by the NCAA when considering initial eligibility and by institutions when making admissions decisions. College performance is used by the NCAA for determining continuing eligibility. However, these factors account for only a small proportion of the variance in college academic performance. Motivation research suggests that factors related to perceived self-efficacy and achievement motivation are important to the academic performance of all students. Therefore, the purpose of this study was to examine what motivates Division I student-athletes to perform academically as well as athletically. In particular, it examined the relationship of academic and athletic self-efficacy and academic and athletic goal orientation on the academic and athletic performance of Division I intercollegiate student-athletes. Due to the implications of the research on males, minorities and high profile sport participants it was also important to investigate athletic and academic motivational differences within the student-athlete population's subgroups of gender, ethnicity and type of sport. Finally, the study sought to determine if academic self-efficacy and academic goal orientation predict the academic performance of student-athletes. A better understanding of the

influence of motivation on student-athletes upon academic performance will help improve instruction and advising, as well as the academic success of student-athletes.

Research Questions

1. What is the relationship between mastery goal orientation with academic and athletic performance?

    Hypotheses

    a. There is no relationship between academic mastery-approach goal orientation and academic performance;

    b. There is an inverse relationship between academic mastery-avoidance goal orientation and academic performance;

    c. There is an inverse relationship between athletic mastery-approach goal orientation and academic performance;

    d. There is no relationship between athletic mastery-avoidance goal orientation and academic performance.

    e. There is a positive relationship between athletic mastery-approach goal orientation and athletic performance;

    f. There is an inverse relationship between athletic mastery-avoidance goal orientation and athletic performance;

g. There is no relationship between academic mastery-approach goal orientation and athletic performance;

h. There is no relationship between academic mastery-avoidance goal orientation and athletic performance.

2. Second, what is the relationship between performance goal orientation and academic performance?

Hypotheses

a. There is a positive relationship between academic performance-approach goal orientation and academic performance;

b. There is an inverse relationship between academic performance-avoidance goal orientation and academic performance;

c. There is an inverse relationship between athletic performance-approach goal orientation and academic performance;

d. There is no relationship between athletic performance-avoidance goal orientation and academic performance;

e. There is a positive relationship between athletic performance-approach goal orientation and athletic performance;

f. There is an inverse relationship between athletic performance-avoidance goal orientation and athletic performance;

g. There is no relationship between academic performance-approach goal orientation and athletic performance;

h. There is a positive relationship between academic performance-avoidance goal orientation and athletic performance.

3. Third, do self-efficacy and goal orientation variables correlate consistent with theory?

Hypotheses

a. There is a positive relationship between academic self-efficacy and academic goal orientation;

b. There is a positive relationships between athletic self-efficacy and athletic goal orientation;

c. There is no relationship between academic self-efficacy and athletic goal orientation;

d. There is no relationship between athletic self-efficacy and academic goal orientation;

4. Fourth, what is the relationship between academic/athletic self-efficacy and academic/athletic performance?

Hypotheses

a. There is a positive relationship between academic self-efficacy and academic performance;

b. There is no relationship between athletic self-efficacy and academic performance;

c. There is a positive relationship between athletic self-efficacy and athletic performance;

d. There is no relationship between academic self-efficacy and athletic performance.

5. Fifth, because we are examining differences among gender, ethnicity, and type of sport, the following hypotheses were developed.

Gender Hypotheses

a. There are significant differences in academic performance of male and female student-athletes with female student-athletes performing better academically;

b. There are significant differences in mastery goal orientation of male and female student-athletes with more female student-athletes adopting a mastery goal orientation;

c. There are no differences in performance goal orientation of male and female student-athletes;

d. There are significant differences between male and female student-athletes in approach-avoidance motivation, with more female student-athletes adopting an approach motivation in academics and athletics.

Ethnicity Hypotheses

a. There are significant differences in academic performance of minority and non-minority student-athletes;

b. There are no differences in mastery goal orientation of minority and non-minority student-athletes;

c. There are significant differences in performance goal orientation of minority and non-minority student-athletes;

d. There are no significant differences between minority and non-minority student-athletes in approach-avoidance motivation in athletics;

e. There are significant differences between minority and non-minority student-athletes in approach-avoidance motivation in academics, with more minority student-athletes adopting an avoidance motivation.

Type of Sport Hypotheses

a. There are significant differences in academic performance of high profile and low profile sport participants;

b. There are significant differences in mastery goal orientation of high profile and low profile sport participants;

c. There are significant differences in performance goal orientation of high profile and low profile sport participants;

d. There are significant differences between high profile and low profile sport participants in approach-avoidance motivation in academics, with more low profile sport participants adopting an approach motivation in academics, and with more high profile sport participants adopting an avoidance motivation in academics;

e. There are no significant differences between high profile and low profile sport participants in approach-avoidance motivation in athletics.

6. Sixth, do academic self-efficacy and academic goal orientation predict the academic performance of student-athletes?

Hypotheses

a. Academic self-efficacy and academic goal orientation predict the academic performance of student-athletes, but together more so than independently.

7. Seventh, what are the relationships between the two non-cognitive variables of college experiences and academic support with motivation and academic performance?

Definition of Terms

The following definitions are listed in order to explain the concepts of the variables used in this study:

Academic Performance was defined by the student-athlete's success in their college courses. This was measured by their college cumulative grade point average at the beginning of the fall 2011 semester as a self-report item on a demographic questionnaire at the time of the initial survey.

Academic Self-Efficacy was the degree to which student-athletes believe in their ability to carry out and complete academic tasks in an efficient manner, understand the ideas, skills, and material presented in class, and confident that they did well in their schoolwork according to the self-efficacy subscale of the Motivated Strategies for Learning Questionnaire (MSLQ).

Academic Support was defined as a non-cognitive variable and the degree to which student-athletes believed that academic support services offered in college contributed to their academic performance. Academic support included services

such as tutoring, mentoring, supplemental instruction and assistance with paper/presentation preparation, note-taking, and study skills.

Athletic Performance was defined in terms of being a starter or non-starter for one's college athletics team. Participants selected whether they were a starter or non-starter from a demographic questionnaire.

Athletic Self-Efficacy was the degree to which student-athletes believed in their ability to carry out and complete athletic tasks in an efficient manner, understand the strategies and skills required in sport, and confident that they did well in their sport according to a revised athletic version of the MSLQ.

College Experiences were defined as a non-cognitive variable and the degree to which student-athletes believed their college experiences contributed to their academic motivation. College experiences included, but were not limited to, admission and enrollment; orientation; advising and instruction; career services; counseling; residential life; student groups and activities; financial aid; and health services.

Ethnicity was defined as the racial or cultural identification of a student-athlete. Participants selected their ethnicity from a demographic questionnaire among the following choices: Caucasian, African American, Asian American, Hispanic, Native American/Alaskan Native, Hawaiian Native/Pacific Islander, Non-Resident Alien, Two or More races, and Other. The researcher coded them as minority or non-minority.

Gender (sex) was defined in terms of male or female. Participants selected their gender from a demographic questionnaire and then the researcher coded them as male or female.

Goal Orientation was defined as one's propensity towards either a mastery goal or a performance goal as measured by the Achievement Goal Questionnaire (AGQ) for academics and the AGQ-S for sport.

Mastery Approach Goal Orientation was the degree to which an individual was motivated toward achieving goals for developing competence or improving upon one's past performances as measured by the AGQ for academics and AGQ-S for athletics in the 2 X 2 framework.

Mastery Avoidance Goal Orientation was the degree to which an individual was motivated not to fail mastering a task as measured by the AGQ for academics and AGQ-S for athletics in the 2 X 2 framework.

Performance Approach Goal Orientation was the degree to which an individual was motivated toward achieving goals for the purpose of proving their competence to others as measured by the AGQ in academics and AGQ-S for athletics in the 2 X 2 framework.

Performance Avoidance Goal Orientation was the degree to which an individual was motivated to avoid demonstrating a lack of competence as measured by the AGQ in academics and AGQ-S for athletics in the 2 X 2 framework.

Type of Sport was defined as either high profile sport or low profile sport. The high profile sports for the purposes of this study were football, men's basketball, women's basketball, and baseball. The remaining sports considered low profile sports for the purposes of this study were as follows: Women's Bowling, Men's and Women's Cross Country, Equestrian, Women's Field Hockey, Men's and Women's Fencing, Men's and Women's Golf, Men's and Women's Gymnastics, Men's and Women's Ice Hockey, Men's and Women's Lacrosse, Men's and Women's Rifle, Rowing/Crew, Men's and Women's Skiing, Men's and Women's Soccer, Softball, Men's and Women's Swimming, Men's and Women's Tennis, Men's and Women's Track, Men's and Women's Volleyball, Men's and Women's Water Polo, and Wrestling. Participants selected their sport from a demographic questionnaire and then the researcher coded them as high profile or low profile.

Valence was the degree to which an individual perceived a task as desirable and worth approaching or undesirable and avoidable and was measured in the AGQ and AGQ-S 2 X 2 framework.

Significance and Implications

Motivation plays an important factor in predicting achievement in both academic and athletic settings. Therefore, it may provide an explanation for student-athletes' academic performance and assist campus personnel in helping student-athletes reach their full academic potential. Because Division I athletic departments recruit student-athletes to compete at the highest level of intercollegiate athletics, it is reasonable to assume they have an obligation to provide the services necessary to

help student-athletes be successful (Whitner & Sanz, 1988). Further, because athletics is part of higher education, athletic departments have an obligation to provide student-athletes with a meaningful educational experience. Two key units on campus that can assist in meeting this goal are the academic advising office and the academic support office. The academic advising office assists students in setting and following their short term and long term education and career goals while the academic support office helps provide instruction and strategies for students to help them achieve their goals (Miller, 2003). While some Division I athletic departments provide state of the art academic advising or learning centers that house an entire department of academic personnel charged with this same responsibility, others integrate their student-athletes with the general student body in these campus units, lead by academic administrators, academic advisors, and professors. Both centers are the perfect place to address what motivates student-athletes to achieve academically, and implement appropriate assessment and programming into these centers.

Implications for Practice

This study contributes knowledge to university officials who work with Division I student-athletes as well as to national groups outside the university who are concerned with the student-athlete experience. From a practical perspective it could have future implications for improved instruction, improved academic support, and NCAA academic policy. This study could improve student-athlete academic support which will assist student-athletes in choosing classes and a major that fosters intrinsic motivation and develops academic goals toward college graduation, rather

than focusing on the external motive to remain eligible. Any results from this study could be utilized in future programming and counseling efforts by the institution to better improve the Division I student-athlete's college experience. This study may also be of importance to the NCAA. Currently, NCAA academic policy relies on pre-college academic variables for determining initial eligibility and college academic variables for determining continuing eligibility. Because several studies have shown that these academic variables alone are not the best predictors of academic performance, the NCAA may be able to include motivational variables for assessing the initial and continuing eligibility of college student-athletes. Finally, more informed initial eligibility requirements would take the burden off of high school teachers and administrators who may feel undue pressure to inflate grades of academically unprepared, but talented student-athletes.

Theoretical Significance

From a theoretical perspective, motivational theory offers an explanation for what predicts the academic and athletic performance of Division I student-athletes. While much of the literature has focused on pre-college academic variables as predictors of academic performance, using factors like motivation to understand what predicts academic achievement of student-athletes may be more appropriate since they are considered a non-traditional student group. Because achievement motivation literature strives to explain behavior in achievement settings like in school and sport, it offers an explanation for the academic and athletic performance of student-athletes. This study also adds knowledge about the subgroups that exist within the student-athlete population. In particular, it could help identify whether

athletic and academic motivational differences exist among student-athletes in regards to their gender, ethnicity, and type of sport. Although current motivational literature has explored self-efficacy, goal orientation and the concept of approach and avoidance for both mastery and performance goals in the general student body, it has not yet done so specifically for Division I intercollegiate student-athlete populations. The literature that has explored goal orientation and self-efficacy in sport has only focused on youth student-athletes, elite athletes and recreational athletes. Research on college student-athletes that has explored goal orientation for mastery and performance goals is just beginning in regards to studying approach and avoidance concepts for both goals. Preliminary findings suggest that male student-athletes and those in high profile sports are more likely to adopt avoidance goals (both mastery and performance) than female student-athletes and those in low profile sports. It has been suggested that student-athletes need to focus less on fear and more on enjoying the college athletic environment (Greene, Dillon & Miller, 2010). Therefore, this study sought to confirm these findings and add to the literature about student-athletes' academic performance. A study about student-athletes, who are a unique group of college students, using motivational literature, is of importance to athletic department personnel, and as a result bridges the fields of motivation and sport together.

Summary

Although the NCAA points to improved graduation rates as evidence of the success of the academic reform movement, many questions still remain in regards to student-athletes' academic performance. It is important for intercollegiate athletics,

especially Division I, which is often seen as a more "professionalized" model, to be in line with the goals of higher education. However, not all Division I student-athletes are motivated to earn a college degree. While some are motivated to do well both academically and athletically, some are only athletically motivated to pursue their sport. With only 3 percent of student-athletes able to pursue a career in professional athletics, this leaves a group of student-athletes who neither play professionally nor graduate with a college degree (www.ncaa.org retrieved November 23, 2009). These student-athletes then may drop out of college after exhausting their athletic eligibility, completely unprepared for life after college athletics.

The NCAA academic requirements focus on external motivators and academic measurements. They do not internally motivate student-athletes to achieve academically. By examining the motivations of Division I student-athletes, athletics department and university officials can identify which student-athletes are athletically motivated and which are academically motivated. This can be achieved by utilizing self-efficacy and achievement goal theory. The purpose of this study was to examine the academic and athletic motivation of Division I student-athletes and to determine whether self-efficacy (academic and athletic) and goal orientation (academic and athletic) theory is related to and can predict the academic performance of Division I student-athletes. It also sought to understand differences that exist within the student-athlete population as it relates to academic and athletic motivation. For those student-athletes who are primarily motivated athletically, universities can implement appropriate policies and academic support in order to

help this group develop more internal academic goals. As a result, they may be better prepared to remain in college and earn a meaningful degree if they are unable to play their sport at the professional level. Improving the educational experiences of student-athletes not only helps them identify realistic goals, but could also help them graduate with a meaningful college degree. More importantly though, universities will have met the goals of higher education by enriching the lives of student-athletes so that they can go on to become productive members of society.

CHAPTER TWO

Review of the Related Literature

"It's the repetition of affirmations that leads to belief. And once that belief becomes a deep conviction, things begin to happen."
--Muhammad Ali

Introduction

College students are usually motivated to attend college in order to earn a degree that will allow them to pursue a career of their choice. Student-athletes, on the other hand, are often motivated to attend college for different reasons. For some student-athletes they wish to attend college for the same reasons as most other students. Earning a college degree while playing their sport at the college level is also a dream for many student-athletes. Others may only be able to attend college because they earn an athletic scholarship that affords them the economic opportunity to obtain a college education. Some student-athletes attend college with the sole purpose of playing their sport at the college level, while earning a college degree may only be an afterthought. Still, others are more interested in the chance to showcase their athletic talent at the college level so that they will have the opportunity to play their sport professionally. This group of student-athletes may see college sports more as a "minor sports league" and only devote attention to their academics when it has ramifications on their athletic eligibility. Then again, not all student-athletes who are motivated to play professional athletics are disinterested in obtaining a college degree. Whatever the reason, the academic and athletic motivations of student-athletes are of central importance on how to properly instruct and advise them while they are in college.

The lack of academic motivation for some student-athletes is evident when reports of low graduation rates, poor academic performance, dropping out, and academic scandals become news. The NCAA's academic reform movement has sought to improve the academic integrity of intercollegiate athletics, and thus, the academic performance of student-athletes. However, increasing academic requirements alone does not motivate student-athletes to achieve academically. Chapter one discussed the problem of using eligibility requirements as external motivators and academic measurements as predictors of academic achievement of college student-athletes. This chapter will discuss the history of the problem, theories of motivation, and the related literature. The history section explains the conflict between amateurism and professionalization of intercollegiate athletics as well as the academic reform movement and the predictability of academic and motivational variables upon academic performance. Motivation theories explain what guides our behaviors. Self-efficacy theory explains how individuals decide which tasks to approach, which tasks to avoid, and how long to persist on a task. Achievement goal theory provides an explanation for behavior in achievement settings, specifically, the type of goal orientation one adopts. Finally, a discussion of the current literature and research regarding student-athlete motivation provides insight about what other researchers have pursued and how this study can help resolve the problem of predicting the academic performance of student-athletes.

History of the Problem

Amateurism Principle vs. Professional Drives

The NCAA is the governing body of intercollegiate athletics in the United States and was established as the Intercollegiate Athletic Association of the United States in 1906 (changing its name to the National Collegiate Athletic Association in 1910). One of the NCAA's primary functions is the establishment of rules for athletic scholarships, recruiting and academic eligibility. Specifically, the NCAA seeks "to protect student-athletes through standards of fairness and integrity" and "to encourage its members to adopt eligibility rules to comply with satisfactory standards of scholarship, sportsmanship, and amateurism" (NCAA, 2010). Central to this principle is the NCAA's insistence that college sports are by definition, amateur sports. Preserving the integrity and amateurism of intercollegiate athletics while maximizing the earnings of its member institutions has been a major struggle for the NCAA throughout its history. Specifically, it has been difficult to reconcile the NCAA's desire to equate the terms "amateur" and "student-athlete" with its ability to profit from the promotion of college sports, namely in football and men's basketball.

Amateurism struggles have existed since the inception of college sports, mainly due to overzealous alumni of competitive athletic programs providing illegal payments to non-amateur players. The NCAA established amateurism bylaws at its first convention to include: a ban on payments to students based on their athletic abilities by the university or individual alumni; a ban on recruiting of prospective athletes from preparatory high schools; declaring students as ineligible if they had ever received any payment for competing in a sporting event; limiting eligibility to four years and requiring successful completion of at least two-thirds of the previous

college year; and requiring freshmen and transfer students to complete one year of college before being eligible (Grant, Leadley & Zygmont, 2008). Baseball was one of the first sports to utilize non-amateur players on intercollegiate baseball teams. Professional baseball leagues were already well established and some of the best college players would play on professional teams during the summers. However, most colleges chose to look the other way at this practice instead of declaring the majority of their baseball teams ineligible (Grant, Leadley & Zygmont, 2008).

In the beginning of the 1920's proponents of amateurism who were dissatisfied with these types of practices forced the NCAA to address the issue. The NCAA requested the Carnegie Foundation for the Advancement of Teaching investigate the amateurism issue and in 1929, it published the Carnegie Commission Report (Grant, Leadley & Zygmont, 2008). The Report found that payments to athletes had occurred at 81 out of 112 universities they studied and at 61 of them multiple individuals were involved in the abuses, including, the university administration, alumni, and the athletic department. In 1935, the Southeastern Conference (SEC) was the first to openly allow athletic scholarships and in that time, once one conference allowed it, most tended to follow (Grant, Leadley & Zygmont, 2008). By 1948, the NCAA established the Sanity Code, however; which sought to ban all payments to student-athletes, including athletic scholarships, as well as give the NCAA the authority to enforce this new rule. Unfortunately, little was done and colleges continued to violate amateurism rules for the next two decades by offering secret payments to student-athletes, including athletic scholarships and sham jobs by alumni (Grant, Leadley & Zygmont, 2008). In 1950, with seven schools having

violated the Sanity Code, the NCAA sanctions committee voted on whether to expel them, but failed to get the required two-thirds majority vote to do so. By 1951, the Sanity Code was repealed and the NCAA could not enforce the ban on athletic scholarships. Shortly afterwards, the NCAA allowed athletic scholarships to be awarded to student-athletes, but the funds had to be administered by the financial aid office, not the athletic department. The scholarship was limited to tuition and fees and banned payments from sources outside the university. Payments to student-athletes were officially sanctioned, but under strict control of the institution with NCAA oversight (Grant, Leadley & Zygmont, 2008). Amateurism issues regarding illegal payments to student-athletes who offer the promise of a winning season and participation in a post-season bowl game are still alive and well today. Student-athletes who accept these kinds of payments are no doubt more motivated by the payouts of sport (both by college sports and the future potential of professional sports) rather than the opportunity to obtain an education and earn a college degree.

The struggle with amateurism is also reflected in the relationship between professional sports and intercollegiate athletics, namely in the sport of football. After World War II college athletic departments began to feel threatened by the emergence of professional football. Two major reasons have been cited for this. First, colleges felt their pocket books may be threatened. College football had become a major source of revenue for the institution and they were fearful that professional leagues would not only take their best players, but also their paying fans (Grant, Leadley & Zygmont, 2008). Secondly, colleges expressed concern for

student-athletes that they would no longer be playing football for the love of the game, but instead with the goal of signing a professional sports contract.

In order to address this concern, the NCAA passed one of its first major pieces of amateurism legislation. They would revoke the varsity letter of any former student-athlete who played professional sports, even after graduation from the institution. The conferences also became involved and refused to hire coaches or officials who had played, coached, or officiated for professional teams (Grant, Leadley & Zygmont, 2008). The College Football Coaches Association, which had formed in 1921 and was only open to coaches from NCAA institutions, also took steps to stop the involvement of professional football with college football. As a result the NCAA recommended in 1926 that schools fire any individual who had ever been employed in any capacity in the professional leagues.

With this growing resistance, professional football began to look for a compromise with the NCAA. The National Football League (NFL), which had formed in 1922, agreed not to draft any player until his class had graduated, even if he did not attend college (Grant, Leadley & Zygmont, 2008). Thus, a high school player could not be drafted directly out of high school to the professional league. As long as professional teams were not luring student-athletes away from college football, the NCAA was satisfied with this compromise for the time being. It was the marriage of college football and the NFL. Although this solved the problem at the time and concerns for student-athletes leaving to play professionally disappeared (at least temporarily), it created a new problem that higher education institutions are still dealing with today. College football has become in essence a league for

professional football. Therefore, student-athletes who wish to play professional football are going to play college football in order to get to the next level. This means that student-athletes with the intrinsic goal of pursuing their sport professionally may not be motivated to attend college to actually obtain a degree.

Football is not the only sport in which student-athletes can pursue a professional career however. Sports in which student-athletes may have the opportunity to play professionally are men's basketball, women's basketball, football, baseball, men's ice hockey, and men's soccer. Olympic sports are not included in this analysis since one can participate in Olympic sports and still be considered an amateur athlete. However, the numbers for those student-athletes who are actually able to play professionally is very small. Of the 17,081 NCAA men's basketball student-athletes, only 44 were drafted in the National Basketball Association's (NBA) 2009 draft. Of the 15,307 NCAA women's basketball student-athletes, only 32 were drafted in the Women's National Basketball Associations (WNBA) 2009 draft. Of the 64,235 NCAA football student-athletes, only 250 were drafted in the NFL's 2009 draft. Of the 30,386 NCAA baseball student-athletes, only 600 were drafted in the Major League Baseball's (MLB) 2009 draft. Of the 4,006 NCAA men's ice hockey student-athletes, only 33 were drafted in the National Hockey League's (NHL) 2009 draft. Finally, of the 21,031 NCAA men's soccer student-athletes, only 76 were drafted in the Major League Soccer (MLS) 2009 draft. Being drafted does not guarantee a contract. The student-athletes who have the least opportunity to play professionally are in women's basketball, with only 0.9 percent of NCAA women's basketball student-athletes making it to the WNBA. The greatest

opportunity to play professionally was for baseball student-athletes with a chance of playing professionally 8.9 percent (www.ncaa.org retrieved November 23, 2009). The opportunity to play baseball beyond the college level is most likely due to the fact there are not only the major leagues, but also multiple minor leagues in which to participate. Overall, on average only 2-3 percent of NCAA student-athletes will have the opportunity to play professional sports beyond college (Hill, Burch-Ragan & Yates, 2001).

With so few student-athletes actually able to pursue their sport at the professional level, it is concerning for higher education that a disproportionate number of student-athletes seem motivated to do so. In a national study about student-athletes' college experiences (Potuto & O'Hanlon, 2006), 13.5 percent male student-athletes believed the likelihood of a professional athletics career was very likely as compared with 4.9 percent female student-athletes. When evaluating those who believed that a professional career was at least somewhat likely 55.4 percent of males and 26.2 percent of females believed so (Potuto & O'Hanlon, 2006). Student-athletes who are intrinsically motivated by the lure of professional athletics may only be extrinsically motivated to meet academic requirements or to earn a college degree as long as they must maintain their athletic eligibility. Because athletic departments strive to recruit elite athletes, it is not surprising that some of these athletes are motivated to play their sport professionally, rather than obtain a college education. The NCAA's academic reform movement does not address the fact that its academic requirements only serve as external motivators while some student-athletes are solely motivated by their sport and that many student-athletes, in particular minority males

in high profile sports, hold unrealistic expectations about playing their sport professionally.

The Evolution of Academic Reform

The NCAA's first attempts at regulating academic integrity standards came with declaring freshmen ineligible in 1922. The NCAA believed this would reduce the incentive for institutions to lower admission standards or admit academically unprepared students. However, many schools simply chose to disregard this rule. In 1939 and in response to non-compliance the NCAA banned freshmen from participating in its national championships. The NCAA did not reverse this position until 1968 when it allowed freshmen in all sports other than football and basketball to participate in national championships. Finally, freshmen in football and basketball were allowed to participate again in 1972 (Grant, Leadley & Zygmont, 2008). In order to address admissions issues the NCAA first began imposing minimum admissions requirements in 1963. Although freshmen were still not allowed to participate in athletics during this time the NCAA mandated that high school students had to earn a Grade Point Average (GPA) out of high school and test scores that would predict they could earn at least a 1.6 GPA during their first year of college in order to be eligible for NCAA championships and financial aid (Gerdy, 2006). In 1973 the NCAA changed this rule to require student-athletes to graduate from high school with a 2.00 GPA in order to be eligible for championships and financial aid (Grant, Leadley & Zygmont, 2008). Throughout the 1970's students were able to avoid difficult classes like math and science in favor of easier electives so that they could get into college to play their sport. In response, the NCAA voted in 1981 to

require athletes to complete a specific number of credit hours each term in order to remain eligible (Gerdy, 2006). For the time being, student-athletes and athletics departments had figured out a way to "beat the system." The fallacy of this plan was that student-athletes were not graduating, and as a result, there was a growing concern that student-athletes were being exploited for their athletic ability.

The NCAA conducted a study from 1975 through 1980 and found that less than half of Division I-A (now known as Football Bowl Subdivision or FBS) football student-athletes had graduated (Covell & Barr, 2001). As a result, the first major academic reform initiative came in 1983 when the NCAA proposed an initial eligibility rule. In 1986 the NCAA adopted it as Bylaw 5-1-(j), which is now Bylaw 14.3. Officials believed that by increasing academic standards for student-athletes to participate in intercollegiate athletics, it would raise graduation rates (Gerdy, 2006). This eligibility rule is commonly known as "Proposition 48" and it required all freshmen student-athletes to demonstrate the following: a high school GPA of at least a 2.0 (on a 4.0 scale) in 11 predefined core courses and a minimum total test score of 700 on the SAT or 15 on the ACT (Benson, 1993). A student who did not meet the standardized test score but who met the GPA and core course requirement was considered a "partial qualifier" and could be awarded an athletic scholarship, but could not play for their first year of college and would lose one year of eligibility. In 1989 "Proposition 42" banned athletic scholarships completely for partial qualifiers.

However, both of these proposals created concern about the disproportionate impact they had on minority athletes, in particular, the Proposition ban on scholarships for partial qualifiers. The NCAA was charged with cultural bias mainly

because African Americans scored lower on standardized tests. According to the College Board the mean score of all Caucasians taking the SAT in 1981 was 442 on the verbal and 483 on the math section, while African Americans scored 322 and 362, respectively (Beaver, 1996). FairTest, an advocacy group that monitors standardized tests, believes the SAT is biased mainly because its questions use words or concepts that are part of Caucasian culture, but may not be part of African American culture (Beaver, 1996). The NCAA had established its first academic standards, but realized by so doing that the standards created a disadvantage for certain populations. In fact, the NCAA knew this to be true before they even passed the legislation. In an NCAA study in 1983, they examined how the new legislation would have affected current student-athletes had they been subject to the new requirements as freshmen directly out of high school. The study showed that six out of seven African American male basketball student-athletes and three out of four African American male football student-athletes at the largest schools would have been ineligible as freshmen in 1983, while only one out of three Caucasian male student-athletes would have been ineligible (Lapchick, 1989).

Likewise, opponents were already writing about the disproportionate impact of Proposition 48 on African American student-athletes before it was even put into effect. In a review of Proposition 48, Williams (1983) questioned whether the selection of the 700 SAT and 15 ACT cutoff scores for determining initial eligibility were based upon empirical data or just arbitrary. He cited a *Chronicle of Higher Education* article published in January 1983 which showed the comparative average SAT scores recorded by the American College Board from 1976 through 1982.

Total scores for Caucasian students were well above the 700 cutoff point, but African American students' scores did not reach the 700 cutoff point until 1982. He argued that the NCAA targeted African American students with Proposition 48 directly because 700 was the most recent figure of average attainment by African American students. Specifically, he concluded that African American student-athletes would be more disparately affected by Proposition 48 than Caucasian student-athletes or other students in general because of the racial disparity in test scores; the long history that this disparity is directly traceable to racial, cultural, and economic biases inherent in standardized tests, and the absoluteness of the 700 SAT/15 ACT cutoff points, which most African Americans do not attain and which most Caucasian students do attain (Williams, 1983).

Williams (1983) was correct. The minimum test scores were chosen by a group of high profile college coaches and university presidents and they did not examine the data thoroughly; they simply believed that the chosen SAT and ACT cutoff scores were an objective and reliable way to decide whether an incoming college freshman was adequately prepared for college (Oates, 2000). In fact, data revealed that for students expecting to enter college in the fall of 1981, the average SAT score for African American students was 694, while the average for Caucasian students was 925. Of that same group, the average ACT score for African American students was 12.4, while the average for Caucasian students was 19.3 (Oates, 2000). As a result of these concerns, the NCAA began conducting studies on the effects of Propositions 48 and 42.

In the NCAA's study by Benson (1993), researchers looked at the 1986 graduation rate in order to evaluate the effects of Propositions 48 and 42. It showed both positive and negative effects. The overall student-athlete graduation rate between the 1984, 1985 and 1986 cohorts increased significantly. Standardized test scores and high school core course GPA also increased. Therefore, cohort increases in graduation rates appeared to be a direct result of cohort increases in standardized test scores and core GPAs (Benson, 1993). Although Benson (1993) claimed that this meant there was a relationship between the increased graduation rates and increased NCAA initial eligibility standards, this was not ever positively correlated or supported by any of the research.

However, the study did reveal the negative impact on minority student-athletes. African-Americans scored lower on standardized tests, had lower core GPAs and graduated at lower rates than Caucasians (Benson, 1993). In another study by Benson (1994) five freshmen cohorts of Division I schools were examined between 1984 and 1988. It showed a decrease in the percentage of African American student-athletes as part of the sample. In 1984 African American student-athletes made up 25.7 percent of the sample and in 1986 only 17.9 percent of the sample, with the largest decrease of African American males in the revenue generating sports of football and basketball (Benson, 1994). During the first two years of Proposition 48, the NCAA declared 560 Division I football and basketball student-athletes ineligible. Of these student-athletes declared ineligible, 84 percent of the football student-athletes and 92 percent of the basketball student-athletes were African American. Additionally, 86 percent of all student-athletes affected by

Proposition 48 were African American (Hunt, 1999-2000). Although the overall student-athlete graduation rate increased over time, African American student-athletes performed the worst academically.

In response to concerns of cultural bias and access to higher education in 1990 the NCAA allowed partial qualifiers to receive financial aid based on need, but not on athletics ability. Therefore, although they were not permitted to receive athletic scholarships, they could receive institutional aid. Unfortunately, this lead to loopholes in this proposition as institutions became more and more creative on the awarding of non-athletically related aid to partial qualifiers. This and the research on the negative impact of Propositions 48 and 42 on African American student-athletes lead to the passage of Proposition 16 in 1992 and then a modified version in 1997 with Proposition 68. Proposition 16 restored athletic scholarships to partial qualifiers, but increased the number of core courses from 11 to 13 and created a "sliding scale" in which higher ACT/SAT scores corresponded to lower GPAs (Heck & Takahashi, 2006). Proposition 68 restored the lost year of eligibility to partial qualifiers. In other words, they could not participate in intercollegiate athletics their freshmen year, but if they graduated in four years, then they could win back their first year of eligibility during their fifth year of school. However, Proposition 16, even with the revision of Proposition 68, garnered even more controversy than Proposition 48 and resulted in litigation against the NCAA.

Opponents of Proposition 16 claimed that the rule discriminated against African Americans and other minority groups because it disproportionately excluded more African Americans from collegiate athletic opportunities than Caucasians

(Hunt, 1999-2000). On the other hand, the NCAA and its supporters argued that the rule served the purpose of ensuring academic success of college athletes. In 1999, Proposition 16 was heard by the courts in *Cureton vs. NCAA.* Tai Kwan Cureton and Leatrice Shaw, who were both African American track athletes who had graduated high school in 1996, lost first year eligibility by failing to meet the minimum SAT requirement of Proposition 16 (Waller, 2003). They had met the required GPA and had earned other academic honors, but because they did not meet the standardized test score requirement and they were declared ineligible for their first year, schools rescinded their athletic scholarship offers to them. The district court found for the plaintiffs concluding that Proposition 16 did in fact have a disparate racial impact against African Americans and was in violation of Title VI of the Civil Rights Act of 1964. It invalidated the use of Proposition 16 and restricted the NCAA from using it (Hunt, 1999-2000). However, the Third Circuit reversed the case holding that Title VI of the Civil Rights Act of 1964 did not apply to the NCAA because the NCAA did not have "controlling authority" over its member institutions' "ultimate decision" about a student-athlete's eligibility (Waller, 2003, p. 195). In what is now known as *Cureton II*, the plaintiffs then moved to amend their complaint to add a claim of intentional discrimination based on the NCAA's establishment and enforcement of Proposition 16. However, the district court denied the motion and then the Third Circuit affirmed the dismissal based upon the fact that they did not file an intentional discrimination claim in the first place.

In another case, *Pryor vs. NCAA*, the plaintiffs filed intentional discrimination against the NCAA on the basis of race. Kelly Pryor, a learning

disabled African American student-athlete and Warren Spivey, also an African American student-athlete, had each signed a National Letter of Intent (NLI) to play at San Jose State University and the University of Connecticut, respectively. Neither of them had met the eligibility requirements of Proposition 16. Pryor had applied for and received a waiver of the rules, allowing her to receive athletic financial aid, even though she was still ineligible to compete her first year. The NCAA denied a similar waiver for Spivey, who was declared ineligible to either participate or receive athletic financial aid during his first year (Waller, 2003). Both Pryor and Spivey brought suit claiming that, by adopting Proposition 16, the NCAA intentionally discriminated against them in violation of Title VI of the Civil Rights Act of 1964. Pryor also sued under the Americans with Disabilities Act and the Rehabilitation Act of 1973 alleging that the NCAA discriminated against her because of her learning disability. Although the district court dismissed the claims and the appellate court upheld the dismissal of Pryor's ADA and Rehabilitation Act claims, the appellate court reversed the dismissal of both Pryor's and Spivey's Title VI claims. Specifically, the court held: "based on the face of the complaint and all reasonable references thereto, the NCAA at least partially intended to reduce the number of African American athletes who could attend college on an athletic scholarship by adopting the heightened academic requirements of Proposition 16" (Waller, 2003, p. 197).

In 2002, the NCAA banned the partial qualifier category as it ushered in a new era of academic reform legislation (Grant, Leadley & Zygmont, 2008). In that same year the NCAA increased the core course requirements from 13 to 14 and then

in 2006 from 14 to 16 (NCAA, 2010). The sliding scale has also been revised over the past decade in order for a student-athlete to be deemed either a qualifier or non-qualifier out of high school. For example, a student-athlete who earns a 2.00 GPA must earn at least a 1010 on the SAT or an 86 sum score on the ACT, while a student-athlete who earns a 3.550 GPA need only earn a 400 on the SAT or a 37 sum score on the ACT (NCAA, 2010). This has virtually eliminated the test score requirement and eliminates the argument that the test score requirement has a disparate impact on student-athletes. However, the new rule does not necessarily ensure that student-athletes are academically prepared to enter college. An SAT score between 400 and 570 places students in the bottom one percentile of all students taking the test and they do not reach the tenth percentile until they score 760 (Overly, 2005-2006).

In addition to NCAA initial eligibility standards, the NCAA implemented continuing eligibility standards as part of its academic reform movement, formerly known as satisfactory progress and now progress towards degree. In order to maintain eligibility after begin admitted, student-athletes had to demonstrate satisfactory academic progress towards graduation. This meant that student-athletes could not just take "easy" classes in order to maintain a 2.0 GPA and stay eligible for athletics. Instead, they had to fulfill requirements that lead to a baccalaureate degree, including the designation of a major by the beginning of their third year of enrollment. In 1992 the NCAA implemented the first progress toward degree requirements, in which student-athletes had to meet a certain percentage of their degree requirements based upon their year of enrollment, known as the 25/50/75

percent rule. They had to fulfill 25 percent of their degree requirements prior to entering their third year of enrollment; 50 percent prior to their fourth year of enrollment; and 75 percent prior to their fifth year of enrollment. In addition, they had to earn 18 credit hours during the academic year (August through May) and 24 credit hours for the entire calendar year (including summer). Student-athletes also had to achieve a minimum GPA in order to be eligible for competition: 1.8 GPA after their first year; 1.9 GPA after their second year; and a 2.0 GPA after their third year. Then, in 2002 the NCAA increased the percentage of degree requirements to 40/60/80 percent, effective with the 2003 entering freshmen class with student-athletes needing to earn 24 credit hours after their first year; 40 percent of their degree requirements prior to their third year; 60 percent prior to their fourth year; and 80 percent prior to their fifth year (Suggs, 2003). Also effective in 2003, student-athletes had to earn at least six credit hours during the preceding term in order to be eligible for the next immediate term and postseason play (NCAA, 2010). Student-athletes could no longer remain eligible by taking easy classes. The next logical step for the NCAA was to enact legislation that would not only require student-athletes to remain on track to complete a degree, but would also help them graduate on time.

The most recent major piece of academic reform legislation, the Academic Performance Program (APP), was enacted in 2005. One issue that university presidents have been interested in since they became a part of the NCAA governance structure in 1984 is academic standards and performance (Gerdy, 2006). When the NCAA first began discussing the APP in 2003 they wanted to find a way in which to

examine the relationship between colleges' graduation rates and real time indicators, such as the number of student-athletes who return every year and the number who are making progress towards a degree, (Suggs, 2003). The purpose of the APP is outlined in the NCAA Bylaws as follows:

> 23.01.1 Purpose of the Academic Performance Program. The central purpose of the academic performance program is to ensure that the Division I membership is dedicated to providing student-athletes with exemplary educational and intercollegiate-athletics experiences in an environment that recognizes and supports the primacy of the academic mission of its member institutions, while enhancing the ability of male and female student-athletes to earn a four-year degree (2010-11 NCAA Manual, p. 377).

The APP consists of three different measures: The Academic Performance Census (APC), the Graduation Success Rate (GSR), and the Academic Performance Rate (APR). Most importantly, the APP was created to penalize a team with loss of scholarships and eligibility for postseason play if student-athletes continually underperform academically. The measurement which determines this part of the APP is called the APR. It measures both retention and eligibility of either scholarship student-athletes, or if the institution does not offer scholarships, recruited student-athletes, on a semester-by-semester basis. Unlike the federal graduation rate, it includes all student-athletes on a team in a given year as opposed to an entering class cohort and gives student-athletes five years to graduate as opposed to six years. In order to avoid any penalties a team must stay at or above a multi-year APR of 925, which the NCAA has indicated represents a 50 percent graduation rate

(Hamilton, 2005). If a team's multi-year APR falls below 925 and they have any student-athletes who earn a "0/2" in any academic term, then the team will be subject to the loss of scholarship penalty or contemporaneous penalty. The purpose is to ensure that student-athletes are graduating at a rate of at least 50 percent. Many schools have not met this standard and have been penalized as a result.

Although the NCAA began collecting APR data for the 2003-04 academic year, the first penalties were not assessed until after the 2004-05 academic year. The first year of data that was released to the public in February 2005 indicated areas of concern. While the overall APR data for men's and women's teams looked good initially, projecting that only about seven percent of teams would be subject to any penalties, revenue producing sports teams had the lowest scores. Football, baseball, and men's basketball were the only teams with scores below 925. Baseball teams averaged 922; football teams averaged 923 and men's basketball teams averaged 923 (Hamilton, 2005). Leaders of academic support programs across the country knew with the inception of the APR that student-athletes who left college immediately after their final contest (after exhausting their last year of eligibility) would be the ones who would cause a lower team APR (Suggs, 2003). Thus, these student-athletes would leave in poor academic standing and/or ineligible and would not be retained to the next semester, creating a "0/2" score. One explanation for the lower scores in football, men's basketball, and baseball, is the fact that student-athletes in these sports have the opportunity to play professional athletics. Once they complete their eligibility, it is no longer necessary for them to remain in college to seek an undergraduate degree if they have the opportunity to play their sport professionally,

unless earning a college degree is one of their goals. Therefore, these teams would have the higher number of "0/2's" and the lowest APR scores.

In response to these concerns, the NCAA quickly implemented certain exemptions to losing eligibility and retention points. The APR formula has been changed over the past five years. For example, beginning with the 2007-08 year, institutions could make adjustments to their data for transfer student-athletes who had been in residence at the institution for at least one academic year, left the institution eligible, earned at least a 2.60 GPA, and transferred immediately to another four year institution (Hosick, 2009). The NCAA implemented this rule change when data showed that transfer student-athletes who meet this set of criteria are just as likely to graduate at their next institution as they would have had they remained at their current institution. Also, it should be noted that the APR scores can be adjusted for several other reasons. If a student-athlete wishes to pursue a career in professional athletics and leaves the institution eligible, the institution does not have to count the retention point lost for that student-athlete. Points can also be adjusted for student-athletes who leave the institution eligible, but return home due to family illness or financial hardship. These adjustments were not all in effect during the first year of data collection back in 2003-04. These rule changes have influenced the change in APR scores, resulting in less "0/2's" and thus, fewer penalties.

The Graduation Success Rate (GSR) is another piece of the APP academic reform initiative that was implemented to account for transfers. The federal graduation rate does not take into account transfers. The federal graduation rate is

based upon the entering freshmen class of student-athletes on athletic scholarship beginning with the fall semester in one particular academic year. The student-athletes are tracked for a period of six years to graduation in order to determine graduation rate data. In other words, institutions lose points when student-athletes transfer out to other institutions and they do not get to include transfers-in as graduates. The NCAA has tried to correct this discrepancy with the GSR. The GSR includes transfers into an institution in the graduation rate; includes midyear enrollees; and removes student-athletes who transfer and would have been academically eligible to compete the next term had they returned (NCAA, 2007). Similar to the federal graduation rate, the GSR is a six year cohort comprised of student-athletes receiving athletically-related financial aid and enrolled full-time as of the census date or the fifth week of classes, whichever is earlier. While the 2002 cohort federal graduation rate was 64 percent for student-athletes, the GSR was 79 percent (NCAA, 2009).

Graduation Rates and Special Considerations

As previously mentioned, the NCAA is quick to point to graduation rates as evidence that the academic reform movement has been successful in reforming the academic integrity of intercollegiate athletics. Using the federal graduation rate, student-athletes are graduating at one to two percentage points higher than the general student body. The student-athletes who entered college in 2002 graduated at a rate of 64 percent, while the general student body graduated at a rate of 62 percent. In fact, the student-athlete graduation rate has been higher since the inception of the NCAA's initial eligibility standards in 1984 (NCAA, 2009). For the entering

freshmen classes of 1984 through 2002, the student-athlete federal graduation rate has increased from 52 percent to 64 percent overall in Division I (NCAA, 2009). However, areas of concern still exist within the student-athlete population.

Differences in ethnicity and gender are apparent in the 2002 student-athlete graduation rate. The African American student-athlete graduation rate rose from 35 percent to 53 percent from 1984 to 2002. African American male graduation rates increased from 33 percent to 49 percent and African American female graduation rates increased from 45 percent to 63 percent. In comparison with the general study body, African American student-athletes graduated at a 53 percent rate, compared to African American students at 44 percent. African American male student-athletes graduated at a rate of 49 percent while the African American males of the general student body graduated at a rate of 38 percent. African American females also graduated higher than the African American female general student body with a rate of 63 percent and 49 percent, respectively. Additionally, Caucasian student-athletes graduated at higher rates than their non-student-athlete counterparts. Caucasian student-athletes graduated at a rate of 68 percent while Caucasian students in the general student body graduated at a rate of 65 percent. However, this difference is due to Caucasian female student-athletes' graduation rates. Caucasian female student-athletes graduated at the highest rate of all groups with a graduation rate of 74 percent. Caucasian male student-athletes actually graduate at the same rate as their Caucasian male non-student-athlete counterparts (NCAA, 2009).

Graduation rates for revenue sport participants are also noted. Both of the revenue generating sports of football and men's basketball increased their graduation

rates from 1984 to 2002. Football student-athletes have increased their graduation rate by eight percentage points with Caucasian student-athletes increasing by 11 points and African American student-athletes increasing by 12 points. In men's basketball the rate increased by 13 percentage points between 1984 and 2002 with Caucasian student-athletes increasing by 11 points and African American student-athletes increasing by 15 points (NCAA, 2009). Although both football and men's basketball graduation rates have increased over the last 25 years when analyzed by individual sports, they still graduate at lower rates than the general student body. Part of the NCAA Research (2009) matched gender-ethnicity groups for the 2002 entering class and compared student-athletes by sport to the general student body. The research shows that in men's basketball student-athletes graduated 51 percent of the time while the general student body graduated 60 percent of the time. In Football Bowl Subdivision Football, football student-athletes had a graduation rate of 55 percent while the student body graduated at a rate of 63 percent. When comparing the 2001 and 2002 entering classes, the overall student-athlete graduation rate remained the same at a rate of 64 percent. Both Caucasian and African-American student-athletes graduated at the same rates for both years with males increasing by 1 percentage point from 2001 to 2002. Caucasian female student-athletes remained the same, but African American female student-athletes decreased by three percentage points between 2001 and 2002 (NCAA, 2009).

When comparing the APR and GSR, they yield similar results as graduation rate trends for football, baseball, and men's basketball student-athletes. After two years of data collection (2003-04 and 2004-05 academic years) 99 teams from 65

colleges were subject to losing scholarships the following year. Sixty-one of the 99 teams came from football, baseball, and men's basketball (Wolverton, 2006). However, after three years of data, APR scores had improved slightly, even in football and baseball. Overall penalties in baseball and football declined from 3.6 percent in 2003-04 and 2004-05 to 3.3 percent in 2005-06 (Hosick, 2007). The national average APR was 960. Unfortunately, men's basketball continued to have the lowest rates with an average score of 927.7. After five years of data collection the national average APR for all teams increased to 964 (NCAA, 2009). The problem sports of baseball, football, and men's basketball also increased their rates. Baseball's multi-year APR was 946; men's basketball was 933; and football was 939 in the most recently published report (NCAA, 2009).

While these teams all showed improvement, concern still exists in football in regards to the eligibility portion of the APR. Compared with all other sports football has the lowest rate of improvement in eligibility (NCAA, 2009). Another new concern is women's basketball, where the number of "0/2's" (student-athletes earning neither the eligibility nor the retention point) has increased significantly and eligibility scores have decreased from 2006-07 to 2007-08. Male student-athletes have a GSR of 72 percent while female student-athletes have a GSR of 88 percent. By sport, men's basketball and Division I-Football Championship Subdivision (FCS; formerly known as I-AA) have the lowest GSR scores at 64 percent. Female student-athlete teams consistently score higher. Other than bowling, women's basketball has the lowest GSR of the female sports with a GSR of 83 percent (NCAA, 2009). When examined by football division, Division I-FBS student-

athletes earn a 79 percent GSR while Division I-FCS student-athletes earn 76 percent and those Division I programs without football earn an 81 percent GSR. Differences exist between ethnicities, with Caucasian student-athletes earning an 84 percent GSR overall and African American student-athletes earning a 63 percent GSR. This data shows that males in revenue generating sports earn the lowest GSR numbers. Despite the adjustments made to the APR formula over the last few years and the creation of the GSR, data still shows that males, minorities, and revenue generating sport participants earn the lowest graduation rates and lowest APR scores.

Much improvement has been made in the academic standards of intercollegiate athletics since the fusion of college sports with higher education. Federal graduation rate data reflect higher graduation rates among student-athletes than the general student body, increases overall since the inception of the NCAA's initial eligibility rules, increases in ethnicity and gender groups, and increases in the revenue generating sports of football and men's basketball over the last 25 years. However, some areas of concern still exist when examining certain subgroup populations of student-athletes. These appear to be student-athletes in men's basketball and football as compared to the general student body, African American student-athletes still graduate at lower rates than their Caucasian counterparts in football, men's basketball, and women's basketball, and a new alarming trend is growing for decreased graduation rates of African American female women's basketball student-athletes. These trends are mirrored when examining the APR data over the last five years. Although football, baseball, and men's basketball programs increased their APR's from 2003-04 to 2007-08, they still have lower scores than the

rest of the NCAA teams. Female teams tend to have higher APR scores while men's basketball still performs at the lowest rate overall. Additionally, women's basketball APR scores have shown a decrease over the last three years. Therefore, ethnicity, gender, and type of sport are factors that need to be examined within the student-athlete population as it relates to their motivation to achieve academically.

Academic Reform Concerns

Although academic reform has positively influenced many student-athlete graduation rates, questionable practices have arisen regarding the methods needed to achieve these academic results. As a result of the passage of NCAA initial eligibility reform, admission standards for student-athletes has become a controversial issue. Instead of the burden being on the student-athlete, it lies with the institution in which they are enrolled. Therefore, an academically underprepared student-athlete who scores a 400 on the SAT, but earns a 3.550 high school core GPA can be deemed a qualifier for intercollegiate athletic competition. The NCAA argues that this does not mean that institutions have to admit these students, but in reality that is what happens. The relaxing of the sliding scale leaves the door open for institutions to "specially admit" student-athletes.

There is widespread disagreement among colleges about the policies they should use to admit student-athletes. Some institutions defend the practice because they may allow special admits of other student groups such as music, art, or dance majors who demonstrate special talent. Colleges also say that the admissions process should be an autonomous process and up to each institution (Lederman, 1991).

Critics argue that colleges seem more willing to admit underprepared student-athletes than underprepared students who are not student-athletes, or even over other qualified applicants. A *Chronicle of Higher Education* survey cited by Lederman (1991) found all but nine of the 73 Division I-FBS schools made special admissions for a higher proportion of athletes than for any other students. Thirty-five of these schools admitted student-athletes at a rate of five times higher than the proportion of other students admitted and 13 schools admitted student-athletes as special admissions ten times higher than other students (Lederman, 1991).

Additional studies support this trend. In *The Game of Life* (Bowen & Shulman, 2001) and *Reclaiming the Game* (Bowen & Levin, 2003) the authors studied the entering class of 1995 at the schools that make up the New England Small Colleges Athletic Conference (NESCAC) and the Ivy League Conference, and found that SAT scores for male recruits in high profile sports were 140 to 165 points lower than for non-athletes. For males in lower profile sports and female recruits in all sports their SAT scores were 60 to 100 points lower on average than for non-athletes. Recruited student-athletes in all groups were up to four times more likely to get into these schools than non-athletes, including over legacy and minority admits (Bowen & Shulman, 2001; Bowen & Levin, 2003). Sigelman (1995) also examined admissions standards for student-athletes, namely in football, by analyzing school-by-school entrance exam scores in Division I (FBS) football compiled by *USA Today*. He found that more selective schools recruited more academically qualified football student-athletes; new scholarship football student-athletes had lower entrance exam scores than all new students at the same school; and the more

selective the school, the wider the gap between football student-athletes' entrance exam scores and those of all students (Sigelman, 1995). More currently, Mitchell Stevens explained in a *Chronicle of Higher Education* (2008) article that he spent a year and a half in the admissions office of a highly selective Eastern college as an ethnographer, seeking to understand how admissions officers made their decisions. He noted that recruited student-athletes were often admitted with weaker academic records, as were legacies and children of promising donors (Stevens, 2008).

Another problem in relation to NCAA initial eligibility that has been debated is the concern that high school officials may inflate grades of academically unprepared student-athletes who score low on standardized tests so that they can still meet initial eligibility standards (Sperber, 2005). If they earn low test scores, but meet the corresponding GPA on the sliding scale then they could still be deemed qualifiers in order to participate in intercollegiate athletics. Grade inflation is when there is a progressive rise in GPA without a concomitant increase in achievement, as measured by standardized tests (Bejar & Blew, 1981). Between 1960 and 1980 there was a steady decline in SAT scores among students who were candidates for admission to college. At the same time there has also been an increase in GPAs of college freshmen. Bejar & Blew (1981) conducted a 15 year study in which they examined the effect of grade inflation on the validity of the SAT and found that college freshmen GPA increased without a concomitant increase in SAT scores, seemingly due to grade inflation. They also found that grade inflation was not a new phenomenon and had been observed since at least 1964 (Bejar & Blew, 1981). In fact, Harvey Mansfield, professor of government at Harvard University, wrote an

article in the *Chronicle of Higher Education* (Mansfield, 2001) in which he commented that he believed grade inflation in higher education began in the mid to late 1960's in response to affirmative action and trickled down to the secondary schools. He explained, with much criticism from the Harvard administration, during the 1960's Caucasian professors stopped giving low or average grades to African American students and in order to conceal it, stopped giving those grades to Caucasian students as well (Mansfield, 2001). Since African American student-athletes tended to score lowest on standardized tests and have lower GPAs than their Caucasian counterparts, Mansfield's observation may provide an explanation for the source of grade inflation.

There is further evidence that grade inflation exists for high school students in general (Woodruff & Ziomek, 2004) and within the student-athlete population (Bowen & Shulman, 2001; Bowen & Levin, 2003). Woodruff & Ziomek (2004) conducted both marginal and conditional analyses of high school GPA means as compared with the means of three corresponding ACT scores. Their results showed the presence of grade inflation over the course of 13 years, from 1991 to 2003. Specifically, high school GPA increased without an increase in achievement, as measured by the ACT. The increase in grade inflation was .25 of the high school GPA (Woodruff & Ziomek, 2004). Although this study did not examine grade inflation of student-athletes specifically, the reasons for inflating high school grades of student-athletes is different than the reasons for inflating high school grades of the general student body. In regards to the general student body, some researchers claim college admissions policies are partly to blame for unwittingly creating incentives for

high school grade inflation. Bishop (1999) cites the presence of high school grade inflation from the Peter Hart Research Associates (1994), in which thirty percent of teachers said they felt pressure to give higher grades than students deserved and to reduce the difficulty and amount of work assigned. The point of this statement is that there is further evidence of grade inflation in the general student body.

Similar reasoning for high school grade inflation exists for the student-athlete population as well. For student-athletes who are athletically talented, but underperform academically, their sport may be their only way to go to college and eventually pursue their sport at the professional level. If a student-athlete does not meet the NCAA initial eligibility standards, they will be deemed a non-qualifier by the NCAA and unable to receive athletically related financial aid or compete their first year of college at a Division I institution. Because student-athletes (often minorities) from lower socioeconomic backgrounds are more likely to underperform academically due to lack of resources, it will be difficult for them to afford a full year of college without the athletic scholarship. Like the pressures to inflate grades of the general student body for college admission, teachers may feel pressured to inflate grades of student-athletes so that they can meet NCAA initial eligibility requirements, which allow them to obtain an athletic scholarship and play their sport at the college level. (Bowen & Shulman, 2001; Bowen & Levin, 2003) found recruited student-athletes earned lower grades in college than their classmates with similar entrance exam scores. In *The Game of Life* (Bowen & Shulman, 2001) the authors gathered academic records from 90,000 student-athletes at over 30 elite colleges and universities, including their high school academic profiles, the

recollections of how students made their college choices and what role sports played in their choices, majors, political beliefs, careers after college, salaries, community involvement, what they thought about their college priorities, and how they viewed their own personal traits. They found that all student-athletes tended to have poorer grades than classmates with similar entrance exam scores; student-athletes in high profile sports performed worse than those in low profile sports; and both groups performed worse academically than students in other extracurricular activities (Bowen & Shulman, 2001). In *Reclaiming the Game,* Bowen & Levin, 2003 further examined academic performance and found that recruited student-athletes earned lower grades than both their fellow athletes who were walk-ons and other students. They also earned lower grades than expected on the basis of their incoming academic credentials and demographic characteristics. Bowen & Levin (2003) concluded that the academic underperformance of college student-athletes was due directly to the criteria used in recruiting and admissions decisions.

Another issue is that while the NCAA relaxed initial eligibility standards, it increased continuing eligibility standards. The new NCAA continuing eligibility standards require that student-athletes make progress toward earning a baccalaureate degree. Defenders of the rule argue that by declaring their majors earlier student-athletes will make quicker progress toward their degrees, which means that they are more likely to graduate on time. Opponents are concerned that the new rules negatively influence the selection of courses and choice of major (Sperber, 2005; Suggs, 2005; Wolverton, 2007). Specifically, making progress toward a degree does not necessarily mean that a student-athlete is making progress toward a meaningful

degree or the degree of their choice. In a study which examined student-athlete experiences in college, 20 percent of student-athletes indicated their athletics participation had prevented them from majoring in the field of their choice and 40 percent said participating in college sports prevented them from taking the courses they wanted (Potuto & O'Hanlon, 2006). In another study in which student-athletes were surveyed about how the progress towards degree requirements affected them, twenty-three percent of student-athletes indicated they would change their major if they were declared ineligible due to the NCAA's progress towards degree requirements and believed the rule had limited their career options, caused them anxiety over choosing their major, or penalized them unfairly for changing majors (Kulics, 2006). Sperber (2005) in his research of over 40 NCAA Division I-FBS universities across the country, found regular students who could easily identify the "blow-off" courses and "jock-majors." This practice is called "clustering" when student-athletes are clustered into easier majors. Lapchick (1989) defined clustering early on when at least 25 percent of a team's student-athletes major in a subject whose majors account for less than five percent of the student body as a whole. He found in 1989 that two-thirds of all college sports programs showed clustering. It was also more common for males than females, African Americans than Caucasians, and for ranked than non-ranked programs (Lapchick, 1989). Clustering has also been referred to as "majoring in eligibility," when student-athletes avoid declaring difficult majors, avoid taking difficult courses, and avoid taking courses from difficult professors (Hyatt, 2003). An unfortunate side effect of this is that student-

athletes are advised into majors in which they have little or no interest, but progress toward degree is easier to maintain.

Further, there is concern about the increase in academic scandal. The NCAA disputed this in March of 2005 by saying that, "faculty members almost without exception uphold academic integrity and protect the curriculum against cheating and cutting corners." Unfortunately, according to Sperber (2005) this is not always the case. He contends, like many other opponents of the APR and increased progress towards degree requirements that professors do exist on campus who are not only infatuated with college sports, but who are also sympathetic to student-athletes. Some professors may even receive box seats at football and basketball contests in return for their understanding. Others may simply remain quiet instead of speaking out when they know academic impropriety is occurring for fear of losing their jobs. In fact, since the implementation of the most recent academic reform movement in 2003, at least 33 major infractions cases related to academic scandal have been discovered (Gurney & Weber, 2010), including university employees writing papers or taking tests for student-athletes and professors giving grades to student-athletes who did not even attend classes (Wolverton, 2008).

The implementation of continuing eligibility standards and the APR has not only created concern about academic dishonesty, but also for the rising cost of academic support programs needed to meet the new standards, called the new "arms race" in intercollegiate athletics. Many large Division I-FBS schools are starting to use their 20,000-60,000 square feet academic centers as a new recruiting tool, often showing them off during prospective student-athletes' official visits to campus

(Alexander, 2004). Steve McDonnell, former president of the National Association of Academic Advisors for Athletics (N4A) believes that the expenditure on academic facilities is a direct result of the implementation of the APR and increased progress towards degree requirements (Alexander, 2004). In a *Chronicle of Higher Education* survey in 2008, Wolverton found that since 1997 the budgets for academic services for student-athletes have more than doubled at about half of the 73 biggest athletic programs in the country, to about $1 million per year. One unnamed program spent almost $3 million in 2007 – an average of over $6,000 per student-athlete (Wolverton, 2008).

As for the academic support buildings, Louisiana State University spent $15 million in 2002; Texas A&M University spent $27 million in 2003; the University of Michigan at Ann Arbor opened a three story glass and steel building, named for a New York real estate developer and Michigan alumnus in 2006; the University of Oregon built a three story building with 37 individual tutoring rooms, 112 seats for a lecture hall, spent $750,000 on computer equipment and $250,000 for annual upkeep in 2010, with the help of Philip H. Knight, the billionaire co-founder of Nike and Oregon alumnus (Wolverton, 2008).

In addition to the money spent on budgets and buildings, athletic departments are also spending more money on academic support personnel. The University of Mississippi spent $175,000 on salaries of academic learning specialists hired to help student-athletes with note taking and study strategies and now holds 800 tutoring sessions per week as opposed to about 50 in 2003; Texas A&M University spent $48,224 on salaries of "class monitors" in 2007; Michigan State University had five

tutors in 1996 and they reported 120 in 2008; and the University of Tennessee at Knoxville used an electronic monitoring system to help track student-athletes' time spent in their academic support center. Even more selective institutions with fewer at-risk student-athletes are spending more. Duke University reported in the survey that the academic support program's budget, staff size and tutoring budget are five times more than they were ten years ago (Wolverton, 2008).

Supporters of the academic support programs argue that the extra spending and attention on academics helps student-athletes remain focused on their academics and keep them on track to graduate. Opponents argue that the amount of money spent on the student-athlete population is unfair and unequal for non-student-athletes (Wolverton, 2008). Since it is easier to get into college, but more difficult for student-athletes to remain eligible, the burden of meeting athletic eligibility requirements has been put on the institution. As a result, university and athletics department officials search for ways to be competitive both academically and athletically.

Student-athletes should meet certain academic requirements, and the effort by the NCAA to increase academic standards should be applauded. However, just because the student-athlete graduation rate has improved does not mean that academic integrity has been reformed. The problem with using such academic requirements is that they only serve as external motivators to remain eligible and do not internally motivate student-athletes for academic achievement. In fact, the NCAA academic reform movement focus on these external motivators has resulted in an environment of "gamesmanship" that jeopardizes academic integrity, rather

than focus on true improvements in the academic quality of the educational experience of student-athletes. This gamesmanship involves the admission of underprepared student-athletes into colleges, high school grade inflation to allow student-athletes to meet the sliding scale of initial eligibility standards, clustering of student-athletes into easier classes and majors, switching of majors to remain eligible, changing of APR rules to accommodate professional departures and transfers, the creation of a new graduation rate formula for student-athletes, transferring to avoid becoming ineligible and higher levels of academic support and cost in order to achieve the results of academic reform.

Academic vs. Motivational Factors as Predictors of Academic Performance

Student Population

In addition to the issues and culture created in response to the NCAA academic reform movement, the NCAA academic requirements are based upon academic factors alone for determining eligibility for competition and financial aid. Pre-college academic variables, such as SAT or ACT scores, high school class rank and GPA have been found to positively correlate with college students' academic success, explaining about one-fourth to one-third of the variance in first year grades (Pike & Saupe, 2002). Additionally, efforts to predict college grades have primarily relied on these as standards for admissions to America's colleges and universities. Lins, Abell & Hutchins (1966) examined the usefulness of scores on the ACT, SAT, the College Qualification Test (CQT), high school GPA, and high school class rank for predicting academic success during the first semester of the freshman year and found through multiple correlation that high school GPA was the most significant

contributor of first semester success in college as measured by college GPA. Moorhead, Brenenstuhl & Catalanello (1980) examined the academic performance of Caucasians and non-Caucasians in an upper division management course using ACT, college GPA, pre-test, expected grade, expected satisfaction, laboratory absences, lecture absences, need for achievement, and average high school grades as predictors. Using multiple regression, he found ACT score to be a significant predictor of final exam score for both Caucasian and non-Caucasian students. Mathiasen (1984) conducted a review of the literature that existed before 1983 and concluded that test scores and high school performance were the best predictors of success in college.

More recently, Stumpf & Stanley (2002) examined data on high school GPAs, SAT and ACT scores as predictors of graduation rates and through multiple correlation found that ACT scores at the 25th percentile, SAT Math scores at the 25th percentile and high SAT Verbal scores were good predictors of college graduation. Cohn, E., Cohn, S., Balch & Bradley (2004) studied SAT score, high school GPA, and high school class rank as predictors of undergraduate GPA through regression analyses and found that all of these three variables together were significant in predicting cumulative college GPA. Additionally, the researchers concluded they could eliminate high school rank or high school GPA from the model, but not both for it to retain significance. When they removed SAT from the model, its predictive power dropped. Therefore, in this study, SAT was found to be the most significant predictor. Finally, Marsh, Vandehey & Diekhoff (2008) compared an introductory psychology course to SAT/ACT score in predicting cumulative college GPA. The

researchers ran a series of multiple regressions beginning with ACT or SAT as the sole predictor and then added in the sums of multiple exams from the introductory psychology course. ACT scores were positively correlated to GPA, explaining 18 percent of the variance; adding additional sums of exams to ACT score helped to explain 40 percent of the variance; SAT scores explained 19 percent of the variance; and adding in additional sums of exams to SAT score helped to also explain 40 percent of the variance in college GPA. Although both ACT and SAT scores contributed to academic performance, they were more powerful in their predictive ability with the combination of exam scores from the introductory course. Pre-college academic variables; therefore, can only account for a small proportion of the variance in explaining the academic performance of college students and are better predictors when used with other variables.

Additionally, although the SAT and ACT have been shown to correlate well with freshman grades for Caucasian students, they have had lower correlations for non-Caucasian and nontraditional students. Tracey & Sedlacek (1984) developed the Noncognitive Questionnaire (NCQ) and measured correlations of eight variables with the academic performance of nontraditional students in higher education. The NCQ was designed to measure psychosocial aspects that influence college success, including self-concept, realistic self-appraisal, understanding racism, long-range goals, support person, leadership, community, and nontraditional knowledge (Tracey & Sedlacek, 1984). They found that these eight variables predicted freshman grades, upper-class grades, retention and graduation in nontraditional students. Others have also tested the NCQ to see if it is a better predictor of academic success of

nontraditional students, including academically at-risk and specially admitted students (Houston, 1980; Sedlacek, 1991; Ting, 1997; White & Sedlacek, 1986; Adebayo, 2008); low-income and first generation students (Ting, 1998); international students (Boyer & Sedlacek, 1988); and ethnic minority students (Fuertes & Sedlacek, 1995; Boyer & Sedlacek, 1988; Fuertes, Sedlacek & Liu, 1994; Hood, 1992 & Tracey & Sedlacek, 1984; 1985; 1987; 1989; Ting, 2000; Nasim, Roberts, Harrell & Young, 2005).

Hood (1992) studied the retention of African American men at a predominantly Caucasian university. Specifically, she examined to what extent non-cognitive and cognitive variables could predict first semester grade point average and enrollment status for especially admitted freshmen students by ethnicity and gender. Hood (1992) used a revised version of the NCQ, the NCQ-R designed to assess the same non-cognitive variables on the NCQ in addition to measuring retention. The researcher administered the survey in the fall of 1990 and the sample consisted of 409 specially admitted freshmen students; 60 percent identified themselves as African American (20 percent male, 40 percent female); 12 percent Caucasian (6 percent male 6 percent female); 14 percent Hispanic (5 percent male, 9 percent female); and 14 percent Asian (7 percent male, 7 percent female). She analyzed the results using means, standard deviations, and regression and found that high school class rank was the most significant predictor of first semester academic performance for African American men (Hood, 1992). This study contributes to the literature about predicting college academic success and in particular, about predicting the success of African American male students. Additionally, this research is important

because it revealed that a non-cognitive factor was more predictive of performance than cognitive variables of a non-traditional student group.

Another study which examined academic performance of ethnic minorities was conducted by Ting (2000). In this study, the researcher examined factors related to academic performance and retention of Asian American freshmen at a predominantly Caucasian university in the southeastern portion of the United States. Specifically, he studied the SAT Math score, realistic self-appraisal, successful leadership experience, and demonstrated community service as predictors of cumulative college GPA. The sample consisted of 96 first year Asian American students; represented over 90 percent of the new Asian American freshmen at the university; their mean age was 18.19 years; 59 percent were males; and 37 percent were females. The researcher administered the NCQ in the fall of 1996 during student orientation as part of the all-university Noncognitive Variables Research Committee, as well as a demographic and personal questionnaire. Ting (2000) utilized stepwise multiple regression for the analysis. The multiple regression model explained 26.2 percent of the variance of fall GPA with realistic self-appraisal, successful leadership experience, and SAT Math scores as significant predictors. For the spring GPA, the regression model accounted for 31.3 percent of the variance with realistic self-appraisal, demonstrated community service, and SAT Math scores as significant predictors of GPA. This study revealed that both cognitive and non-cognitive variables were significant predictors of academic success for Asian American students and contributes to the body of literature confirming the use of both kinds of variables for non-traditional student groups.

In his study of conditionally admitted freshmen students, Adebayo (2008) examined the extent to which cognitive and non-cognitive variables predict their academic success as measured by first semester GPA in college. In fall 2006, the NCQ was administered by the Office of Admissions to all entering freshmen at the University of Central Missouri as part of the institution's campus-wide student retention initiative. The final sample yielded 143 conditionally admitted freshmen; 61 percent were females; 39 percent were males; 78 percent identified themselves as Caucasian; 11 percent identified themselves as African American; the remaining 11 percent were not identified in the study (Adebayo, 2008). The sample had an overall average ACT score of 18; an overall high school percentile rank of 79; and an average high school GPA of 2.16. The researcher analyzed the data using Pearson correlation coefficients and stepwise multiple regression. He found high school GPA, realistic self-appraisal and understanding and coping with racism as the best predictors of academic success of conditionally admitted freshmen during their first semester. High school GPA accounted for 14 percent of the variance; when combined with realistic self-appraisal they accounted for 17 percent of the variance; and when combined with understanding and coping with racism, they accounted for 21 percent of the variance together (Adebayo, 2008). The findings of this study contribute to the literature that combining cognitive and non-cognitive variables for predicting the academic performance for conditionally admitted students are more effective than using cognitive variables alone. The literature concerning the academic performance of non-traditional college students yields some mixed results. What is clear is that both cognitive and non-cognitive variables can predict the

academic performance of college students. However, cognitive variables used alone cannot predict a significant proportion of the variance in academic performance. Utilizing cognitive and non-cognitive variables together proves especially useful when examining non-traditional student groups.

Student-Athlete Population

Individuals within the student affairs community have long recognized the differences between student-athletes and the general student body because of their athletic participation (Wittmer, Bostic, Phillips, & Waters, 1981; Blann, 1985; Gordon, 1986; Bloland, 1987; Kennedy & Dimick, 1987; Chartrand & Lent, 1987; Petitpas & Champagne, 1988; Sparent, 1988; Stone & Strange, 1989; Pearson & Petitpas, 1990; Kirk, W. & Kirk, S., 1993; Smallman & Sowa, 1996; Watt & Moore, 2001; Carodine, Almond & Gratto, 2001; Person, Benson-Quaziena, & Rogers, 2001; Hill, Kelly, & Yates, 2001; Potuto & O'Hanlon, 2006; Jolly, 2008) and that student-athletes should be considered a non-traditional student group (Sowa & Gressard, 1983; Engstrom & Sedlacek, 1991; Engstrom, Sedlacek & McEwen, 1995).

Student-athletes experience pressures unlike their non-student-athlete counterparts on campus. Because of their roles on campus, their atypical lifestyles, and their special needs, they should be considered a diverse special population (Carodine, Almond & Gratto, 2001). Unlike non-student-athletes, they deal with extensive time demands towards their sport in addition to their academic studies. Student-athletes face huge time commitments, as previously mentioned, including

physical workouts, a high profile existence, and demanding expectations. Even for those student-athletes who are also academically gifted, the balance between academics and athletics can cause an incredible amount of stress (Carodine, Almond & Gratto, 2001). In addition to attending classes, student-athletes must also meet and maintain the NCAA eligibility requirements. Otherwise, if they fail to do so, they could jeopardize their ability to compete, receive a scholarship, and graduate from college.

In a national study about student-athletes' experiences as college students, Potuto & O'Hanlon (2006) surveyed student-athletes from 18 Division I-FBS universities, in order to further expand the knowledge base about the student-athlete experience. In particular, they sought to have student-athletes explain whether they make tradeoffs in college in order to compete in their sport. They surveyed student-athletes who had completed at least 85 credit hours toward graduation by spring 2005 since the researchers believed this group of students had spent enough time on campus to provide well-informed responses to the survey. The survey included questions about overall educational experience, athletics participation, student-athlete experiences. The researchers also included a demographic questionnaire in order to allow for some comparisons with findings from the National Survey of Student Engagement (NSSE). The NSSE surveys first and senior year students at over 1000 college campuses nationally about their undergraduate experiences. Finally, because the researchers had obtained an NCAA research grant for the study, they were required to include questions from an NCAA survey, the Study of College Outcomes and Recent Experiences (SCORE). Potuto & O'Hanlon (2006) worked

through a site facilitator selected by each school's athletics director to administer the survey. The final sample included 2,335 student-athletes. Results showed that overall student-athletes at these universities believed their athletic participation contributed positively toward their development and overall college experience. Although the survey presented overall positive findings in regards to student-athletes' experiences, it did reveal some important considerations about student-athletes in general.

Student-athletes reported making tradeoffs between their academic and athletic lives, although they believed that the athletic participation was worth the academic tradeoffs. Of the total, 70.7 percent of female respondents and 66 percent of male respondents indicated they would have liked to do more in regards to their educational opportunities. Student-athletes also spend less time at home. The majority of student-athletes indicated that they make it home at least once for 15 consecutive days per year. However, 13.4 percent of male student-athletes and 6.3 percent of female student-athletes indicated they do not get home even once for at least 15 consecutive days and the percentage of males who make it home in the summer is less than females. Student-athletes also have less time for curricular and co-curricular activities. Approximately 68.1 percent females and 53.1 percent males reported missing campus-wide events due to either required or chosen time spent with their sport. African American student-athletes also report less time than Caucasian student-athletes spent on educational activities, less time home, and less time for curricular or co-curricular activities (Potuto & O'Hanlon, 2006). They survey also revealed that student-athletes believe that professors discriminate against

them and do not care if they graduate. Finally, student-athletes reported that participation in athletics adversely affected their cumulative GPA. This study contributes to the literature about how the lives of student-athletes are unique and different from non-student-athletes through the eyes of the student-athlete. The study also showed differences about athletic motivation between genders and ethnicities, with males and African American student-athletes expressing more interest in their sport than females and Caucasians (Potuto & O'Hanlon, 2006).

Sowa & Gressard (1983) examined whether differences existed between student-athletes and non-student-athletes on the achievement of developmental tasks, using an instrument by Arthur Chickering (1969). The researchers randomly selected student-athletes and non-student-athletes from a southern Division I university and mailed them the Student Developmental Task Inventory (SDTI) and a demographic questionnaire. They had a sixty percent return rate, with 53 percent student-athletes and 47 percent non-student-athletes. Of the student-athlete group, 63 percent identified themselves as male and 37 percent identified themselves as female; they had completed on average 2.6 years of college; and were 19.8 years of age on average. Of the non-student-athlete group, 35 percent identified themselves as male and 65 percent` identified themselves as female; they had completed on average 2.9 years of college; and were 20.9 years of age on average. The SDTI measured scores on three scales: developing autonomy, developing purpose, and developing mature interpersonal relationships as well as on the following subscales: emotional autonomy, instrumental autonomy, interdependence, appropriate educational plans, mature career plans, mature lifestyle plans, intimate relationships,

mature relationships with peers, and tolerance. Sowa & Gressard (1983) used a multivariate analysis of variance (2x2) to compare the student-athletes to non-student-athletes and males to females on the nine subscales of the SDTI. Although they found no significant differences or interactions between the levels of either independent variables, when they conducted the analyses again used a two-way analysis of variance (ANOVA), they found significant differences between student-athletes and non-student-athletes on three subscales: educational plans, career plans, and mature relationships. Therefore, the researchers concluded that even though there was not a significant difference of student-athletes when compared to non-student-athletes on the developmental tasks defined by Chickering (1969), student-athletes may have more difficulty on some individual developmental tasks than non-student-athletes. Lower scores on educational plans and gaining personal satisfaction from educational experiences is part of the developing purpose scale. This development requires formulating plans and priorities that integrate avocational, vocational, and lifestyle plans. Therefore, since student-athletes showed more difficulty in developing purpose, they are different from non-student-athletes in that they lag behind in this aspect of their college student development. As a result, Sowa & Gressard (1983) suggest that athletic participation itself effects student development and student-athletes should be considered college students with special concerns.

Engstrom & Sedlacek (1991) further explored the concept of student-athletes as a special group due to the prejudice they may experience on college campuses. The researchers randomly selected 293 freshmen students entering a large Division I-

FBS eastern university. Fifty one percent identified themselves as female; 49 percent identified themselves as male; 94 percent were 17 or 18 years old; 76 percent identified themselves as Caucasian; 11 percent as Asian; 8 percent as African American; 3 percent as Hispanic; and 1 percent as other. The researchers administered a revised version of the Situational Attitude Scale (SAS), adapting it to measure the attitudes of non-student-athletes toward student-athletes. The SAS was designed to elicit both overt and less conscious feelings and to control for socially desirable responses (Engstrom & Sedlacek, 1991). It was administered to the students during a freshman orientation program by trained graduate and undergraduate students. The authors conducted a multivariate analysis of variance (MANOVA) to analyze differences in scores attitudes about non-student-athletes and student-athletes. Results showed that the students had significantly more negative attitudes toward student-athletes than toward non-student-athletes.

> They felt more suspicious, worried, and displeased when a student-athlete rather than a non-student-athlete received an A in class; they expressed significantly stronger feelings of disappointment, concern, worry, and annoyance when a student-athlete was assigned to be their lab partner than when a non-student-athlete was assigned to be their lab partner; they indicated they were less pleased and accepting and more indignant and disturbed when tutorial and advising services were expanded for student-athletes; and they seemed to be less concerned, embarrassed, disapproving, and sad when student-athletes left school than when non-student-athletes left school (Engstrom & Sedlacek, 1991, p. 70).

Therefore, the researchers concluded that non-student-athletes possess some negative attitudes toward student-athletes, especially as it relates to academic performance. This study suggests that student-athletes should be considered another cultural group that is prone to prejudice and they must be included when addressing institutional racism. Finally, this study confirmed the fact that student-athletes are a special and unique student group on college campuses.

In another study by Engstrom, Sedlacek & McEwen (1995) the researchers examined the attitudes of faculty toward male revenue and non-revenue student-athletes. They randomly selected 201 faculty from a large Division I-FBS public research university and of that number, 128 returned usable data. Of the sample, 88 identified themselves as male; 40 identified themselves as female; 91 percent identified themselves as Caucasian; 2 percent as African American; 7 percent as Asian American; and 0 percent Hispanic; 9 percent identified themselves as instructors; 23 percent as assistant professors; 34 percent as associate professors; 29 percent as professors; and 15 percent as other (teaching assistants, research assistants, part-time faculty). The researchers administered a revised version of the SAS that was originally designed to measure the attitudes of non-student-athletes toward student-athletes (Engstrom & Sedlacek, 1991) and added in five new situations considered unique to this study. These five new situations were developed based upon stereotypes suggested by the literature to be held by faculty and also feedback from faculty and student affairs groups (Engstrom, Sedlacek, & McEwen, 1995). The male revenue sport participants were in the sports of football and men's basketball while the male non-revenue sport participants were in the sports of

lacrosse, wrestling, golf, tennis, and baseball. They analyzed the results using MANOVA and univariate F tests to examine the differences between attitudes about student-athletes as compared to non-student-athletes. Results showed significant differences for the following situations: drives an expensive car; gets an A in class; creates an expanded tutorial program; receives a full scholarship to college; admitted with lower SAT's; pursues a program of study at a slower pace; and student's accomplishments are featured in the campus newspaper. In all areas but pursuing a program of study at a slower pace, faculty attitudes toward male revenue and non-revenue student-athletes were more negative than toward non-student-athletes. Three situations that did not elicit more negative attitudes were withdrawing from school, missing a class, and getting a 2.2 GPA (Engstrom, Sedlacek, & McEwen, 1995). The most negative feelings were expressed when comparing student-athletes with non-student-athletes, were revealed through LSD post hoc one-way comparison tests to be in the following four situations: gets an A in class; receives a full scholarship; admitted with lower SAT; and accomplishments are recognized in the campus newspaper. With respect to getting an A in a class, faculty responded as follows: "unlikely, suspicious, impossible, unexpected, and surprised" (Engstrom, Sedlacek, & McEwen, 1995, p. 222). Faculty also believed it was unfair when student-athletes were admitted into college with lower SAT scores and given a full scholarship. In the situation when the university announces the creation of an expanded advising and tutoring program for student-athletes, faculty reported significantly more negative attitudes toward revenue student-athletes when compared to non-revenue student-athletes and non-student-athletes. They also indicated they

"felt more disturbed, intolerant, and displeased" when this program was developed for non-revenue student-athletes and felt it was more "inappropriate" for students participating in these sports than it would be for non-student-athletes or for revenue student-athletes. Finally, faculty reported positive attitudes in the situation that students pursue a program of study at a slower pace. Specifically, they indicated it was "appropriate, right, and expected" for non-revenue student-athletes to pursue their degree at a slower pace than non-student-athletes (Engstrom, Sedlacek, & McEwen, 1995, p. 222). Based upon the results of this study, the researchers concluded that at this particular institution faculty hold prejudicial attitudes and stereotypes toward both revenue and non-revenue student-athletes. Overall, they regarded student-athletes' academic abilities less positively than other students and they expressed more negative feelings when student-athletes received more academic support services than other students. This study confirmed the findings of the Engstrom & Sedlacek (1991) study that found the same prejudicial attitude by non-student-athletes toward student-athletes concerning academic competency and special services. It also provides further evidence that due to the prejudice they experience, student-athletes should be considered another non-traditional and unique group of college students.

All of the studies assert that student-athletes have a unique culture and set of experiences that differentiate them from other college students, especially on Division I campuses. Additionally, the research suggests that student-athletes experience discrimination from teachers and other students, much like other groups from minority cultures. Because student-athletes have been identified as a non-

traditional student group on college campuses, there is growing evidence supporting the use of non-cognitive factors for predicting the academic performance of student-athletes.

Non-Cognitive Research on the Student-Athlete Population

One of the first major studies measuring the academic performance of student-athletes using non-cognitive factors was conducted by Adler & Adler (1987), in which they examined the relationship between athletic participation and academic performance. They conducted a longitudinal study over the course of four years which observed student-athletes in a Division I men's basketball program. Team field research strategies and differentiated, multiperspectival roles were used for data collection and analysis. They found that most student-athletes enter college with optimistic and idealistic goals about their academic careers. However, it is the athletic, social, and classroom experiences in college that lead them to become detached from their academics. Athletic experiences caused student-athletes to report the noticeable professionalization of their sport in college as compared to the high school level; the coaches intervention in their academic lives so that they never had to make any academic decisions for themselves; and reinforcement for their athletic performance over their academic performance (Adler & Adler, 1987). Social experiences were found to be dominated by their relationships with other student-athletes; they were isolated geographically, culturally, and physically from their non-student-athlete peers; and an athletic peer subculture developed which deemphasized the importance of academics. In the classroom environment, many of the student-athletes in the study believed they were discriminated against by professors and other

students; and they were disinterested in the content of their classes as they felt the classes lacked academic merit (Adler & Adler, 1987). As a result of these experiences they adjusted their academic attitudes, efforts, and goals throughout their college education. One of these adjustments was that many of the student-athletes blamed others for their academic failure, which they attributed to "boring professors, stupid courses, exhaustion, coaches' demands, and injury," (Adler & Adler, 1987). Another adjustment came in the way of changing their academic goals. Although about one-fourth of student-athletes remained in their original majors, they expended less effort and had less success than they had originally thought they would have in school. The rest of the group changed their major to a more manageable one. Adler & Adler (1987) concluded that the structure of big-time athletic programs and the student-athletes' experiences within caused them to gradually withdraw from their commitment to academics and become disillusioned with their academics by the time they exhaust their eligibility. This study suggested that just being a student-athlete and participating in athletics influences academic performance.

Pascarella, Bohr, Nora, & Terenzini (1993) conducted a study to determine the effects of athletic participation on students during their freshman year in regards to their academic achievement. The researchers selected 3,331 student-athletes from 18 four-year and 5 two-year college institutions located in 16 difference states, throughout the country. The institutions were selected from the National Center on Educational Statistics IPEDS data base in order to represent differences in colleges nationwide on a variety of characteristics, including institutional type and control; size; location; commuter vs. residential; and the ethnic composition of the

undergraduate student body. The final sample included 2,397 freshmen year students who had participated in the National Study of Student Learning (NSSL), a longitudinal investigation of the factors that influence learning and cognitive development in college. It consisted of 860 males and 1537 females. Of the males, 80 indicated they participated in a revenue producing sport (football or basketball); 102 participated in a sport other than these two sports; and 678 had not participated in a sport during their freshman year. Of the females, 203 had played in an intercollegiate sport and 1334 had not. The researchers collected the data in the fall of 1992 and again in spring 1993 through a survey about precollege characteristics (demographics and background, aspirations, expectations of college, items about learning orientation) and the Collegiate Assessment of Academic Proficiency (CAAP), which was designed to assess skills on reading comprehension, mathematics, and critical thinking. They used a pretest-posttest, quasi-experimental design, in which comparison groups were statistically equated on salient fall 1992 variables. The comparison groups were male freshman non-athletes, male freshman football and basketball student-athletes, male freshman student-athletes in other sports, female freshman non-athletes, and female freshman student-athletes. The researchers examined the following covariates: individual CAAP scores collected in fall 1992 and spring 1993; ethnicity; family social origin; academic motivation; age; credit hour taken; on- or off-campus residence; academic aptitude as measured by the freshman class average CAAP scores; and NCAA Division I or Non-Division I institution. Pascarella, Bohr, Nora, & Terenzini (1993) found that intercollegiate athletic participation was found to have significant adverse consequences for the

general cognitive development of both male and female student-athletes during the first year of college, although less so for women. Also, the student-athletes in football and men's basketball experienced declines in their reading comprehension and math skills during their freshman year while student-athletes in other sports and non-student-athletes showed gains. This study was important because it contributed to the knowledge about how athletic participation alone can impact the academic performance of student-athletes. In particular, it suggested that athletic participation in high profile sports like football and men's basketball had adverse effects upon academic performance in college.

Sedlacek & Adams-Gaston (1992) argued that student-athletes be considered another group of nontraditional students and be looked at as such in terms of predicting academic performance. The researchers administered the NCQ to all incoming freshmen student-athletes (105) at a large eastern university within Division I-FBS along with a general demographic and attitude questionnaire at their initial fall orientation meetings. The sample consisted of 64 percent males; 36 percent females; 80 percent identified themselves as Caucasian; 15 percent as African American; 4 percent as Hispanic and represented both revenue and non-revenue generating sports. The researchers used NCQ and SAT scores to predict first semester grades using step-wise multiple regressions. They found that SAT scores were unrelated to student-athletes' first semester college GPAs while the non-cognitive factors of having a strong support person, community involvement, positive self-concept, and realistic self-appraisal all had significant correlations with first semester college GPA, for both minority and non-minority student-athletes.

This study provided interesting and conflicting results from what would have been expected. The strength of the SAT should be that it predicts first semester grades, whereas the strength of the NCQ should be that it predicts upper-class grade, retention and graduation (Sedlacek & Adams-Gaston, 1992). The scales of the NCQ which were significant all had to do with feeling confident about oneself, which contributes to the literature about the positive correlations of self-efficacy with academic performance (Garrett, 2000). This study demonstrated the importance and necessity of using non-cognitive factors, rather than standardized test scores like the SAT to accurately predict first semester grades of college freshmen student-athletes.

Sellers (1992) examined race differences in the predictors of college GPA for student-athletes participating in revenue producing sports. He administered a questionnaire designed to assess life experiences as student-athletes to 409 male basketball and 917 football student-athletes at 42 NCAA Division I institutions. He randomly selected the schools and stratified them by conference (including independents) and division (I-A, I-AA, I-AAA). The questionnaires were administered to small groups (about five individuals at a time) by trained researchers not affiliated with the universities. After the participants completed the questionnaires, they were asked to provide written permission to obtain copies of their ACT and/or SAT scores as well as high school and college transcripts in order to obtain GPA information. Sellers (1992) examined the mean, standard deviations, and differences on the following predictors as they related to college GPA for African American and Caucasian student-athletes: high school GPA, college GPA, SAT/ACT score, socioeconomic status, importance of getting a degree, hours spent

preparing for a class, mother's occupation, and year in school. Results showed that African Americans had lower high school and college GPAs; lower SAT/ACT scores; and came from lower socioeconomic backgrounds as compared to their Caucasian counterparts. He did not find differences in certain motivation factors such as importance of getting a degree and hours spent studying. Sellers (1992) also conducted a bivariate correlation analysis and forward stepwise regression analysis. The bivariate correlation analysis indicated that higher SAT/ACT scores were related to higher college and high school GPA as well as socioeconomic background for African American student-athletes. For Caucasian student-athletes, he found that SAT/ACT was significantly related to all of the variables, including the motivational variables. However, the regression analysis indicated that high school GPA and mother's occupation accounted for the greatest variance in college GPA for African American student-athletes, while SAT/ACT and importance of degree were not significant. For Caucasian student-athletes, the regression analysis indicated that high school GPA was the best predictor of college GPA, with socioeconomic status, and SAT/ACT as the other significant predictors. Sellers' (1992) study contributed to the literature concerning the use of both cognitive and non-cognitive variables as predictors of college academic performance for student-athletes, with items such as mother's occupation, socioeconomic status, and academic motivational variables all being significant predictors in the study. The study also revealed motivational differences among African American and Caucasian student-athletes in the revenue producing sports of football and basketball.

Petrie & Russell (1995) examined the effects of academic and psychosocial variables on the academic performance of minority and nonminority college football student-athletes. They surveyed 146 Division I-FBS football student-athletes from two universities, one on the west coast and one Midwestern team. The mean age of the student-athlete sample was 19.8 years of age; 50.7 percent identified themselves as Caucasian; 44.5 percent identified themselves as African American; 4.8 percent identified themselves as Hispanic; 32.2 percent were freshmen; 17.1 percent were sophomores; 26.7 percent were juniors; and 24 percent were seniors. The researchers administered the Life Events Survey for Collegiate Athletics (LESCA) to measure life stress and the Sport Competition Anxiety Test-Adult (SCAT-A) to measure competitive trait anxiety in adults (Petrie & Russell, 1995). They utilized multiple hierarchical regressions using the following predictor variables: ACT score, number of credit hours, negative life stress, competitive trait anxiety, and stress X anxiety interactions. The researchers also performed a multivariate analysis of variance (MANOVA) to determine whether any differences existed between minority and nonminority football student-athletes. MANOVA revealed that nonminority football student-athletes had higher ACT scores, were older, had higher levels of competitive trait anxiety at the beginning of the school term, and took fewer credit hours than minority football student-athletes. Regression analyses showed that the combined effects of negative life stress and competitive trait anxiety were inversely related to fall GPA, with the psychosocial variables predicting fall GPA for academically unsuccessful nonminority football student-athletes. For minority football student-athletes, ACT scores weakly predicted fall semester GPA, while for

nonminority football student-athletes, number of credit hours taken predicted fall semester GPA. Although this is contradictory to previous research studies, when the two groups were examined together, standardized test scores could not explain college football student-athletes' academic performances alone when considered with other non-cognitive variables of life stress and trait anxiety. Petrie & Russell's (1995) research provided further support for the use of non-cognitive variables in conjunction with cognitive variables as predictors of academic performance. Additionally, the study provided evidence that male student-athletes in a high profile sport, like football, experienced significant stress and anxiety, which negatively affected their academic performance.

Eiche, Sedlacek, & Adams-Gaston (1997) also examined the relationship of academic and non-cognitive variables on the academic success of college student-athletes. They administered the NCQ to 73 freshmen student-athletes at a large mid-Atlantic research university within Division I-FBS. The study consisted of 51 males and 22 females in the sample; 23 percent identified themselves as African American; 3 percent as Asian or Asian American; 68 percent as Caucasian; 2 percent as Hispanic; and 3 percent as Biracial. The sample represented freshmen student-athletes from both revenue and nonrevenue sports. This study was partially consistent with the Sedlacek & Adams-Gaston (1992) study in that non-cognitive variable such as leadership experience, community involvement, and nontraditional knowledge in a field correlated with first semester college grades of student-athletes. However, these non-cognitive variables were slightly different from the ones that Sedlacek & Adams-Gaston (1992) used, like self-concept, realistic self-appraisal,

available support person, and community involvement as being associated with first semester grades. Additionally, unlike the Sedlacek & Adams-Gaston (1992) study, the researchers found SAT scores to be significantly correlated with first semester grades of student-athletes (Eiche, Sedlacek & Adams-Gaston, 1997). This study supported the use of cognitive and non-cognitive factors together as predicting the academic success of college student-athletes.

Garrett (2000) looked at similar variables as Sedlacek & Adams-Gaston (1992), but also added five additional variables in order to evaluate the effect of athletic participation on academic performance as measured by self-reported university GPA. He evaluated data collected through the Cooperative Institutional Research Program (CIRP) from 1986-1990, which is a research program sponsored by the American Council on Education and the Higher Education Research Institute (HERI) at the University of California, Los Angeles (Garrett, 2000). The CIRP is a freshman survey program that collects student background information annually using the Student Information Form (SIF). Samples of SIF respondents are then followed-up at later points in time using the Follow-up survey (FUS) instrument, and these data are used in combination to longitudinally assess the impact of college on students (Garrett, 2000). He administered a demographic survey to male student-athletes in both revenue and nonrevenue sports and performed a t-test and a simple regression on the two variables (GPA and type of sport) in order to determine if the two variables were related and how much of the variance in GPA was accounted for by type of sport played. He also added five more variables to measure their predictability of first semester GPA: socioeconomic status (as measured by parent

income), race, SAT scores, perceived academic ability, and long-term goal setting and performed multiple regressions. The results of the t-test showed that the mean difference in GPA between revenue sport participants and non-revenue sport participants was not significant. Additionally, the simple regression also did not reveal any relationship between the two variables of GPA and type of sport. In fact, Garrett (2000) did not find SAT scores, race, or type of sport to have a significant relationship with academic performance. However, socioeconomic status, student-athletes' perceived academic ability, and long-term goal setting were significant predictors of academic performance, with the student-athletes' perceived academic ability as the strongest predictor. As a result, he recommended boosting student-athletes' confidence in their academic ability as a good strategy for improving academic performance (Garrett, 2000). This study confirmed the Sedlacek & Adams-Gaston (1992) study in that long-term goal setting and perceived academic ability (realistic self-appraisal) were among the most significant non-cognitive predictors of academic performance.

Until recently, researchers had not studied the motivation of student-athletes to succeed in their sport as compared to their motivation to succeed in their academics. Research studies in the late 1980's and early 1990's showed that cognitive and non-cognitive variables together were better able to predict the academic performance of student-athletes, as opposed to cognitive variables alone, and non-cognitive factors, in particular, were useful for predicting the academic performance of non-traditional student groups. As we have seen, trends in student-athlete graduation rates data revealed areas of concern related to certain subgroups of

student-athletes, with African American student-athletes graduating at lower rates than their Caucasian counterparts. Therefore, Snyder (1996) explored academic motivation among Caucasian and African American student-athletes. In addition to examining graduation rates, he looked at two other non-cognitive factors contributing to academic performance: postgraduate expectations and social, cultural, and personal orientations. Snyder (1996) cited a Lou Harris poll taken in November 1990 that revealed 59 percent of African American high school student-athletes expected they would play sports in college and 43 percent believed they would make it at the professional level. He also cited that the American Institutes for Research (AIR) reported that among Division I African American football and basketball student-athletes, between 36 percent and 44 percent were expecting professional sports careers (Snyder, 1996). In order to evaluate academic versus athletic motivation, Snyder (1996) asked 327 male student-athletes from five different universities survey questions which allowed them to choose between academic and athletic choices. The sample consisted of 68 percent Caucasian and 9.6 percent African American student-athletes; 40 percent participated in the revenue generating sports of football and basketball; and 282 played Division I, while 114 played at the Division III level. He defined academic motivation as "the persisting motive to achieve in school," and athletic motivation as "the persistent need or desire to persevere, excel, or succeed in physical tasks," (Snyder, 1996). He ran t-tests in order to analyze the statistical significance of each motivational item. The student-athletes were very similar in their responses, but the most significant difference he found was that African American student-athletes were much more attracted to the

lure of professional athletics than were Caucasian student-athletes. Although Snyder (1996) did not operate within a theoretical framework, he was able to conclude from the survey results that African American student-athletes at Division I institutions were more motivated to pursue a career in professional athletics than motivated to complete a college degree. Snyder's (1996) study contributed to the idea that African American student-athletes were less academically motivated than Caucasian student-athletes because they may be more athletically motivated to pursue their sport professionally. Additionally, this study revealed that motivation was another factor that needed to be further explored within the student-athlete population as it relates to both academics and athletics.

One of the first studies using a motivational theoretical framework to explain academic achievement was conducted by Simons, Van Rheenen, & Covington (1999). They examined the achievement motivation of 361 Division I student-athletes enrolled at the University of California at Berkeley during the 1993-1994 academic year. The sample consisted of 63.3 percent males and 36.7 percent females across 11 sports, with 20.8 percent participating in revenue generating sports and 79.2 percent participating in non-revenue sports; 30.5 percent were freshmen, 26.3 percent were sophomores, 26.4 percent were juniors, and 16.8 percent were seniors; 68.2 percent identified themselves as Caucasian, 14.3 percent as African American, 8.6 percent as Asian American, 3.8 percent Mexican American/Latino, 3.3 percent Native American/Alaskan Native/Pacific Islander, and 1.8 percent Other; means of SAT verbal scores were 489.28 with a standard deviation of 95.89 and SAT math score means were 586.53 with a standard deviation of 103.15. The

researchers administered the demographic survey, obtained academic measures such as high school GPA and SAT score, administered questionnaires designed to assess metacognitive study strategies, and administered the Approach Success Avoid Failure Achievement Questionnaire (AAAQ). They conducted analysis of variance (ANOVA) to compare the four motivational types on the variables in the study and found that different motivational orientations existed for different groups of student-athletes. The researchers based their study upon Atkinson's need achievement theory (1964), Weiner's attribution theory (1974), and Covington's self-worth theory (1992). Achievement motivation defined by Atkinson's model is based upon two opposing forces: the need to approach success and the need to avoid failure (Reeve, 2005). Attribution theory builds upon need achievement theory and attributes achievement motivation to cognitive thought processes rather than to emotions. Attribution theory focuses on an individual's beliefs about the causes of their successes and failures. Therefore, those individuals who are motivated to achieve success attribute failure to insufficient effort and success to their ability and effort. On the other hand, failure-avoiding individuals attribute failure to lack of ability and they attribute success to luck or chance. Those who are motivated to achieve success have control over their successes and failures while those who are motivated to avoid failure do not believe they have control, so that neither their successes nor failure provide them with the motivation to put forth greater effort (Simons, Van Rheenen, & Covington, 1999). Self-worth theory according to Covington "assumes that the search for self-acceptance as the highest human priority and that it depends upon one's ability to achieve competitively," (Simons, Van Rheenen, & Covington, 1999).

Therefore, success indicates competence for ability and enhances self-worth, while trying hard and failing causes one to question their ability and may lower self-worth. However, if one does not expend much effort and fails, then they can blame their failure on lack of effort, keeping both their perceptions of ability and self-worth intact.

As a result of this observation, Covington proposed four motivational orientations: Success-Oriented, Overstrivers, Failure- Avoiders, and Failure-Acceptors (Simons, Van Rheenen, & Covington, 1999). Success-Oriented students score high on approaching success and low on avoiding failure; Overstrivers score high on both approaching success and on avoiding failure; Failure-Avoiders score low on approaching success and high on avoiding failure; and Failure-Acceptors score low on both approaching success and on avoiding failure. In Simons, Van Rheenen, & Covington's, 1999 study, they examined the relationship between motivational orientation and academic performance of student-athletes. The researchers found that Failure-Avoiders and Failure Acceptors were more committed to their athletics than their academics and did not believe they had received enough support from the university to compensate for this commitment. They also found that females were different from males in that more males were Failure-Avoiders and fewer females were Failure-Acceptors. In revenue sports, athletes had a larger percentage of both Failure-Avoiders and Failure-Acceptors and a smaller percentage of Success-Oriented athletes. However, there were not significant differences between male and female nonrevenue athletes. Finally, the researchers looked at ethnicity and although not statistically significant, more Failure-Avoiders and fewer

Success-Oriented students were found among the African American population (Simons, Van Rheenen, & Covington, 1999). One of the most revealing parts of this study was the fact that different groups of student-athletes do exist, and there are two main groups of concern. One, the Failure-Acceptors indicated that they were mainly in college to play their sport and they devoted most of their time and effort to their athletics. They were not motivated to avoid failure academically, except as it related to their eligibility. This lack of motivation to achieve academically did not appear to be due to a fear of failure because they showed higher academic self-worth and lower extrinsic motivation than Failure-Avoiders (Simons, Van Rheenen, & Covington, 1999). This suggests that their interest and motivation lie elsewhere. Another group of concern is the Failure-Avoiders, whose fear of failure played a much larger role in their expending less academic effort and a greater commitment to athletics. This group scored the lowest on academic self-worth and higher extrinsic motivation on academic tasks. They worked to avoid failure by putting forth less academic effort and rationalized this reduced academic effort by employing self-handicapping excuses. The need to protect their academic self-worth leads them to focus more on athletics than academics. Although they are like Failure-Acceptors in that they are highly motivated to achieve athletically, they are also motivated academically, but in a maladaptive way. They are motivated to avoid failure rather than to achieve success in their academics (Simons, Van Rheenen, & Covington, 1999). This study was of importance to the student-athlete and motivational literature because it revealed differences among the student-athlete population in regards to their academic and athletic motivation for success.

In another study by Simons & Van Rheenen, (2000) the researchers examined the relationship between athletics and academics and achievement motivation of 200 Division I student-athletes participating in 26 different sports and enrolled at the University of California at Berkeley during the 1993-1994 academic year. The sample was identical to the sample collected by Simons, Van Rheenen & Covington (1999). They also based their research upon Covington's (1992) self-worth theory in order to provide an explanation for the differences in academic and athletic motivation. The relationship between athletics and academics was measured by an athletics-academic commitment Likert scale and an Exploitation Likert scale. They measured achievement motivation with an academic self-worth Likert scale and self-handicapping Likert scale. They also evaluated other factors that had previously been shown to be linked to the academic performance of student-athletes, including background social factors (gender, social status as measured by mother's educational level, and ethnicity), type of sport played (revenue or nonrevenue), and prior academic achievement (SAT score and high school GPA). The researchers ran correlations on all of the variables with university grade point average. They also utilized multiple regression analyses for the following: university grade point average on achievement motivation variables and then again to include additional variables; university grade point average on athletic academic relationships and then again to include additional variables. Both achievement motivation variables of academic self-worth and self-handicapping excuses were found to be statistically significant predictors of university GPA (Simons, Van Rheenen, 2000). Also, student-athletes with a stronger commitment to athletics than to academics had a

lower university GPA than student-athletes with a stronger commitment to academics than athletics. When comparing revenue versus nonrevenue student-athletes, revenue student-athletes displayed a higher commitment to athletics and believed they were more exploited by the university. When background and academic preparation variables were added to both regressions, academic self-worth, self-handicapping excuses, type of sport, and exploitation all remained statistically significant predictors of university GPA. Therefore, background and academic preparation, alone, could not fully explain the relationship of these variables to university GPA. Both athletic-academic commitment and achievement motivation were found to be independent, significant predictors of academic performance of student-athletes (Simons, Van Rheenen, 2000). These results indicate that a combination of poor academic preparation with a greater commitment to athletics, which leads to poor academic performance, may cause the student-athlete to employ self-handicapping excuses, similar to the Failure-Avoiders in the Simons, Van Rheenen, & Covington (1999) study. One self-handicapping excuse may be the belief by student-athletes in revenue sports that they are being exploited for their athletic talent. By the time student-athletes in revenue producing sports learn that their chances of pursuing a professional athletics career are rare, it is often too late for them to refocus on their academics. Therefore, Simons & Van Rheenen (2000) suggested that they then only put forth minimal academic effort in order to remain eligible as they lack the confidence needed to compete academically. Thus, they may be unable to earn a meaningful college degree. This study was of importance because it suggested that motivational factors play a critical role in student-athletes'

academic performance and confirmed earlier findings about the subgroup differences within the student-athlete population, namely in regards to type of sport.

In order to better understand student-athlete motivation towards athletics and academics, Gaston (2003) developed the Student Athlete Motivation toward Sports and Academics Questionnaire (SAMSAQ) and sought to examine differences in athletic and academic motivation by gender and sport as well as whether the SAMSAQ could predict future academic performance for her dissertation. The sample for her study consisted of 236 student-athletes at a large university in the Midwestern portion of the United States. She stratified the sample across gender and profile of sport with two high profile sports for males (basketball and football), two high profile sports for females (softball and basketball), two low profile sports for males (lacrosse and volleyball) and two low profile sports for females (lacrosse and field hockey). She administered the SAMSAQ during fall team meetings along with six demographic questions for students to answer at the end. The researcher ran an exploratory factor analysis to determine the structure of the scale, conducted analysis of variance (ANOVA) to examine differences on each of the motivation subscales and ACT score as a function of gender and profile of sport, and analyzed motivation as a predictor of future academic performance using hierarchical multiple regression. Gaston (2003) found the SAMSAQ to be a predictor of both athletic and academic motivation, as well as a third factor, career athletic motivation. Athletic motivation split into two subscales: student athletic motivation which was defined as a desire to excel in college athletics, but not necessarily pursue professional athletics as a career; and career athletic motivation which was defined as the intention or desire to

play at an elite or professional level. Since career athletic motivation emerged as a factor of the SAMSAQ, Gaston (2003) suggested that goal orientation theory may be useful in explaining the motivation of student-athletes. Both gender and type of sport played were found to have an effect on ACT score with nonrevenue male student-athletes achieving the highest ACT scores and male revenue student-athletes achieving the lowest ACT scores. Gaston (2003) did not find a relationship between type of sport played and academic motivation. However, the findings do indicate that student-athletes participating in revenue producing sports were more motivated than nonrevenue sport student-athletes in pursuing a career in professional athletics. Additionally, males were more athletically motivated than females. As for predicting future academic performance, both ACT and academic motivation were found to be significant, accounting for 25 percent of the variance in academic performance (Gaston, 2003). This study was of importance to the motivation literature on student-athletes because it identified the SAMSAQ as an instrument with the potential to identify student-athletes who have the desire to pursue a professional athletic career, those who have a balanced level of academic and athletic motivation, and those who use their athletics as a means to obtaining a college degree. Gaston (2003) also recommended future research could operate within the achievement goal orientation theoretical framework.

In a later study Gaston-Gayles (2004) actually examined athletic and academic motivation as predictors of academic performance. Again, she used the SAMSAQ in addition to variables of gender, ethnicity, profile of sport, years of eligibility remaining, highest level of education completed by mother and father, and

ACT scores to determine what predicted university GPA. The sample of this study consisted of 236 student-athletes who participated across eight different sports. Thirty-three percent were female; 67 percent were male; 70 percent identified themselves as Caucasian; 30 percent minority students; 39 percent indicated they received a full athletic scholarship; 31 percent partial athletic scholarship; 29 percent no athletic scholarship; 16 percent reported zero years of eligibility remaining; 18 percent reported one year of eligibility remaining; 25 percent two years of eligibility remaining; 32 percent with three years of eligibility remaining; and 9 percent with four years of eligibility remaining. She ran means and standard deviations on the predictor and criterion variables, a correlation matrix to examine relationships between the variables, and a forward stepwise regression analyses to determine if motivation was useful in predicting academic performance. Gaston-Gayles (2004) found the precollege characteristics mentioned above to account for 24 percent of the variance in university GPA, but only ACT scores, father's educational level, and ethnicity were considered significant. After controlling for precollege characteristics, the study revealed that the SAMSAQ motivation scores of student athlete motivation, career athletic motivation, and academic motivation, accounted for an additional 9 percent of the variance in academic performance of student-athletes. In the overall model, only ACT scores, ethnicity, and academic motivation were significant predictors of university GPA (Gaston-Gayles, 2004). Additionally, higher ACT scores and higher academic motivation scores predicted higher university GPAs and Caucasian student-athletes had higher university GPAs than minority student-athletes. These findings were interesting because of the

significance of academic motivation in predicting academic performance (Gaston-Gayles, 2004). Because motivation can predict the academic performance of student-athletes, understanding what motivates student-athletes to achieve academically and athletically is essential to understanding how they will perform academically in college.

Motivation Theory

Historically, the study of motivation owes its origin to the ancient Greek philosophers Socrates, Plato, and Aristotle, who believed that motivation came from three aspects of the human psyche: appetitive or nutritive; competitive or sensitive; and calculating or rational (Reeve, 2005). During the Renaissance Age these three aspects of the human psyche were reduced to a duality of the body and the mind. Rene' Descartes developed the first modern theory of motivation. Descartes believed if he could understand will, then he could understand motivation. Philosophers tried for over two centuries to explain the will or willpower, but this created the problem of having to explain will in addition to motivation. This confusion within philosophy lead those interested in motivation to turn to physiology beginning in the 1870s, when psychologists began exploring the concept of instinct. It was during this time that Charles Darwin had developed his theory of biological determinism, which turned the focus from mental motivational concepts to more genetic ones. Biological determinism could explain where the motivational force came from, instincts originated from genes. Both William James (1890) and James McDougall (1908, 1926), (as cited in Reeve 2005), developed instinct theories proposing that goal directed behavior was due to the presence of a stimulus.

Instincts, then, came from motivational forces that guided an individual toward a particular goal. However, researchers soon found they could not identify how many instincts humans possessed and their theory was criticized for relying on circular logic (Reeve, 2005).

The motivational concept that replaced instinct was drive. The two most widely acknowledged drive theories were developed by Sigmund Freud (1915) and Clark Hull (1943), as cited in Reeve (2005). Freud summarized his drive theory with four components: source, impetus, aim, and object. Hull's drive theory was centered on total bodily need including needs for food, water, sex, and sleep. He believed that although drive energized behavior, it was habit that directed it. In other words behavior guiding habits came from learning, and learning occurred as a consequence of reinforcement. Hull's drive theory was very popular throughout the first half of the 20th century. However, it was also during this time that research revealed areas of concern in Hull's theory. First, some motives existed without a corresponding biological need. Second, learning could occur without the presence of drive. Third, research began to recognize the importance of external motives. Fourth and most importantly, people began to acknowledge that motivation arose from more than just physiological needs. Researcher understood that motivation involved both the psychological and the physiological (Reeve, 2005).

Many theorists attempted to develop an overarching motivational theory during the mid-20th century, which included optimal level of arousal (Hebb, 1955; Berlyne, 1967); pleasure centers in the brain (Olds, 1969); approach-avoidance conflicts (Miller, 1959); universal needs (Murray, 1938); conditioned motives

(Miller, 1948); and self-actualization (Rogers, 1959), as cited in Reeve (2005). Concepts such as incentive and arousal gained some popularity at the time and offered new features of motivational theory. Incentive is defined as "an external event or stimulus that energizes and directs approach or avoidance behavior," (Reeve, 2005). Incentive theories offered new motivational concepts like the idea that motivational states could be acquired through experience and that environmental incentives could change. Arousal theory was the first to start countering drive theory and came from the neurophysiologic discovery of an arousal system in the brain stem. It purported that the environment affected arousal of the brain, and variations in level of arousal were related to behavior. However, by the end of the 1960's, theorists soon realized that with three popular theories of motivation (incentive, arousal and drive), it was becoming more difficult to have only one theory of motivation. In the 1970's motivation psychologists finally began to embrace the idea of mini-theories of motivation.

A mini-theory explains some but not all of motivated behavior and generally focuses on one particular motivational phenomenon, circumstance that affects motivation, groups of people, or a theoretical question (Reeve, 2005). The traditional drive, incentive, and arousal theories gave way to mini-theories like achievement motivation, goal-setting, and self-efficacy. This was mainly due to the reevaluation of individuals as active, rather than passive; motivation turned more cognitive; and researchers became more interested in applied, socially relevant problems (Reeve, 2005). As motivation study needed theories to explain how people intentionally regulated their behavior, several aspects of psychology began to explore

the questions of motivation. This caused motivation researchers to branch out to other fields with those who shared the same concerns and sought answers to questions and problems related to motivation. Motivation study survived during and after the 1970's by allying itself with other fields of study. The specialty areas of psychology, such as social psychology, educational psychology, industrial/organizational psychology, and sport psychology helped to create the theories of how people intentionally regulate their behavior, which in turn, created the contemporary landscape of motivational theories today.

Intrinsic vs. Extrinsic Motivation

One of the most important concepts of motivation is the concept that one is either intrinsically (internally) motivated or extrinsically (externally) motivated. In fact, this concept of thinking about motivation originated from the split between arousal and drive theories. Intrinsic motivation (arousal) is when a person does something for the inherent reward in doing the activity itself. Furthermore, it is the inherent tendency to seek out challenges, explore, and learn. Intrinsic motivation is a "natural inclination toward assimilation, mastery, spontaneous interest, and exploration that is so essential to cognitive and social development and that represents a principal source of enjoyment and vitality throughout life," (Ryan & Deci, 2000, p. 70). Mark Lepper (1988) defined intrinsic motivation as behavior that is "undertaken for its own sake, for the enjoyment and learning it provides, and feelings of accomplishment it evokes." Students who are intrinsically motivated engage in learning because they find it meaningful.

Extrinsic motivation (drive), on the other hand, is when a person does something for a reason other than the doing the activity itself (Csikszentmihalyi & Nakamura, 1989). Lepper (1988) defined extrinsic motivation as "actions undertaken in order to obtain some reward or avoid some punishment external to the activity itself." Students who are extrinsically motivated perform academic tasks because they view them as a means to obtaining some reward not integral to the task itself, such as, good grades, teacher or parent approval (or with student-athletes, meeting NCAA eligibility requirements for competition or coach approval).

Lepper (1988) also believed that one's motivational orientation could affect both the time spent on a task, quality of involvement on the task and level of selected task difficulty. Intrinsically motivated students tend to prefer moderately challenging tasks, while extrinsically motivated students tend to prefer tasks that have a low degree of difficulty and will only do what is minimally necessary to obtain a reward. Students with an extrinsic motivational orientation toward learning expend less effort and employ less effective or maladaptive learning strategies in their studies.

One of the first researchers to focus on intrinsic motivation was Richard DeCharms (1968, 1976, as cited in Csikszentmihalyi & Nakamura, 1989) in which he found differences between school children related to how they felt in control of their lives. He called one type "Origins," because these children believed that what they did was what they wanted to do and he called the second type "Pawns," because these children felt pushed around by others. DeCharms found that the "Origins" had intrinsic motivation because they felt in control of their behavior, took tasks more

seriously and enjoyed them, regardless of outside award when compared to "Pawns." Based upon his research, DeCharms hypothesized that if people are rewarded for doing an activity they had initially chosen to do spontaneously, their intrinsic motivation would decrease (Csikszentmihalyi & Nakamura, 1989).

Edward Deci (1971, 1975) tested DeCharms' hypothesis. He found that if individuals were given money for doing activities they enjoyed, they lost interest in doing the activity more quickly than if they had not been rewarded. Deci also believed that under certain conditions individuals would begin to see their involvement in an activity as instrumental, controlled by external forces instead of being freely chosen. This realization about intrinsic motivation led Deci & Ryan (1984) to investigate concepts such as autonomy and self-determination (Csikszentmihalyi & Nakamura, 1989).

Ryan & Deci's (2000) Self-Determination Theory (SDT) is based on the assumption that all people have innate tendencies for psychological growth and that people seek to master challenges and then integrate those experiences in order to develop a sense of self. SDT posits that people's inherent growth tendencies and innate psychological needs are the basis for their motivation and personality (Ryan & Deci, 2000). SDT is concerned with not only positive development tendencies, but also the social environments that are detrimental to these tendencies.

Basic Needs Theory, a sub-theory of SDT, explains healthy development and functioning with the concept of three basic psychological needs, autonomy, competence, and relatedness, which are innate, universal, and essential for social development and personal well-being. Additionally, Ryan & Deci (2000), explain

that autonomy, competence, and relatedness make up the deep structure of the human psyche, which guide us toward our goals and influence our regulatory processes. According to SDT the basic needs are also an important part of intrinsic motivation because in order to truly learn or enjoy a task for the pure learning or enjoyment of it, one must have met the needs of autonomy and competence. Additionally, people's intrinsic motivation has been shown to increase when they perceive a sense of relatedness with others. In other words, people who have higher perceived levels of autonomy, competence, and relatedness are more likely to be intrinsically motivated for tasks (Ryan & Deci, 2000).

A second sub-theory of SDT is called Cognitive Evaluation Theory (CET), which predicts that the perception of certain aspects of the social and task environment are crucial to intrinsic motivation by either facilitating or undermining it (Ryan & Deci, 2000). CET assumes that a conducive environment will enhance intrinsic motivation, focusing on the needs of competence and autonomy. First, individuals encounter events in the environment that can produce feelings of competence, which in turn, can enhance intrinsic motivation for that action. Second, Ryan & Deci (2000) found that competence will only enhance intrinsic motivation if it is accompanied by autonomy. In other words, individuals must experience competence or efficacy as well as feel their behavior is self-determined in order to enhance one's intrinsic motivation. Third, external tangible rewards as well as threats, deadlines, and imposed goals undermine intrinsic motivation and facilitate extrinsic motivation (Deci, Koestner, & Ryan, 1999). On the other hand, choice,

acknowledgement of feelings, and opportunities for self-direction enhance intrinsic motivation (Ryan & Deci, 2000).

A third sub-theory of SDT is called Organismic Integration Theory (OIT), which explains different forms of extrinsic motivation for self-regulated behaviors along a continuum. In order to understand this theory it is necessary to understand the concept of self-regulation. "Self-regulation refers to self-generated thoughts, feelings, and actions, that are planned and systematically adapted as needed to affect one's learning and motivation," (Schunk & Ertmer, 2000, p. 631). In other words, self-regulation refers to strategies that students may use when engaging in learning activities. It is an important aspect of learning as research shows that self-regulated students are mentally active and exert more control over attaining their goals than those who do not use self-regulation strategies (Schunk & Ertmer, 2000). SDT hypothesizes that increases in self-regulation have a direct relationship with autonomy, competence, and relatedness. Additionally, Pintrich & DeGroot (1990) found that intrinsic motivation was positively related with the use of self-regulation strategies. Therefore, the more intrinsically motivated, the more likely a person is to utilize self-regulation strategies.

Ryan & Deci's (2000) OIT uses a continuum to show the way extrinsic motivation is divided into four separate regulatory styles falling between amotivation and intrinsic motivation. The difference between regulatory styles is attributed to autonomy. At the far left of the Self-Determination continuum is amotivation with a non-regulatory style, or the state of lacking the intention to act resulting from not valuing an activity (Ryan & Deci, 2000). It is similar to learned helplessness and

individuals are neither intrinsically nor extrinsically motivated (Standage, Duda, & Ntoumanis, 2003). The four types of extrinsic motivation that fall from left to right on the continuum are external regulation, introjected regulation, identified regulation, and integrated regulation. External regulation refers to behaviors that are least autonomous and are performed to satisfy an external demand or reward contingency. People who experience this type of self-regulation behavior often feel controlled or isolated. Introjected regulation involves taking in a regulation, but not fully accepting it as one's own. It is a controlled type of self-regulation in which a person performs behaviors in order to avoid guilt or punishment. In other words, people are motivated to demonstrate ability or avoid failure in order to maintain feelings of self-worth (Ryan & Deci, 2000). A more autonomous, or self-determined form of extrinsic motivation is identified regulation. Identified regulation reflects a conscious valuing of self-regulation, so that the action is accepted or considered personally important. However, individuals may still only engage in the activity for external rewards. The most autonomous extrinsically motivated form of regulation, on the other hand, is integrated regulation. Integration occurs when a person fully evaluates a behavior and integrates it with one's own values and needs (Ryan & Deci, 2000). Although this type of regulation is very similar to intrinsic motivation, it is still considered extrinsic because the person self-regulates in order to achieve a personal goal (Standage, Duda, & Ntoumanis, 2003). Finally, the most autonomous and intrinsically motivated individuals will exhibit an intrinsic regulatory style, in which the behavior is internalized and valued for the very sake of it (Ryan & Deci, 2000). It should be noted that internalization as defined by SDT does not mean that

people must move through each type of regulation for a particular type of behavior. The theory indicates that people can have a different level of internalization for different behaviors (Vansteenkiste, Lens, & Deci, 2006).

Research has indicated that people who feel more autonomous will have a higher level of motivation and exhibit a higher level of self-regulated behavior. Therefore, individuals who are intrinsically motivated or who have a well-internalized extrinsic motivational orientation are more likely to employ self-regulated behaviors, which are linked to effective learning outcomes (Ryan & Deci, 2000). Furthermore, according to Vansteenkiste, Lens, & Deci (2006), intrinsic goal framing produces deeper engagement in learning activities, better conceptual learning, and higher persistence at learning activities than extrinsic goal framing or no-goal framing. The authors found these effects to occur because intrinsic goal framing promotes a mastery goal orientation. Intrinsic motivation has been found to be related to a mastery goal orientation, and more specifically, is considered an approach form of motivation, while an avoidance orientation has been found to undermine intrinsic motivation (Elliot & Harackiewicz, 1996). Therefore, in order to fully understand motivation, one must not only examine intrinsic and extrinsic motivation, but also the approach-avoidance motivational orientation.

Approach-Avoidance Motivational Orientation and the Concept of Valence

Another important concept of motivation is the concept of approach vs. avoidance motivation. Elliot (2005) explains that "the distinction between approach motivation and avoidance motivation is a fundamental and basic aspect of competence-relevant motivation" (Elliot, 2005, p. 52). The concept of approach-

avoidance motivation has been used for over two thousand years. It first appeared in the writing of the ancient Greek philosopher Democritus, (460-370 B.C.E.) who explained human action in terms of hedonism as either the immediate pursuit of pleasure or the avoidance of pain (Elliot, 2006). In the eighteenth century, a British philosopher, Jeremy Bentham, described human behavior in terms of pain and pleasure, involving not only what we ought to do, but also what we actually do (Elliot, 2006). Then, in 1890 William James, in his classical Principles of Psychology, explained pleasure and pain as "springs of action," noting that pleasure was a editatio of human behavior while pain was an inhibitor of human behavior. Similarly, in 1915 Freud identified the pain-pleasure concept as the basic motivational impetus for human behavior (Elliot, 2006). Throughout the mid 20th century, other researchers also utilized the approach-avoidance motivational concept to explain human behavior describing seeking pleasure as approach motivation and avoiding pain as avoidance motivation. In fact, the approach-avoidance motivational concept was incorporated into the first formal model of achievement motivation (Lewin, Demob, Festinger & Sears, 1944; Alpert & Haber, 1960; Atkinson, 1957; Covington & Berry, 1976; McClelland, Atkinson, Clark & Lowell, 1953; Weiner, 1972, as cited in Elliot, 2006). In the 1970's and 1980's theorists drew sharp distinctions between cognition and motivation, with cognition seen as the more grounded theory of motivation. At that time researchers did not utilize the approach-avoidance motivational concept as much as they had done so previously. However, in the 1990's motivational researchers began to acknowledge that cognition and motivation are not distinct concepts, but in fact, deeply intertwined with one another

(Elliot, 2006). Therefore, in the past two decades, the approach-avoidance motivational concept has experienced resurgence in the motivational research (Elliot, 1994; Elliot & Harackiewicz, 1996; Elliot & Church, 1997; Elliot, 1999; Elliot & McGregor, 1999; Pintrich, 2000; Elliot & McGregor, 2001; Harackiewicz, Barron, Pintrich, Elliot & Thrash, 2002; Van Yperen, 2003; Van Yperen, 2006; Sideridis, 2007;Van Yperen & Renkema, 2008; Van Yperen, Elliot, & Anseel, 2009).

"Approach motivation can be defined as the energizing and direction of behavior toward positive events, whereas avoidance motivation can be defined as the energizing and direction of behavior away from negative events" (Elliot, 2006, p. 112). Elliot (2006) further identifies five key points of approach-avoidance motivation. First, energizing refers to the initiating of behavior first described by James (1890) as "springing to action." Direction refers to the guiding of behavior in a specific way. Second, approach-avoidance motivation includes the concept of physical or psychological movement toward or away from a stimulus, respectively. Positive events are associated with an approach distinction of being close whereas negative events are associated with an avoidance distinction of keeping away. Third, this movement concept includes moving toward or away from an actual event that is currently present or moving toward or away from an event that is currently absent. In other words, approach motivation involves the promotion of current and new positive situations while avoidance motivation involves the prevention of current and new negative situations (Elliot, 2006). Fourth, the concept of positive-negative valence lies at the core of approach-avoidance motivation. Valence can be defined as either positive (attractive) or negative (aversive); individuals will perceive

activities and events as either desirable and worth approaching or continuing with and others as undesirable and to be avoided or terminated (Feather, 1988). In fact, research indicates that individuals automatically perceive stimuli as either positive or negative, and these evaluations instantaneously evoke approach or avoidance behavior (Bargh, 1997; Lewin, 1935 as cited in Elliot, 2006). Fifth, a stimulus can be concrete, observable events or possibilities, or an abstract, internal representation of objects, events, or possibilities (Elliot, 2006). Approach motivation uses a positive stimulus for the regulation of behavior while avoidance motivation uses a negative stimulus for the regulation of behavior.

Motivational theorists have since created the hierarchical model of approach-avoidance motivation in which this distinction can be used as "a conceptual lens through which to view the structure and function of self-regulation" (Elliot, 2006, p. 113). In the hierarchical model, goals are at the center of the concept. Goals help explain and predict behavior and serve as guides in the motivational process. The hierarchical model of approach-avoidance motivation links goals to the sources of motivation, and those sources of motivation exert an influence on goal pursuit (Elliot, 2006). Another construct of the model is the goal complex, which includes information regarding both the goal and the motivation for why the goal is being pursued. Additionally, when individuals have different underlying motivations for achieving a goal, the goal pursuit will be different. Approach goals are directed toward positive or desirable events while avoidance goals are aimed at avoiding negative or undesirable events (Van Yperen, 2003). In learning environments, individuals who pursue avoidance goals report more negative affect and anxiety and

are not engaged in the task at hand, except for focusing on avoiding the negative or undesirable event (Elliot & McGregor, 2001; Linnenbrink & Pintrich, 2003). Approach goals are believed to facilitate task interest, intrinsic motivation and actual performance (Deci & Ryan, 1985; Dweck, 1999; Elliot & Harackiewicz, 1996). The approach-avoidance distinction may be applied to almost any psychological construct, and therefore is of considerable importance in studying motivational behavior.

The two theoretical frameworks used in this study were Self-Efficacy Theory and Achievement Goal Theory. Self-efficacy focuses on one's perceived competence or perceived ability to complete a task, while Achievement Goal Theory focuses on the ways in which competence can be defined and which valence individuals will adopt in achievement settings. Therefore, these theories may help explain student-athletes' self-efficacy on academic and athletic tasks as well as their propensity to adopt mastery approach, mastery avoidance, performance approach, or performance avoidance goals in both academic and athletic environments.

Self-Efficacy Theory

Self-efficacy Theory is based upon the work of Albert Bandura, which he referred to as beliefs concerning one's capabilities to learn or perform behaviors at designated levels (Bandura, 1982). Bandura (1977) originally hypothesized that self-efficacy affects choice of activities, effort and persistence (Schunk, 1996). However, efficacy in dealing with the environment is not a fixed act or simply knowing what to do. "Perceived self-efficacy is concerned with judgments of how well one can execute courses of action required to deal with prospective situations" (Bandura,

1982, p. 122). Therefore, self-efficacy beliefs involve judgments in reference to a specific goal. Perceived self-efficacy determines approach-avoidance motivation, as discussed earlier in this chapter. When approaching a task, self-efficacy is the way one views their capability to accomplish that task. Based upon this information, individuals decide which tasks to approach, which to avoid and low long to persist on a task. Individuals tend to avoid tasks that they believe they cannot complete successfully, but become engaged in tasks that they believe they can complete successfully. This is particularly true when individuals who believe they are capable encounter challenging situations. Since they believe they can perform well, they will work harder and persist longer than those who doubt their capabilities. High perseverance usually produces high performance attainment. Those with lower self-efficacy beliefs may decrease their level of effort or give up on a task in the face of difficulties (Bandura, 1982). It should be noted that self-efficacy is not the same as ability. Self-efficacy is not just the possession of certain skills, but to be able to use those skills effectively in task performance. Amount of success on a task, observation of others succeeding in a task, and positive feedback can enhance one's self-efficacy (Schunk, 1996).

Four types of information inform an individual's self-efficacy expectations: performance accomplishments; vicarious experiences; verbal persuasion; and emotional/physiological behavior (Reeve, 2005). Performance accomplishments or self-percepts are based upon past personal behavior history. People learn their current self-efficacy from their interpretations of past attempts to perform the same behavior. In other words, an individual's past experiences with successes and

failures can increase or decrease self-efficacy on a task. Successful experiences will most likely cause individuals to feel increased self-efficacy on that particular task and they will expect future success on the same task again. This not only increases self-efficacy, but also helps sustain the effort needed for optimal performance. Schunk (1996) also believed that possessing cognitive strategies that have proven effective in the past can enhance a learner's perception of ability. On the other hand, if individuals are plagued with self-doubt they may dwell on their deficiencies or imagine that potential difficulties are worse than they really are (Bandura, 1982). Because these individuals are so focused on how to handle a difficult task and worried about failing, these concerns take their attention off the task and impair their performance. Some self-doubt coupled with high self-efficacy seems to produce the most positive effects on learning. For example, those who perceive themselves as too self-efficacious often do not feel the need to invest much effort. Therefore, if learners with high perceived self-efficacy believe a task to be too easy, they may expend less effort on the task (Bandura, 1982). Bandura (1982) cited performance accomplishment as the most influential source of self-efficacy beliefs.

Learners also acquire self-efficacy information from knowledge of others through vicarious experiences (Schunk, 1996). Seeing others perform a task well will increase an observer's own sense of self-efficacy because it creates a social comparison. Vicarious experiences can work the other way however. If an individual observes another performing poorly on a task, then it may lower their self-efficacy. The extent to which vicarious experiences effect self-efficacy depends upon two factors. First, the more similar are the observer and the performer, the

greater the influence on the observer. Second, if the observer is more of a novice than the performer, then the impact of the vicarious experience is greater (Schunk, 1996). Therefore, although vicarious experiences have a weaker effect on self-efficacy than performance accomplishments, they still can enhance self-efficacy, especially for those who are inexperienced when they watch others similar to them perform a task.

Verbal persuasion encourages individuals to believe they can achieve a task. Students often receive persuasive information from teachers and parents that they are capable of learning or performing a task (e.g., "You can do this") (Schunk, 1996). Words of encouragement tend to focus more on personal strengths and less on weaknesses. In other words, verbal persuasion tends to shift attention from sources of inefficacy to sources of efficacy. Verbal persuasion is not as strong as vicarious experiences or performance accomplishments because it can be contradicted by actual performance. Its effectiveness also depends upon the credibility, knowledge, and trustworthiness of the person providing the encouragement. Therefore, verbal persuasion impacts individuals who have some reason to believe that they can produce effects through their actions (Bandura, 1982). Verbal persuasion is still helpful though because it can provide an individual with enough of a temporary increase in efficacy that it provides the motivation necessary to try again.

Emotional or physiological arousal results from the demands associated with stress such as fear, anxiety, sweating, and tension and can provide information about an individual's self-efficacy to complete a task. This type of arousal occurs in an individual who feels pressured about performing a task they perceive they may not

be able to handle (Reeve, 2005). It is often an attention getting state of mind that heightens one's awareness of their inefficacy. When arousal is high, then it could adversely affect performance. Individuals are likely to feel higher self-efficacy when these emotional or physiological states are low or minimized and can therefore, focus on performing a task more effectively. These four concepts can contribute to or detract from one's self-efficacy on a task and are important when considering cognition. As individuals process their self-efficacy beliefs cognitively, they decide what action to take or not to take in the situation with which they are presented. Bandura (1982) posits that perceived self-efficacy is central to human understanding and can provide explanations for a wide array of human behavior. These include "changes in coping behavior, level of physiological stress reactions, self-regulation, resignation and despondency to failure experiences, self-debilitating effects of proxy control and illusory inefficaciousness, achievement strivings, growth of intrinsic interest, and career pursuits" (Bandura, 1982, p. 122).

Self-Efficacy Studies in the Student Population

Because of its role in motivation, self-efficacy has been studied in educational settings and has been found to be significantly related to positive learning outcomes (Schunk, 1988; Pintrich & DeGroot, 1990; Garcia & Pintrich, 1995; Greene & Miller, 1996; Miller, Greene, Montalvo, Ravindran & Nichols 1996; Miller, Behrens, Greene & Newman, 1993; Bandura, Barbaranelli & Pastorelli, 1996; Zimmerman, 1996; Schunk & Ertmer, 2000; Bandura, Barbaranelli, Caprara & Pastorelli, 2001; Linnenbrink & Pintrich, 2003; Bandura, Caprara, Barbaranelli &

Pastorelli, 2003; Bembenutty & Zimmerman, 2003; Jakubowski & Dembo, 2004; Choi, 2005).

In their study Pintrich & DeGroot (1990) examined relationships between motivational orientation and self-regulation of students upon academic classroom performance and found that depending upon the outcome measure, self-regulation, self-efficacy, and test anxiety were the best predictors of academic performance. The researchers administered the Motivated Strategies for Learning Questionnaire (MSLQ) to 173 seventh grade students from eight science and seven English classes from a predominantly Caucasian, middle-class, small city school district in southeastern Michigan. The sample consisted of 100 girls (57.8 percent) and 73 boys (42.2 percent); their mean age was 12 ½ years old. Pintrich & DeGroot (1990) used zero-order correlations to examine the relationships between the motivational and self-regulated learning variables and found that higher levels of self-efficacy and intrinsic value were correlated with higher levels of cognitive strategy use and self-regulation. Test anxiety was not correlated with cognitive strategy use. The researchers then utilized a multivariate analysis of covariance (MANCOVA) and found that cognitive strategy use and self-regulation were correlated with each other and could be used as dependent variables with prior achievement as the covariate. Univariate tests showed prior achievement as a significant predictor of self-regulation, but not cognitive strategy use. However, for self-efficacy and intrinsic value, univariate and multivariate tests revealed both motivational orientations to be significant predictors of both cognitive strategy use and self-regulation. Test anxiety was not significant at the univariate or multivariate level. When examining

correlations between these motivational orientations and academic classroom performance, the researchers found both self-efficacy and intrinsic value to be associated with higher levels of student achievement. Test anxiety was significantly related to lower levels of performance. Additionally, higher levels of cognitive strategy use and self-regulated learning strategies were associated with higher levels of achievement. Students who believed they were capable reported more cognitive strategies, used more self-regulation, and persisted in tasks when they were difficult or uninteresting. This study was important because self-efficacy was found to be positively related to student cognitive engagement and self-regulation (Pintrich & DeGroot, 1990) and contributed to the literature of the importance of self-efficacy in academic performance.

Miller, Behrens, Greene & Newman (1993) further examined the role of goals and perceived ability (perceived self-efficacy) on intrinsic/extrinsic motivation, self-regulation, and persistence in college students. The sample for the study consisted of 117 students from two large undergraduate courses in introductory statistics and their participation was voluntary. The researchers administered the Attitude Toward Statistics Instrument, which is a 47-item questionnaire designed to assess student motivation, self-regulation, and course performance to participating students. The student motivational constructs included in the questionnaire were student goal orientation toward the class, perceived ability regarding statistics and the perceived value of statistics. Ten additional items measured the extent to which students used self-regulation strategies in their learning, such as goal setting and monitoring in order to persist when faced with challenges. The researchers

performed two sets of analyses: a correlational analysis to examine the relationships between the variables and an analysis of variance and multiple analysis of variance to examine predicted interactions between the variables. Although perceived ability was surprisingly not correlated with persistence in this study, it was significantly and positively correlated with self-regulation strategies (goal-setting, monitoring and strategy use), which have been found to affect achievement (Pintrich & DeGroot, 1990). This study was important in the perceived ability (perceived self-efficacy) literature because perceived ability was not significantly correlated with persistence, which is contrary to Bandura's (1982) self-efficacy theory. Miller, Behrens, Greene & Newman, (1993) suggested that in certain learning situations, like college classrooms, persistence may be more influenced by other motivational factors, such as goal orientation and intrinsic/extrinsic motivation, rather than perceived ability. This finding showed that more research was needed to examine the affect of perceived ability upon persistence and that future studies should also include other motivational variables as predictors.

In a later study, Greene & Miller (1996) examined the relationship between goal orientation, perceived ability and cognitive engagement upon course achievement in college students. The final sample consisted of 104 students from four sections of an educational psychology class that is required in a teaching program at a university in the Midsouth; 75 percent were females; 25 percent were males; 90 percent identified themselves as Caucasian; and the study did not indicate the ethnicities of the remaining 10 percent of students. A revised form of the Motivation and Strategy Use Survey, developed by Greene & Miller (1993) was

administered to the classes and was designed to measure learning goal orientation, performance goal orientation, perceived ability, meaningful cognitive engagement, and shallow cognitive engagement. The researchers examined the relationships between the variables using Pearson product moment correlations to determine whether the theoretical predictions could be supported. In regards to perceived self-efficacy, the results confirmed the strong relationship between perceived ability and cognitive engagement, similar to that found in previous studies (Pintrich & DeGroot, 1990; Miller, Behrens, Greene & Newman, 1993). Perception of ability was also found to have a significant correlation with student achievement as measured by midterm exam score, accounting for 7 percent of the variance. They also found a high positive relationship between learning goal orientation and perceived ability. The researchers conducted a path analysis in order to test two versions of a causal model and found that both perceived ability and learning goal orientation influence cognitive engagement and achievement. However, achievement was affected by meaningful cognitive engagement activities. This study was important because it not only confirmed past findings concerning the significant relationships between perceived ability and cognitive engagement, but it also suggested a causal link between the two. The researchers also suggested that future research should examine whether other variables outside the model contribute to the variance in cognitive engagement and student achievement (Greene & Miller, 1996).

Also in 1996, Greene & Miller conducted another study with others, in which they examined correlations and the predictability of learning goals, future consequences, pleasing others, and perceived ability on cognitive engagement

measures (self-regulation, strategy use, effort and persistence) and student achievement as measured by percentage grade for the semester (Miller, Greene, Montalvo, Ravindran & Nichols, 1996). The sample consisted of 288 high school student volunteers from a large, middle class suburban high school in the Midsouth, including tenth through twelfth graders enrolled in Geometry, Algebra II, Trigonometry, Pre-Calculus, and Advanced Placement Calculus, and taught by six different teachers. It included 102 tenth graders, 99 eleventh graders and 88 twelfth graders; 144 males and 144 females. The researchers administered the Attitude Toward Mathematics Survey during the last week of school, which was designed to measure goals, perceived ability, self-regulation and cognitive strategy use, persistence, and effort. They added new items to measure pleasing the teacher and pleasing the family. The researchers ran means, standard deviations, correlations, and multiple regressions on the data. Perceived ability was most strongly correlated with learning goals and somewhat with future consequences and performance goals. Both learning goals and perceived ability were related to cognitive engagement, effort, and persistence. This study was of importance because of the introduction of additional motivational factors that were related to cognitive engagement and achievement for future research (Miller, Greene, Montalvo, Ravindran & Nichols, 1996).

Self-Efficacy Studies in the Student-Athlete Population

Self-efficacy has also been examined within the sport environment for student-athletes (Duda & Nicholls, 1992; Ommundsen & Pedersen, 1999; Ryska, 2002; Ryska & Vestal, 2004; Skjesol & Halvari, 2005; Bagoien & Halvari, 2005).

Duda & Nicholls (1992) examined achievement motivation in academics and sport of high school students. Specifically, the researchers studied the relationships between goal orientation, perceived ability and intrinsic satisfaction on both academic and sport tasks. They also examined whether these same relationships existed across domains of academics and sport. The study's sample consisted of 207 high school students from a large city in the Midwest (population of 200,000). Of the sample, 99 were males and 108 were females; 6.3 percent were tenth graders and 93.7 percent were eleventh graders; their mean age was 15.1 years; 70 percent identified themselves as Caucasian; 22 percent as African American; 3 percent as Hispanic; 2 percent as Asian American; and 2 percent Unknown; 23 percent were involved in interscholastic or community-based teams; 59 percent reported they had previously been involved with such teams, but not so any longer; 18 percent reported never having participated on these types of teams. A trained administrator of the test administered a questionnaire and participants then recorded their responses on a computer-scored sheet. The questionnaire included a demographic portion to report sex, age, grade in school, race/ethnicity, and past and present sport involvement. It also included questions designed to measure goal orientation, beliefs about the causes of success, level of satisfaction and interest, and perceived ability in sport and academics. The researchers then conducted Pearson product moment correlations and factor analysis to examine the relationships between the variables. Duda & Nicholls (1992) found the goal orientation the students adopted cut across the two different achievement settings, sport and academics. However, goal orientation did not correlate very well with perceived ability in either achievement setting.

Perceived ability did correlate strongly with intrinsic satisfaction in sport, while goal orientation correlated strongly with intrinsic satisfaction in academics. As a result of this situational difference, the researchers then conducted multiple regressions, separated by domain. The relationship held with perceived ability as a significant predictor of intrinsic satisfaction in sport and with goal orientation as the major predictor of intrinsic satisfaction in academics. The researchers also found that intrinsic satisfaction and boredom in academics were significantly related to goal orientation while in sport they were more related to perceived ability (Duda & Nicholls, 1992). They summarized that academics more so than sport may foster intrinsic motivation, regardless of perceived ability, but that perceived ability was needed in order to foster intrinsic motivation in sport. They recommended that future research continue to examine achievement motivation and perceived ability across the two domains (Duda & Nicholls, 1992). This study was of importance to the achievement motivation literature because it recognized the significance of perceived ability to foster intrinsic motivation in sport and the significance of goal orientation to foster intrinsic motivation in academics.

In a similar study, Ryska (2002) examined the effects of athletic identity and motivation goals on global competence perceptions of student-athletes. Global competence is perceived competence across numerous domains: sport, academics, vocational and social. Ryska (2002) sought to study the single and combined contributions of athletic identity and motivational goal perspectives to the development of global competence perceptions among male and female high school student-athletes. The sample consisted of 258 high school student-athletes from a

public school in the southwestern portion of the United States and included 134 males; 124 females; 78 who played soccer; 68 who played basketball; 42 who played tennis; 36 who played baseball; 34 who played volleyball; their mean age was 16.72 years; 48.5 percent identified themselves as Caucasian; 23.7 percent as Hispanic; 18.9 percent as African American; 4.8 percent as Asian American; 4.1 percent as Other. They also reported seasons of sport experiences and represented the following classes: 16.2 percent freshmen; 22.7 percent sophomore; 36.4 percent junior; and 24.7 percent seniors. Ryska (2002) administered a demographic questionnaire used to collect the information above; the Task and Ego Orientation in Sport Questionnaire (TEOSQ), designed to measure individual differences in the tendency to pursue different types of goal orientation within the competitive sport setting; the Athletic Identity Measurement Scale (AIMS), designed to measure the extent to which students identify with the athletic role; the Self-Perception Profile for Adolescents (SPPA), designed to assess perceived competence in the following domains: scholastic competence, social acceptance, job competence, and behavioral conduct. The researcher examined means, standard deviations, bivariate correlations and hierarchical regression analyses for each of the four perceived competence domains. (Ryska, 2002) concluded that an athlete's motivational orientation moderated the impact of his or her athletic identity on global competence perceptions. Athletic identity was a negative predictor of academic, social and behavioral competence among athletes who were high ego, low task in their motivational orientation, whereas athletic identity predicted greater academic and vocational competence among high task, low ego athletes. Therefore, the quality of

the sport experience may impact a student's perceived competence outside of the sport domain. This study was of importance for the achievement motivation and sport motivation literature due to the implication that sport involvement affected perceived competence in other domains, depending upon the type of goal orientation that one adopts.

Bagoien & Halvari (2005) also examined perceived competence in sport. Specifically, they researched the correlations among involvement in physical activity, autonomous motivation, perceived sport competence and self-regulation. The sample consisted of 231 students from an upper secondary school in Verdal, Norway; they ranged in age from 16 to 31 years; there were 110 female participants and 121 male participants. The researchers administered a questionnaire designed to measure involvement in physical activity (exercise, game-related activities and sports); the Self-Regulation Questionnaire, designed to measure four forms of regulation in Deci & Ryan's Self-Determination Theory; and the Perceived Competence Scale for Children, designed to measure perceived sport competence in social, cognitive, and sport/physical forms. They ran descriptive statistics (means and standard deviations), biavariate correlations, multiple regressions and LISREL analyses. Bagoien & Halvari (2005) found that perceived sports competence and autonomous motivation were both significant in relation to involvement in physical activity. The best model supported involvement in physical activity to mediate the relationship of autonomous motivation and perceived sports competence. Therefore, involvement in physical activities influences motivation and perceived sport competence and conversely, motivation and perceived sport competence influences

involvement in physical activity. This study was of importance because it suggested that involvement in athletic activities for this age group had positive affects for motivation and perceived sports competence. Also, motivation and perceived sports competence were positively related to involvement in athletic activities. Future research could examine motivation and perceived competence in sport for different age groups and for different athletic populations.

Achievement Goal Theory

Achievement Goal Theory has emerged as an important approach to understanding motivation and behavior in achievement settings, like in academics, sport, and working environments. Two theoretical approaches exist for achievement motivation: classical and contemporary. Atkinson's (1957, 1964 as cited in Reeve, 2005) model is the classical view of achievement motivation. He argued that achievement behavior was determined not only by one's need for achievement, but also by one's perceived probability of success on a particular task and the incentive value for succeeding at that task. Therefore, Atkinson's theory included four variables: achievement behavior and its three predictors; need for achievement, probability for success, and incentive for success (Reeve, 2005). He defined achievement behavior as the motive to approach success or the motive to avoid failure. Anticipation of positive outcomes results in an approach situation, while anticipation of negative outcomes leads to avoidance. Atkinson also believed that the possibility of succeeding or failing depended upon the particular situation. The classical model incorporated the concept of approach-avoidance motivation and sought to understand whether achievement behavior occurs. Contemporary views of

achievement motivation, on the other hand, focus on why a person displays achievement behavior and have just recently re-incorporated the idea of approach-avoidance motivation, or valence, back into the model.

Contemporary achievement motivation is defined as Achievement Goal Theory. The achievement goal construct was developed in the mid-to late 1970's both separately and together by Carol Ames, Carol Dweck, Marty Maehr, and John Nicholls (Elliot, 2005). Dweck and Nicholls developed two different perspectives of achievement goal theory that have been influential in the understanding of achievement motivation today. According to Dweck (1986) achievement motivation involves goals that are focused on competence and defined an achievement goal as representing one's purpose for engaging in behavior in an achievement situation (Dweck & Leggett, 1988). She identified two different achievement goals: learning goals and performance goals. "Learning goals are goals in which individuals seek to increase their competence or to understand something new, whereas, performance goals are goals in which individuals seek to gain favorable judgments of their competence or avoid negative judgments of their competence," (Dweck, 1986, p. 1040). Dweck's work focused on understanding achievement motivation in children and found that children of equal ability responded differently to failure on achievement tasks. Some children displayed an adaptive motivational pattern towards learning that promoted the attainment of challenging and personally valued goals, attributed failure to insufficient effort, and enhanced persistence and performance. Other children displayed a maladaptive motivational pattern towards learning in which they displayed helplessness, attributed failure to insufficient

ability, and failed to establish reasonable, valued goals (Dweck, 1986; Elliot, 2005). Dweck (1986) concluded that the type of goal orientation one adopts could explain the difference between the children in her study with those who adopted learning goals producing the adaptive motivational patterns and those who adopted performance goals producing the maladaptive motivational patterns. Dweck & Leggett (1988) specifically examined how the cognitive, affective and behavioral motivational patterns of the adaptive and maladaptive type followed directly from the type of goal orientation an individual adopts. Dweck (1986) also found that achievement goals interacted with confidence. Therefore, those who adopted performance goals could develop adaptive motivational patterns if the child possessed high confidence in ability or develop the maladaptive motivational pattern if they possessed low confidence in ability. She believed that children who adopted learning goals would develop adaptive motivational patterns, regardless of level of confidence in ability (Dweck, 1986). Finally, Dweck (1986) believed achievement goals to be situational and thought that they could explain the reason why an individual engaged in achievement behavior (Elliot, 2005).

Nicholls' (1984) research also focused on children and he believed that goal orientation was derived based upon the development of conceptions of ability. He believed that children do not differentiate between ability and effort. High ability is equated with learning and improvement through effort. The more effort put forth, the more learning and improvement, or ability, acquired. However, by around age 12, he found that children began to differentiate between ability and effort. High ability is inferred when one outperforms others while using equal effort, or performs

the same as others while expending less effort (Nicholls, 1984). Nicholls identified an achievement goal as the purpose of achievement behavior and that it was presumed that the purpose of achievement behavior was to demonstrate or develop high ability or to avoid demonstrating low ability. In other words, in achievement situations, individuals will either "desire success to the extent that it indicates high ability or seek to avoid failure to the extent that it indicates low ability," (Nicholls, 1984, p. 328).

Nicholls agreed with Dweck in that the key feature of achievement behavior is perceived competence. However, he differed in the way he defined the two achievement goals: task involvement and ego involvement. Instead of a learning goal, he used the term task involvement, in which individuals seek ability by learning or mastering tasks. Ego involvement, on the hand, was used to refer to individuals who seek ability in order to demonstrate that one has the ability by outperforming others, especially with less effort expended. Additionally, Nicholls (1984) believed task involvement to be related to intrinsic motivation and ego involvement to be related to extrinsic motivation. These goal states were thought to interact with perceived ability, very similarly to Dweck's concept of confidence interacting with goal orientation.

Nicholls (1984) defined this concept in that individuals who were ego-involved could select tasks leading to positive outcomes (selecting challenging tasks), but only if the individual possessed high perceived ability. If they were ego-involved and had low perceived ability, then it could lead to negative consequences (selecting very easy or very difficult tasks). Task involved individuals were thought

to select tasks that lead to positive outcomes, regardless of level of perceived ability. Finally, Nicholls (1984) believed that dispositional goal preferences could predict situational specific goal states, and goal states were considered cognitively based intentions.

The two theorists both believed that achievement goals were moderated by perceived competence. However, while Dweck (1986) believed the adoption of achievement goals to be at the center of understanding achievement motivation, Nicholls (1984) believed the concept of ability that established achievement goals to be the key in understanding achievement motivation (Elliot, 2005).

Ames & Archer (1988) sought to integrate the two types of achievement goals identified by Dweck (1986) and Nicholls (1984), because the conceptual relationships between learning and task goals and between performance and ego goals converged. (Ames, 1984, had also proposed the terms mastery focused versus ability focused). From this point forward, Ames & Archer (1988) coined achievement goal orientation as mastery and performance goals in the literature. According to Elliot (2005) this "brought more cohesion to the achievement motivation literature and solidified the importance of the achievement goal construct," (Elliot, 2005, p. 56-57). Ames & Archer (1988) explained that mastery goals were those similar to learning and task goals in that individuals are concerned with this type of goal orientation are concerned with developing new skills or maintaining skills. They also enjoy the process of learning itself and the attainment of mastery is seen as dependent upon effort. Performance goals on the other hand, were those similar to ego goals, where an individual is concerned with "being judged

able, and one shows evidence of ability by being successful, by outperforming others, or by achieving success with little effort," (Ames & Archer, 1988, p. 260). Performance goal orientation values ability. Ames & Archer (1988), like Dweck (1986), also believed that goal orientation differed depending upon the situation. Finally, they were the first to examine the influence of achievement goals in the classroom context, which will be discussed more in depth below.

In the mid-to late 1990's most of the literature on achievement goals asserted that mastery goals lead to positive outcomes, thus enhancing intrinsic motivation, and performance goals lead to negative outcomes, thereby, undermining intrinsic motivation. Reviews during this time period tended to focus on the main effects of achievement goals instead of focusing on the interaction role of perceived competence, recognized by Dweck (1986) as confidence and by Nicholls (1988) as perceived ability (Elliot, 2005). However, research suggested that although mastery goals were linked to positive outcomes, performance goals were sometimes found to be linked to negative outcomes, sometimes did not have any consequences, and sometimes even had positive consequences. Performance goals were found to have some positive effects in certain types of achievement or competition situations. This lead researchers, like Harackiewicz to question the validity of the statement that performance goals were maladaptive (Elliot, 2005). Elliot & Harackiewicz (1996) further researched this by dividing the performance goal orientation construct in terms of approach and avoidance motivation and examined the predictive relationship of each with intrinsic motivation. They found that only performance-avoidance goals undermined intrinsic motivation.

As a result of Elliot & Harackiewicz's work regarding the importance of the approach-avoidance construct in performance goals, theorists proposed a revision of achievement goal theory from a dichotomous mastery versus performance goal comparison, to that of a multiple goal or trichotomous perspective (Pintrich, 2000; Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002). The three main reasons they identified for revising achievement goal theory were: "(1) the importance of separating approach from avoidance strivings; (2) the unique positive potential of performance-approach goals, relative to mastery goals; and (3) identification of the ways in which performance-approach goals can combine with mastery goals to promote optimal motivation," (Harackiewicz, Barron, Pintrich, Elliot & Thrash, 2002, p. 638).

Pintrich (2000) studied the effect upon motivation and achievement in adopting the multiple goal perspective: both mastery and performance-approach goals. The sample for the study included 150 students in the eighth and ninth grades from one junior high school in southeastern Michigan. The sample consisted of 52 percent females, 48 percent males; mean age was 13.4 years old; over 95 percent identified themselves as Caucasian. The researcher collected data in three phases: once at the beginning of the eighth grade; at the end of the eighth grade year; and at the end of the ninth grade year. Pintrich (2000) administered a revised version of the Motivated Strategies for Learning Questionnaire (MSLQ), which was designed to measure goal orientation as either mastery or performance. He also added the following scales: motivation to measure self-efficacy, task value and test anxiety; affect to measure positive affect (happy, proud, fun, good mood) and negative affect

(angry, ashamed, embarrassed and frustrated); strategy to measure self-handicapping and risk-taking; cognitive strategies (rehearsing, memorizing, deep strategy use); and metacognitive strategies (planning, setting goals, monitoring comprehension and regulating cognition). Finally, Pintrich (2000) collected math grades from school records. He analyzed the data using analysis of variance and Scheffe tests. Results showed that both the original (normative achievement goal theory) and the revised achievement goal theory were applicable to the development of motivation and achievement in school settings. His findings revealed that students who adopted a performance avoidance goal were more likely to have maladaptive learning outcomes, while students with either a performance approach or mastery goal were more likely to have adaptive learning outcomes and found no significant differences between the two approach orientations. Specifically, if mastery goal students also adopted an approach performance orientation, there was not a loss in motivation, affect, cognition or achievement. However, Pintrich (2000) did conclude that the mastery goal orientation was still the most adaptive. This study is of importance to the field of achievement motivation because it provided support for the trichotomous and multiple goal orientation perspective. It also confirmed Elliot & Harackiewicz's, (1996) work regarding the positive outcomes of utilizing approach motivation in both mastery and performance orientation.

In the early 2000's achievement motivation theorists frequently tested the trichotomous achievement goal model and found support of the previous work by Elliot & Harackiewicz (1996) and Pintrich (2000). However, results were often mixed, with some finding mastery-goals as the most predictive of achievement,

while others sometimes found that performance-approach goals were more predictive of achievement than mastery goals (Harackiewicz, Barron & Elliot, 1998; Harackiewicz, Barron, Pintrich, Elliot & Thrash, 2002; Midgley, Kaplan & Middleton, 2001).

As a result of this work, Elliot & McGregor (2001) sought to further split the trichotomous model into a 2 X 2 achievement goal orientation framework, including mastery-approach, performance-approach, performance-avoidance, and introduced the concept of mastery-avoidance goals. Elliot & McGregor (2001) identified the concept of competence as the core of the achievement goal construct. They proposed that achievement goals could be differentiated based upon how they are defined and how they are valenced. Competence can be defined according to whether one has "acquired understanding, mastered a task, improved upon one's past performances, or fully developed one's knowledge or skills (mastery goal); or to whether one has performed better than others (performance goal)," (Elliot & McGregor, 2001, page 501). Competence (mastery or performance goals) can then be valenced into whether one views the possibility for a positive or desirable outcome for success (approach motivation) or whether one views the possibility for a negative or undesirable outcome for failure (avoidance motivation).

Mastery-approach, performance-approach and performance-avoidance goals have been discussed previously. Mastery-avoidance goals are focused on avoiding self-referenced or task-referenced incompetence. "While mastery approach goals focus on developing one's abilities, personal improvement, and mastering tasks, mastery avoidance goals strive to avoid losing one's skills and abilities (or having

them stagnate), forgetting what one has learned, misunderstanding material, or leaving a task incomplete," (Elliot, 2005, p. 61). Therefore, because of their focus on development and task mastery, they can still be identified as mastery goals; but because they also focus on negative outcomes, they are identified as an avoidance motivational orientation. Examples of individuals who are thought to be more likely to adopt mastery avoidance goals may be the elderly, perfectionists, those who have a bad memory and are concerned with not forgetting what they have learned, and athletes, students, or employees who have sought to maximize their skills and abilities, but at some point feel they have reached their maximum potential ("peak"), and focus on not doing worse than they have done in the past," (Elliot, 2005, p. 61). Elliot & McGregor (2001) tested and found support for the independence of the four achievement goal constructs.

Achievement Goal Orientation Studies in the Student Population

Each of the different achievement goal theories (dichotomous, trichotomous, and 2 X 2 framework) has been examined for its effects within the learning environment. As previously mentioned, Ames & Archer (1988) were among the first to examine achievement goal theory in education and they did so using the dichotomous achievement model. Specifically, they studied how certain motivational processes are related to the adoption of mastery and performance goals in an actual classroom setting. Their sample consisted of 176 eighth through eleventh grade students who attended a junior high/high school for academically advanced students. There were 91 males and 85 females in the sample. The researchers randomly selected four to six students from each English, math, science

and social studies classes that were offered in a spring semester and administered a questionnaire designed to measure goal orientation, learning strategies, task challenge, attitude toward class, causal attribution (ability, effort, strategy, task, teacher), and perceived ability. Ames & Archer (1988) ran descriptive statistics for each variable (means and standard deviations); zero-order correlations in order to examine the relationship between each student's perception of the classroom and the individual student variables; and regression analyses to compare perceived ability and perceived goal orientation as predictors of student's reported use of learning strategies, task choices, and attitude. Correlations indicated that students who perceived an emphasis on mastery goals reported using more learning strategies, preferred challenging tasks and had a more positive attitude towards their class. Students' perceptions of performance goal orientation were not related to their use of learning strategies or task choices, but they were negatively related to attitudes and self-perceptions of ability. Regression results showed that perceived ability was a significant predictor of learning strategies, task choices and attitudes. Perceived mastery goal orientation also remained a significant predictor after ability was entered in to the regression and showed that its significance did not depend on the level of perceived ability. The researchers also examined group differences between profiles of students by utilizing one-way analyses of variance (ANOVA) and Tukey Honestly Significant Difference (HSD) group comparisons. Students with a high performance-high mastery condition showed significant differences on learning strategy, task choice and attitude as compared to students with a low performance-low mastery condition. This study confirmed both Dweck's (1986) and Nicholls'

(1984) achievement goal theory. Overall, the findings indicated differences in motivation between mastery and performance goal orientation, and as a result, are a useful way of differentiating between students' perceptions of the classroom learning environment. It also suggested that mastery goals may be more conducive to learning; in particular, students who perceived their class as emphasizing a mastery goal were more likely to report using effective learning strategies, preferred more challenging tasks, and liked their class more. Mastery goal orientation was also found to be a significant predictor of motivation independent of perceived ability. Finally, this study focused on the importance of what is actually happening in the classroom and how the student interprets it as the determinant of goal orientation (Ames & Archer, 1988).

Additional studies throughout the mid 1990's focused on the dichotomous achievement goal theory model, using mastery and performance goal orientation as predictors of academic achievement (Miller, Behrens & Greene, 1993; Greene & Miller, 1996; Miller, Greene, Montalvo, Ravindran & Nichols, 1996). In the Miller, Behrens, Greene & Newman (1993) study, which was previously reviewed in regards to their examination of perceived ability, the authors tested achievement goal theory within Dweck's (1986) framework and confirmed learning goals (mastery goals) as positively correlated with persistence, intrinsic motivation, and self-regulation in college students. However, the researchers did not confirm the predicted relationship between dominant goal orientation and perceived ability. They suggested that future research examine causal influences among the variables

in their study, but that achievement goal theory is a promising theory to be utilized to understanding student achievement.

In the Greene & Miller (1996) study, the researchers examined the relationships between self-reported goal orientation, perceived ability, cognitive engagement while studying and course achievement of college students. They found both perceived ability and learning goals (mastery goals) to be positively correlated with meaningful cognitive engagement (self-regulation and deep strategy use), whereas performance goals were positively correlated with shallow cognitive engagement. In this study, unlike the Miller, Behrens, Greene & Newman (1993) study, they found that perceived ability and learning goals did correlate with each other. They utilized path analysis which supported a causal model in which perceived ability and learning goals influenced meaningful cognitive engagement, which then influenced academic achievement. This study also revealed that students who adopted a learning goal orientation used both meaningful and shallow cognitive strategies, suggesting that both may be optimal to use in certain situations.

In the Miller, Greene, Montalvo, Ravindran & Nichols' (1996) study, the researchers examined the relationships between several goals (learning goals, performance goals, obtaining future consequences, pleasing the teacher, pleasing the family, perceived math ability, self-regulatory activities, strategies used when studying for math, and amount of effort and persistence expended on a class) and engagement in academic work of high school students. They found that the adoption of a learning goal (mastery goal), wanting to please the teacher, and obtaining future consequences were all predictors of academic engagement. They also confirmed the

results of the Green & Miller (1996) study in that learning goals are positively related to cognitive engagement and achievement, which is in line with achievement goal theory (Dweck, 1986; Nicholls, 1984). However, two outcomes contradicted achievement goal theory as defined by Dweck and Nicholls, in relation to perceived ability. First, the theory suggests that variations in perceived ability should not impact persistence when students adopt learning goals, but this study found that persistence was highest when students with learning goals also had high perceptions of ability. This is more in line with self-efficacy theory (Bandura, 1982), which predicts that perceived ability is correlated with persistence. Second, while achievement goal theory asserts that students with high performance goals will exhibit their greatest effort and persistence when their perceptions of ability are high, they will reduce effort and persistence when their perceived ability is low, this study found nothing to support this claim. The researchers suggest that the theory depends upon which goal orientation is dominant for an individual. The results of this study also suggest that in order for students to engage in academic work, they need to not only adopt a learning goal, but they also need to be intrinsically motivated for the task and to be able to connect short term goals with long-term goals (Miller, Greene, Montalvo, Ranvindran & Nichols, 1996). The above mentioned studies were of importance to the achievement motivation literature because they supported the use of mastery goals in academic settings, in particular mastery goals were found to be either positively correlated with or significantly predicted engagement in academic tasks, such as meaningful cognitive engagement, intrinsic motivation, self-regulation, persistence, and effort.

Elliot, McGregor & Gable (1999) examined the relationship between achievement goals and exam performance using the trichotomous achievement goal model. Specifically, they studied achievement goals as predictors of self-reported cognitive/metacognitive and motivational study strategies and then tested these study strategies as mediators of the relationship between achievement goals and exam performance in a college classroom. They conducted two studies in order to research these relationships. In study one, 164 college students (56 males and 108 females; mean age was 19.96 years) who were enrolled in an introductory level psychology class at a northeastern university participated. The researchers administered the Achievement Goals Questionnaire (AGQ) to the students two weeks before their midterm exam and another questionnaire designed to measure study strategies one week before the midterm exam. Exam scores were obtained from the professor and cumulative GPA obtained from the registrar. They utilized multiple regression analyses to test mastery goals, performance-approach goals, performance-avoidance goals and GPA together as predictors of exam performance and study strategies. Then, they utilized stepwise regression analyses to test each study strategy as a predictor of academic performance alone and also controlling for GPA. This first study showed that performance-approach goals were positively related to exam performance, performance-avoidance goals were negatively related to exam performance, and mastery goals were unrelated to exam performance. For study strategies, mastery goals were positively related to deep processing, performance-approach goals were not significantly related to any study strategies, and performance-avoidance goals were positively related to surface processing and

disorganization and unrelated to deep processing. Additionally, deep processing was positively related, disorganization negatively related, and surface processing unrelated to exam performance. Disorganization was validated as a mediator of the relationship between performance-avoidance goals and exam performance (Elliot, McGregor & Gable, 1999).

In the same study, Elliot, McGregor & Gable (1999) then administered the AGQ to 179 college students (68 males and 111 females; mean age was 19.81 years) again, in an introductory psychology course two weeks before the midterm exam and the cognitive/metacognitive study strategies questionnaire one week before the exam. Exam grades were obtained from the professor and SAT scores from the registrar. Finally, the researchers conducted a series of pilot studies designed to measure persistence and effort. The same data analyses were used in study 2 that were used in study 1. Study 2 examined mastery goals, performance-approach goals, and performance-avoidance goals and SAT scores as predictors of exam performance and study strategies. The results of study 2 replicated and extended those of study 1. Performance-approach goals were positively related and performance-avoidance goals were negatively related to exam performance, while mastery goals were unrelated. Mastery goals were again positively related to deep processing, but also related to persistence and effort, and unrelated to surface processing and disorganization. Performance-approach goals were positively related to surface processing, persistence, and effort, but unrelated to deep processing and disorganization. Performance-avoidance goals were positively related to surface processing and disorganization, negatively related to deep processing, and unrelated

to persistence and effort. Additionally, deep processing, persistence, and effort were positively related, disorganization was negatively related, and surface processing was unrelated to exam performance. Except for deep processing, all variables remained significant while controlling for SAT score. Disorganization, persistence, and effort were validated as joint meditational variables; persistence and effort mediated the relationship between performance-approach goals and exam performance; whereas disorganization mediated the relationship between performance-avoidance goals and exam performance (Elliot, McGregor & Gable, 1999). The results of this study confirmed the importance of dividing performance goals into the approach-avoidance motivational orientations. The study also identified several variables that may mediate the relationship between goal orientation and exam performance. Finally, the researchers suggest that due to some positive outcomes of adopting performance-approach goals that future research should consider how adoption of a particular goal orientation may be beneficial depending upon the achievement setting.

Additional studies throughout the early 2000's confirmed similar findings of the trichotomous achievement goal theory model upon academic achievement (Church, Elliot & Gable, 2001; McGregor & Elliot, 2002; Elliot, Shell, Henry & Maier, 2005). In Church, Elliot & Gable's (2001) study, they examined the relationship between college students' perceptions of their classroom environment, achievement goals, intrinsic motivation and graded classroom performance in two studies. The perceived classroom environment included measures on lecture engagement, evaluation focus and harsh evaluation. Lecture engagement concerned

the extent to which students perceived that the professor made the lecture material interesting; evaluation focus concerned the degree to which students perceived the professor emphasized the importance of grades and performance evaluation; harsh evaluation concerned the extent to which students viewed the grading structure as so difficult it minimized the likelihood of successful performance. In both studies, they found lecture engagement to predict mastery goal adoption, but it did not predict performance-approach or performance-avoidance goal adoption. Evaluation focus was a positive predictor of both performance-approach and performance-avoidance goal adoption. Harsh evaluation was a positive predictor of performance-avoidance goal adoption, a negative predictor of mastery goal adoption, and unrelated to performance-approach goals. In the second study, the researchers also included measures of competence, SAT scores, graded performance, intrinsic motivation, and achievement goals. They found that none of the perceived classroom environment variables were direct predictors of graded performance, but they did predict achievement goal adoption, and then these achievement goals, predicted graded performance. Performance-approach and mastery goals were both positive predictors of graded performance, while performance-avoidance goals were a negative predictor. Additionally, each of the classroom environment variables revealed a direct relationship with intrinsic motivation, albeit, mediated by achievement goals. Mastery goals and performance-approach goals both facilitated intrinsic motivation, while performance-avoidance goals undermined it. Finally, perceived classroom environment variables distally influenced graded performance

and intrinsic motivation, whereas achievement goal were found to be proximal predictors of achievement goal adoption (Church, Elliot & Gable, 2001).

In the McGregor & Elliot (2002) study, the researchers conducted three studies in which they examined mastery, performance-approach, and performance-avoidance goals as predictors of achievement processed prior to college students taking exams. Specifically, they studied the prediction of achievement goals for challenge and threat construal, challenge and threat affect, and grade aspiration in the first study. In the second study, they evaluated the prediction of achievement goals for challenge and threat affect, absorption, perceived control, procrastination, and calmness due to preparation. They also examined the prediction of achievement goal on competence expectancy, anticipatory test anxiety, desire to escape, ability-related self-esteem, preparedness, and percentage of hours spent studying in the third study. Overall, the researchers found mastery goals to be positive predictors of early preparation and time spent studying well ahead of the exam, and negative predictors of percentage of time spent studying the day of the exam and desire to escape the exam. Performance-approach goals were positively related to the percentage of hours spent studying the weekend before the exam, and negative predictors of time spent studying the day of the exam and desire to escape the exam. Performance-avoidance goals were positive predictors of anticipatory test anxiety and a desire to escape the exam, and negative predictors of ability-related self-esteem, and negatively related to spending time preparing for the exam in advance and feeling prepared. McGregor & Elliot's (2002) study confirmed the literature regarding

mastery goals as predictors of positive learning outcomes in both the dichotomous and trichotomous achievement goal frameworks.

In the Elliot, Shell, Henry & Maier (2005) study, the researchers examined the effect of achievement goals on performance attainment and the moderating role of performance contingencies in three tests. Performance attainment was measured by the math subscale of the Intelligence Structure Test (IST), a German intelligence test, in the first study. In the second study, the verbal portion of the IST was utilized to measure performance attainment. Performance contingencies refer to the concept of instrumentality for future consequences. The third study was designed to examine the role of performance contingencies as a moderator of the effect of achievement goals on performance attainment. In this study, the researchers utilized a 3 X 2 factorial design with achievement goal (performance-approach vs. performance-avoidance vs. mastery) and contingency (contingent vs. noncontingent) as independent variables, gender as a covariate, and task performance as the dependent variable. Overall findings of the study were that performance-approach goals had a more positive effect on performance than did mastery goals with contingencies, but not without them. Additionally, contingencies did moderate the effect of performance-approach and performance-avoidance goals upon performance attainment, but not for mastery goals. This study confirmed the importance of dividing performance goals into the approach and avoidance motivational orientations and revealed that when examining the relationship between achievement goals and performance, it is also important to understand the nature of the task and the situation (Elliot, Shell, Henry & Maier, 2005).

All of the above mentioned studies conducted in the early 2000's confirmed not only the fact that the adoption of mastery goals leads to more positive learning outcomes and is positively related to academic performance, but also the necessity of dividing performance based goals into the performance-approach and performance-avoidance goal orientation. These studies lend further support for the trichotomous achievement goal framework to understanding achievement motivation behavior.

As previously mentioned, due to conflicting results with performance-approach goals and mastery goals, in particular, Elliot & McGregor (2001) split the trichotomous achievement goal model into a 2 X 2 framework, with competence and valence as central to the model. Specifically, they tested the model in three different studies examining motive dispositions, implicit theories, and socialization histories as antecedents to goal adoption and anticipatory test anxiety, exam performance, and health center visits as consequences of goal adoption. All three studies were conducted in the college undergraduate classroom setting. Study 1 used a newly devised achievement goal questionnaire to assess each of the goals in the 2 X 2 framework and was administered to 180 college students (49 males and 131 females) in an introductory level psychology class. The researchers first conducted exploratory factor analysis (EFA) in order to validate the four goals as statistically independent constructs. They then ran descriptive statistics and intercorrelations among the achievement goal measures. The results of the first study validated the independence of the four achievement goal constructs and of the 2 X 2 framework. Also, correlations were found to exist between mastery-avoidance goals with mastery-approach, performance-avoidance, and performance-approach goals. In

Study 2 the researchers sought to replicate the findings of the first study as well as investigate the antecedents and consequences of adopting the goals in the 2 X 2 framework. The sample consisted of 148 undergraduates (62 males and 86 females) in an introductory level psychology class. Participants completed measures of need for achievement, fear of failure, self-determination, and perceived class engagement, study strategies, the Achievement Goal Questionnaire (AGQ), a revised version of the State-Trait Anxiety Inventory, and self-reported SAT scores. Elliot & McGregor (2001) conducted confirmatory factor analysis (CFA) on the achievement goal items and comparative fit index (CFI) fit indices to evaluate the fit of the models to the data. The data indicated that the four achievement goal measures represent independent and internally consistent variables.

In Study 2, the researchers also ran descriptive statistics, intercorrelations, and regression analyses. Results revealed several predictors for goal orientation adoption. Overall need for achievement, self-determination, and perceived classroom engagement were found to be positive predictors of mastery-approach goals. Fear of failure and perceived classroom engagement were found to be positive predictors of mastery-avoidance goals, while self-determination was a negative predictor of mastery-avoidance goals. Overall need for achievement, fear of failure, and SAT scores were positive predictors of performance-approach goals. Fear of failure was also found to be a positive predictor of performance-avoidance goals, but self-determination, and SAT scores were negative predictors of performance-avoidance goals. Regarding achievement goals as predictors, mastery-approach goals were a positive predictor of deep processing, while performance-

avoidance goals were a negative predictor. On the other hand, performance-approach and performance-avoidance goals were found to be positive predictors of surface processing strategies. Both mastery-avoidance and performance-avoidance goals were a positive predictor of disorganization. Performance-avoidance and mastery-avoidance goals were positively related to anticipatory trait anxiety, worry, and emotionality. The results related to mastery-avoidance goals were important in validating the 2 X 2 model in which mastery avoidance goal orientation was found to be grounded in fear of failure, low self-determination, and high perceived class engagement; and was a positive predictor of disorganized studying, state-trait anxiety, worry, and emotionality (Elliot & McGregor, 2001).

In Study 3, the researchers again examined the descriptive statistics and intercorrelations among the four achievement goal variables, but also studied implicit theories (entity theory and incremental theory) and socialization histories as antecedents and health center visits as consequences of achievement goals. The sample consisted of 182 (65 males and 117 females) undergraduate college students in an introductory level psychology class. Participants completed the implicit theory, parental socialization, and identification measures and reported SAT scores. They also completed a competence valuation measure and the Achievement Goal Questionnaire (AGQ). Exam scores were obtained from the professor at the end of the semester and health center visit information was obtained from university records. The researchers ran descriptive statistics, reliabilities, and intercorrelations among the achievement goal measures and data confirmed the results of Study 2. They then conducted regression analyses in order to evaluate predictors of

achievement goals. Competence valuation was found to be a positive predictor of mastery-approach goals; entity theory, competence valuation, and parental socialization analyses (mother's and father's negative feedback and worry) were positive predictors of mastery-avoidance goals, while incremental theory was found to be a negative predictor of mastery-avoidance goals. In regards to performance-approach goals, parental socialization (mother and father conditional approval) and competence valuation were found to be positive predictors. In regards to performance-avoidance goals, entity theory, parental socialization (mother's and father's negative feedback and worry) and competence valuation were positive predictors of performance-avoidance goals, while SAT scores were negative predictors. Regression analyses were also conducted to evaluate achievement goals as predictor variables and found that performance-approach goals were a positive predictor of exam performance, while performance-avoidance goals were a negative predictor of exam performance. Mastery-approach goals were a negative predictor of health center visits, while performance-avoidance goals were a positive predictor. The antecedent and consequences of adopting mastery-avoidance goals indicated that the goals were grounded in entity theory, mother's and father's negative feedback, mother and father worry induction, and competence valuation and were not negative predictors of exam performance nor positive predictors of health center visits. The results of the three studies confirmed the antecedents and consequences for mastery-avoidance goals, validated the use of the 2 X 2 framework in achievement goal theory, and defined competence and valence as the fundamental dimensions of the theory (Elliot & McGregor, 2001).

Although studies continued to use the trichotomous achievement model throughout the early to mid-2000's, concurrent studies on the 2 X 2 framework were also being conducted during this time period and throughout the later 2000's to confirm its use for achievement goal theory (Van Yperen, 2003, 2006; Sideridis, 2007; Van Yperen, Elliot & Anseel, 2009).

Van Yperen (2006) examined individuals' dominant achievement goals in two studies based upon Elliot & McGregor's (2001) 2 X 2 achievement goal framework. Specifically, the researcher sought to show that people do have a dominant achievement goal and each of the achievement goals has a distinct profile of the individual who adopts them. In the first study, Van Yperen (2006) administered questionnaires to freshmen enrolled in a psychology program at a university in the Netherlands. The sample consisted of 333 students (25.2 percent males and 74.8 percent females); and mean age was 19.9 years. He administered a six-item, round robin, questionnaire that forced individuals to choose a particular achievement goal when compared to others. It was designed specifically for this study and was different from other measures that have been used for achievement goals. He defined performance based goals as other-referenced or related to the outcomes of others, while mastery goals were defined as self-referenced. In the first study, the researcher found that 83.8 percent of individuals indicated they had a dominant achievement goal. He assessed the four achievement constructs using the Achievement Goal Questionnaire (AGQ), and also measured the need for achievement, generalized self-efficacy, affectivity, perfectionism, and academic motivation in the study. In the second study, the sample consisted of 279 college

students from a university in the Netherlands; 109 sophomores and 170 juniors; 56.3 percent males and 43.7 percent females; and mean age was 21.4 years. Van Yperen (2006) utilized the same measure to evaluate dominant achievement goal and found that 86.4 percent of the sample identified a dominant achievement goal. He also measured perceived competence, interest, and graded performance. In both studies, he found that the majority of individuals preferred a mastery-approach goal, while one-third preferred a mastery-avoidance goal. In both studies descriptive statistics (means and standard deviations), correlation, multiple analysis of variance (MANOVA), and Tukey procedure were used to analyze the data. In study one, the researcher found that dominant mastery-approach goals were associated with only positively valences, including need for achievement, generalized self-efficacy, positive affectivity, self-oriented perfectionism, and intrinsic motivation. On the other hand, performance-avoidance goals were found to be associated with only negatively valenced variables, including avoidance orientation, negative affectivity, socially prescribed perfectionism, extrinsic motivation and amotivation. Performance-approach goals scores were high for both positive and negative variables, whereas mastery-avoidance goals were low on both positive and negative variables. Study 2 found that individuals with a dominant performance-approach goal scored high on perceived competence and graded performance, while mastery-approach dominant individuals were high in interest, and performance-avoidance dominant individuals were low on interest. This study is consistent with achievement goal theory in "that mastery-approach goals are the ideal from of competence-based regulation, whereas performance-avoidance goals are considered

the most deleterious form," (Van Yperen, 2006, p. 1442). Because performance-approach goals were found to be related to both positive and negative outcomes and mastery-avoidance goals were more negative than mastery-approach goals, but more positive than performance-avoidance goals, the study also supported the 2 X 2 framework designed by Elliot & McGregor (2001).

In light of the identification of the mastery-avoidance goal orientation, Sideridis (2007) examined the regulation of mastery-avoidance goals in regard to persistence, affect, and arousal in two studies of college students. Specifically, he studied the regulation of affect from adopting a mastery-avoidance goal and then compared that regulation to the one reflecting mastery-approach, performance-approach, and performance avoidance goal orientation in the first study. The sample consisted of 96 second to fourth year college students; 20 males and 76 females. Students completed measures of anxiety, goal orientation, and positive and negative affect before a final exam on psychology statistics. Anxiety was measured using the Competitive State Anxiety Inventory and adapted for statistics. Affect was measured using an extended version of the Positive and Negative Affect Schedule. Goal orientation was measured using a modified version of Elliot & McGregor's (2001) 2 X 2 framework. Sideridis (2007) analyzed the data using descriptive statistics (means and standard deviations), correlation, and a multiple linear regression for the prediction of the affective variables and linear combinations of goal orientation. Results from the first study indicated that almost half of the variability in cognitive anxiety could be explained by goal orientation, whereas mastery-avoidance and performance-avoidance were associated with more significant levels of cognitive

anxiety and performance-approach was significantly related to lower levels of cognitive anxiety. Overall findings revealed that mastery-avoidance goals were salient in impact upon affective responses during stressful times, as it explained a large amount of variance in both anxiety and affect. This suggests that adopting a mastery-avoidance goal orientation may hinder an individual from regulating their emotions effectively.

In the second study, Sideridis (2007) sought to replicate the findings of the first study and then examined arousal levels from adopting a mastery-avoidance goal orientation when students gave class presentations. This sample consisted of 70 first year college students (nine males and 61 females) who were selected to participate in the study because they were doing in-class presentations as part of their course. Students wore a heart rate monitoring device 15 minutes prior to the presentation and throughout until the end. They also completed goal orientation measures prior to the presentation and affective measures both prior to and after the presentation. Goal orientation was measured using the same questionnaire as in the first study. Affect was measured using a brief version of the Positive and Negative Affect Schedule (PANAS). Arousal was measured as heart rate per minute using the heart-rate monitoring device. The researcher analyzed the data using the same analyses as he did in the first study. Study 2 showed a positive relationship between the approach orientations (mastery and performance) with positive affect and a negative relationship between the avoidance orientations (mastery and performance) with negative effect. Results of study one were confirmed in study two, showing that mastery-avoidance goals were associated with negative effect. While the first study

found an increase in cognitive anxiety from self-report measures, the second study found an increase in somatic anxiety from physiological assessments. Overall findings from both studies indicate that mastery-avoidance goals have the most destructive effects on student's regulation of their emotions across two stressful situations: an upcoming exam and an in-class presentation and that future studies should examine the causes behind adopting a mastery-avoidance goal (Sideridis, 2007).

Van Yperen, Elliot & Anseel (2009) also examined mastery-avoidance goals, in particular, but did so in order to evaluate their influence on performance improvement in two different studies. Mastery-avoidance goals were operationalized as "to avoid doing worse than one has done before" for the purposes of this study. In the first study they examined the effect of the four achievement goal constructs in the 2 X 2 model to each other and a no goal control upon performance improvement on two sequential tasks. A verbal skills test was used as the achievement task. In this study, the sample consisted of 115 college students who were recruited during a first year lecture class to participate in the study. The sample consisted of 52 percent males, 48 percent females; mean age was 20.4 years old; 39 students were from professional schools in the Netherlands, with majors in economics, education, health, and technology; and 76 students from a university in the Netherlands with majors in art, economics, law, management, medicine, social science, and spatial science. Participants completed the experiment at a computer and completed two versions of the Van Dijk and Tellegen's Verbal Skills Test. The researchers used a manipulation check to ensure that participants correctly recalled

the achievement goal that was recommended to them; used version 1 of the verbal skills test as an indicator of performance and the total score for version 2 relative to version 1 to represent the degree of performance improvement; perceived goal difficulty was assessed by asking participants to rate the extent to which they found the achievement goal that they adopted to be (1) very difficult to (5) very easy. The researchers used a 2 X 2 X 2 (performance vs. mastery; approach vs. avoidance; time 1 vs. time 2) mixed analysis of variance (ANOVA) in order to analyze the data, and followed-up with Least Significant Difference (LSD) tests. They also conducted a 2 X 2 ANOVA (performance vs. mastery; approach vs. avoidance) with perceived goal difficulty as the dependent variable in order to determine if the results could be attributed to perceived goal difficulty. Van Yperen, Elliot & Anseel (2009) found that mastery-avoidance goals undermined performance improvement relative to the other goal conditions and no goal condition. Performance-avoidance, mastery-approach, and performance-approach goals all showed similar amounts of performance improvement and effects were independent of perceived goal difficulty.

In the second study, the researchers sought to replicate the findings from the first study outside the laboratory, with a different population and different achievement task. They used the internet, with a population of people looking for employment assistance and using a widely used managerial competencies task with high ecological validity. The sample consisted of 447 individuals; 47 percent females and 53 percent males; mean working experience was 14.87 years with their company; and a mean of 5.9 years of experience; 60 percent held bachelor's degrees; 33 percent held an advance or professional degree; and mean age was 36.9 years of

age. Participants were recruited from a website of a governmental service for employment and vocational training and completed a demographic questionnaire, then two parallel versions of an in-basket exercise. The researchers used a 2 X 2 X 2 ANOVA again (performance vs. mastery; approach vs. avoidance; time 1 vs. time 2) and follow-up LSD tests to analyze the data. They also conducted a 2 X 2 ANOVA (performance vs. mastery; approach vs. avoidance) with perceived difficulty as the dependent variable in order to determine if the results could be attributed to differences in perceived difficulty. The results of the second study replicated the effects on performance improvement observed in the first study, and extended them to a real work setting. Mastery-avoidance goals were shown to undermine performance improvement relative to the other goals and no goal condition, while performance-avoidance, performance-approach, and mastery-approach goals led to similar amounts of performance improvement. Again, no effects were shown to be related to perceived goal difficulty. This study contributes to the emerging literature on mastery-avoidance goals, in particular, that they are deleterious for several reasons, now, including performance improvement (Van Yperen, Elliot & Anseel, 2009).

Achievement Goal Orientation Studies in the Student-Athlete Population

Work from achievement goal orientation theory in academic settings has been explored further in sport settings with youth athletes, recreational athletes, elite athletes, and college student-athletes (Halvari, 1990, 1991; Duda & Nicholls, 1992; Roberts, 1992; Lochbaum & Roberts, 1993; Thomassen & Halvari, 1996; Halvari & Kjormo, 1999; Ommundsen & Pedersen, 1999; Steinberg, Singer & Murphey, 2000;

Ryska, 2002; Standage, Duda & Ntoumanis, 2003; Conroy, Elliot & Hofer, 2003; Conroy & Elliot, 2004; Ryska & Vestal, 2004; Skjesol & Halvari, 2005; Conroy & Coatsworth, 2007; Van Yperen & Renkema, 2008; Stoeber, Stoll, Pescheck & Otto, 2008; Solberg & Halvari, 2009; Greene, Dillon & Miller, 2010). Research in sport environments and with athletes has also been conducted on the dichotomous, trichotomous, and 2 X 2 achievement goal theory models.

In Lochbaum & Roberts' (1993) study, the researchers examined the relationship between goal orientation and beliefs concerning determinants of success, competition and practice strategies, practice beliefs, and enjoyment among high school student-athletes using Nicholls' (1984) achievement goal theory framework. In fact, achievement goals in sport have traditionally only been examined in terms of competence alone as task (mastery) versus ego (performance) goal orientation. The sample in this particular study consisted of 296 high school student-athletes (182 males and 114 females) from three Midwestern communities; their mean age was 16.1 years for males and 15.7 years for females; and included 29.7 percent freshmen, 30.4 percent sophomores, 22 percent juniors, and 17.9 percent seniors in the sports of football, basketball, track and field, volleyball, baseball, softball, wrestling, golf, swimming, cheerleading, and gymnastics. The researchers administered the Task and Ego Orientation in Sport Questionnaire (TEOSQ) as well as a questionnaire designed to measure perceived causes of success, competition strategies, practice strategies, practice benefits, and competition satisfaction to the students in either an activity period or a physical education class. They conducted correlations between the variables with goal orientation and found significant relationships between the

goal orientation and the beliefs and enjoyment factors. Correlation analyses revealed task orientation (mastery) as positively related to coach approval/effort, practice mastery, skill/learning benefits or practice, and personal satisfaction, while it was negatively correlated with practice avoidance, and moderately correlated with team effort/ability as contributors to success. Ego orientation (performance) was moderately and positively correlated with practice avoidance, normative ability satisfaction, and with the belief that chance contributes to success, while it was negatively correlated with coach approval/effort as a competitive strategy and skill/learning as a benefit of practice. The researchers then conducted a canonical correlation analysis in order to further examine the significant relationships between the goal orientation and the sport beliefs and enjoyment factors. Two significant functions emerged with the task goal orientation positively related to coach approval/effort, practice mastery, skill/team enhancement, and personal satisfaction from competition and negatively related to practice avoidance and chance as a contributor of success. In the second function, they found that ego orientation related positively to satisfaction in normative ability demonstration, personal satisfaction, and the social demonstration benefits of practice, and positively related to chance, social approval, and team effort/ability as a contributor to success. The findings from this study were consistent with work found in academic settings and supported Nicholls' dichotomous achievement goal framework. Specifically, high school student-athletes with a task goal orientation chose more adaptive strategies in regards to their sport, exerted effort and persistence, considered their own performance important, and worked hard to enhance their skills in practice and

competition. Students who adopted an ego goal orientation, on the other hand, endorsed more maladaptive strategies, such as chance, social approval as causes of athletic success, practice as important for only demonstrating superior athletic ability, and satisfaction as derived from both self-improvement and performance as it related to others. They avoided exerting effort and persistence and focused more on external sources of success (Lochbaum & Roberts, 1993). Overall, the results of this study indicated that high school student-athletes have a goal orientation that is consistent with their beliefs about causes of success, competition and practice strategies, practice benefits, and enjoyment in sport.

Recognizing the importance of the approach-avoidance motivational orientations in regards to performance goals, Halvari & Kjormo (1999) examined achievement motives, competitive behavior over time, performance-approach goal-clarity, performance-avoidance goals, and elite performance of Norwegian Olympic athletes. The sample consisted of 136 elite athletes who were enrolled in "the Olympic Top Athlete Project," an organizational unit in Norway responsible for preparing athletes for the Olympics; and represented 16 different sports (3 team sports and 13 individual sports). The researchers administered the Achievement Motives Scale (Nygard & Gjesme, 1973); questionnaires designed to measure competitive behavior over time and performance-approach goal-clarity; the Sport Competitive Anxiety Test; and observations of athletes' actual achievements in sport as defined in five performance categories. They then conducted descriptive statistics (means, standard deviations, ranges, and reliabilities) and observed that the elite athletes in this study had a low motive to avoid failure and performance-avoidance

orientation. Correlation revealed that motive to achieve success was significantly and positively related with competitive behavior over time, whereas the motive to achieve success and the motive to avoid failure were not correlated with performance-approach goal-clarity. The motive to avoid failure was found to be significantly and positively related with performance-avoidance. Both competitive behavior over time and goal-clarity were significantly and positively related with sport performance, while performance-avoidance was significantly and negatively related with sport performance. Overall findings indicated that the motive to achieve success was positively correlated with competitive behavior over time, whereas the motive to avoid failure was positively correlated with performance-avoidance goals (Halvari & Kjormo, 1999).

Steinberg, Singer & Murphey (2000) compared the effects upon motivation when sport performers adopted a multiple goal orientation as compared to adopting a single goal orientation. Because past studies had been mainly correlational in nature, the researchers chose to investigate the benefits of a multiple goal orientation within a goal-setting framework, with participants assigned to four different groups: mastery-performance goal orientation group, mastery goal orientation group, performance goal orientation group, and a control group. Seventy-two college students (36 males and 36 females with mean age of 20.5 years) enrolled in beginning golf classes were asked to participate voluntarily in the study. The researchers administered the Intrinsic Motivation Inventory (IMI) in order to assess intrinsic motivation toward putting based on three subscales (interest-enjoyment, effort-importance, and tension-pressure); a self-report measure on persistence; and

the measurement of two athletic performances. They analyzed the data using factorial analysis of variance (ANOVAs) with repeated measures in order to evaluate the intrinsic motivation, enjoyment/satisfaction, effort/importance, and pressure/tension variables. Persistence was analyzed using one-way ANOVA and a Tukey procedure. The results of this study mirror studies in the motivational literature which have found the adoption of both performance-approach goals and mastery goals as related to optimal motivation in college educational settings (Harackiewicz, Barron, Pintrich, Elliot & Thrash, 2002). Participants in the mastery-performance goal group displayed high levels of intrinsic motivation, task persistence, and increased performance. Another interesting finding in this study was the fact that members of the mastery goal orientation group also demonstrated a decrease in interest/enjoyment and effort/importance. Although it is contrary to goal orientation theory for an individual who adopts a mastery goal orientation to display a lack of interest/enjoyment and effort/importance, this may be explained by past research (Roberts, 1992). Students who enter into an environment that is inconsistent with their motivational goals may perceive a conflict and may not be as motivated to achieve (Roberts, 1992). Therefore, participants in the mastery group may have perceived a conflict in motivational goals when they were placed into a performance situation. As a result, they may have experienced diminished enjoyment and interest in the task. The researchers also concluded that individuals who adopt a multiple goal orientation may be more likely to experience optimal achievement. Thus, because individuals had the ability to measure their competence from both the demonstration of superiority as well as personal improvement, they

were not limited in their ability to determine their competence. Finally, the researchers concluded that it may be more useful to examine the context of the achievement setting, because the environment may help determine which goal orientation, if not both, to adopt (Steinberg, Singer, & Murphey, 2000).

Later studies in the sport motivation literature examined whether goal orientation could be transferred across different achievement settings, such as in sport and academics (Duda & Nicholls, 1992; Ryska, 2002; Ryska & Vestal, 2004). Ryska and Vestal (2004), found that the type of goal orientation of high school student-athletes in the sport environment had an effect on their behavior in the academic environment. Students with a mastery goal orientation toward sport participation had the highest impact on academic strategy use. Student-athletes who had both a mastery goal orientation and competitive (performance) goal orientation reported the highest levels of educational goals and academic self-efficacy. In the Ryska (2002) study, discussed previously, students in youth sports with a mastery goal orientation in sport also were found to persist in difficult tasks, choose more challenging tasks, report low competitive anxiety, have higher levels of commitment, self-esteem, and competence. They also were more likely to utilize various learning strategies within their sport. Students who adopted a competitive (performance) goal orientation in sport, on the other hand, based their competence in comparison to others by trying to outperform others and demonstrate their superior ability. These students had low perceived ability and were more likely to avoid tasks, give less effort, have higher competitive anxiety, and withdraw from the task for fear of failure. Additionally, Ryska (2002), found that student-athletes' goal orientation in

sport was linked to their perceptions of competence in academics. For example, student-athletes with a high mastery goal orientation perceived themselves as highly competent in their academic achievement, while those who identified a high performance goal orientation felt less competent in academics and social acceptance. Differences in goal orientation among genders also emerged in the Ryska & Vestal (2004) study, which may help to explain their transferability across academic and sport achievement settings. Males and females differed in the way they approach academic tasks due to the nature of their competitive sport experience. For example, males believed that their skill and personal characteristics associated with their increased competitive sport experience were enough for the academic setting as well. Females, on the other hand, believed that their increased amounts of competitive sport experience lead them to be successful in sport and this same strategy could also be applied to the academic setting. In other words, an increased amount of performance on academic tasks would lead them to be successful in the academic setting (Ryska & Vestal, 2004). These studies showed that the dichotomous achievement goals found in the academic setting were also found in the sport setting and relationships were confirmed by theory. Further, they revealed that perceived competence in one domain may not only influence the adoption of a particular goal in that setting, but also across achievement settings. Finally, different reasons were found in males and females for the transferability of goal orientation across both the academic and sport domains.

More recent work on college student-athletes (Greene, Dillon & Miller, 2010) has further examined sport and academic motivation using achievement goal

theory, self-efficacy and perceived instrumentality (the recognition of the future benefits in the activity). The researchers also studied whether differences exist in motivation for academics and motivation for sport between males and females and type of sport program. They presented their preliminary findings at the 12th International Conference on Motivation in Porto, Portugal in September of 2010. The researchers operated within the achievement theoretical 2 X 2 framework developed by Elliot & McGregor (2001) that includes a distinction between mastery and performance goals and that competence can be valenced as either positive or negative. Therefore, the theory asserts that individuals can adopt either approach or avoidance goal orientation: mastery-approach, mastery-avoidance, performance-approach and performance-avoidance. Greene, Dillon & Miller (2010) sampled 271 college student athletes for the study. Participants were 63 percent male; 37 percent female; 56 percent identified themselves as Caucasian; 27 percent as African American; the remaining 17 percent were not identified by ethnicity; 83 percent received an athletic scholarship; 17 percent reported not receiving any athletic aid. Nine male sports and ten female sports were represented in the study; four were considered high profile sports (men's basketball, baseball, football and women's basketball); the remaining 15 sports were considered low profile, but the sports were not identified in the paper. The researchers developed a survey designed to measure six motivational constructs (academic and athletic motivation, mastery-approach and mastery-avoidance goal orientation, performance-approach and performance-avoidance goal orientation, self-efficacy and perceived instrumentality. They also collected demographic information and attitudes of student-athletes towards their

academic and sport status. The researchers ran a Bonferroni adjustment to examine differences between academic and sport motivation. Preliminary findings were that student-athletes scored higher on both mastery and performance-approach goals in their sport as compared to their academics, perceived instrumentality was higher in academics and student-athletes tended to adopt mastery-avoidance goals more in academics than in their sport. They then conducted separate multivariate analyses of variance to examine gender differences for academic and sport motivation as well as univariate tests as a follow-up. Preliminary findings showed that females were significantly higher on mastery-approach goal orientation, lower on mastery-avoidance goal orientation and higher on perceived instrumentality than males in academics; and females were significantly lower on mastery-avoidance than males in sport. The researchers also conducted a multivariate analysis of variance and univariate tests to examine the differences for high versus low profile sports for sport motivation. Preliminary findings revealed that student-athletes in high profile sports were significantly more focused on avoidance motivation than students in low profile sports. These early findings were important because they provided greater understanding about the college student-athlete population, in particular, the differences between academic and sport motivation, gender and type of sport. Additionally, achievement goal theory, with the concept of valence, was offered as a promising theory to be utilized further with the student-athlete population. In particular, the concept of mastery-avoidance goals, which has been explored very little in the achievement motivation sport literature, may be of importance to understanding the motivations of college student-athletes.

Summary

While the NCAA academic reform movement has lead to the improved academic performance of student-athletes as evidenced by higher graduation rates, it does not necessarily mean that student-athletes are receiving a quality education. Unfortunately, many questionable practices have arisen in response to the pressure created for institutions to ensure their student-athletes meet the increased NCAA academic requirements. These academic requirements also serve primarily as external motivators for student-athletes to remain eligible and compete in intercollegiate athletics, as opposed to fostering intrinsic motivation toward learning and earning a college degree. The conflicting principles of amateurism and professionalism further add to the confusing messages student-athletes receive in regards to their academics and athletics, particularly in Division I.

Traditionally, much of the research concerning student-athlete academic performance has only relied upon academic measures, such as GPA and standardized test scores. Recent literature suggests that academic variables alone cannot predict the academic performance of student-athletes because they should be considered a non-traditional college student group. Further, contradictory research exists surrounding the predictability of academic variables, particularly for subgroups of student-athletes, including minorities, males, and student-athletes participating in high profile sports like in football, basketball, and baseball. However, when combined with cognitive variables, non-cognitive variables have been shown to be useful in predicting the academic performance of student-athletes (Sedlacek &

Adams-Gaston, 1992; Petrie & Russell, 1995; Eiche, Sedlacek, & Adams-Gaston, 1997; Garrett, 2000).

Research on motivation may be particularly useful as a non-cognitive variable in predicting the academic performance of student-athletes. It is important to consider it as a predictor of academic performance because the literature suggests that motivational variables such as academic self-efficacy and academic motivation have been shown to be strong predictors of academic performance in student-athletes (Garrett, 2000; Gaston, 2003). Additionally, the motivation literature identifies a positive relationship between academic self-efficacy and academic achievement (Bandura, 1996). Further, student-athletes have been shown to have different motivational orientations and subgroups within the student-athlete population are motivated differently toward athletics and academics (Snyder, 1996; Simons, Van Rheenen, & Covington, 1999; Simons & Van Rheenen, 2000; Gaston, 2003; Gaston-Gayles, 2004).

In addition to the motivational theories which have been used, achievement goal theory has been suggested as an area for further exploration in order to better understand what motivates student-athletes to achieve academically (Gaston, 2003). Having a mastery-approach goal or a performance-approach goal in the classroom has been linked to positive learning processes and academic achievement, while adopting a mastery-avoidance or performance-avoidance goal leads to underachievement and hinders performance. Likewise, in youth sports settings students who adopted either a mastery goal or a multiple goal orientation in sport were more likely to achieve academically and had higher educational goals and

academic self-efficacy than those who adopted a performance goal orientation alone (Ryska, 2002; Ryska & Vestal, 2004). More recent studies have begun utilizing Achievement Goal Theory as a possible predictor of college student-athletes' motivations in academic and sports, but the use of the theory to predict academic performance, particularly with the 2 X 2 framework, has yet to be examined.

The literature in this chapter provided a framework for future study of Division I student-athletes. However, the current literature does not fully explain the problem that higher education faces with Division I intercollegiate athletics. Division I intercollegiate athletics are highly "professionalized" and often send mixed messages to student-athletes about their role as a student vs. as an athlete. Although student-athletes competing within other NCAA divisions may have the opportunity for a future professional athletics career, it is a more likely opportunity for student-athletes competing at the Division I level. This is due to the highly competitive nature, recruitment and awarding of athletic scholarships, and media attention given to Division I athletics. However, because so few athletes actually do play professionally, there is the likelihood that without motivation to complete a degree or an alternative career plan, some Division I student-athletes will drop out of college at the completion of their athletic eligibility. This group will neither graduate with a college degree nor pursue a professional athletics career. In order to better understand what motivates student-athletes to perform academically, this population needed to be studied. Academic self-efficacy and academic goal orientation may be able to predict their academic performance. Athletic self-efficacy and athletic goal orientation may help explain which student-athletes are motivated

by athletics rather than academics. Additionally, it is important to understand the subgroups of student-athletes within that population identified as gender, ethnicity, and type of sport, also in relation to type of goal orientation and self-efficacy in both academics and athletics. Administering surveys to Division I student-athletes shed light on their motivations and allows their institutions to help them develop strategies to set and attain realistic goals. If these student-athletes are able to set realistic short and long term goals, then they may be more likely to attain a college degree and be prepared for life after college athletics. Providing students with a quality education that will lead to a college degree is one of the goals of higher education. Higher education and athletic departments can meet this same goal for student-athletes.

CHAPTER THREE

Methodology

"Without a doubt, you can't be a successful athlete without being confident in your abilities, knowing you're as confident as anyone you're facing."
--Dave Schutter

Introduction

The purpose of this study was to examine the academic and athletic motivation of Division I student-athletes. In particular, it examined the relationship of academic and athletic self-efficacy and academic and athletic goal orientation on the academic and athletic performances of Division I intercollegiate student-athletes. In order to understand the relationships between perceived self-efficacy and goal orientation in both academic and athletic environments with student-athletes' academic performance and whether the variables correlate as predicted by achievement goal theory, a correlation design was used. Due to the implications of the research on males, minorities and high profile sport participants it was also important to investigate athletic and academic motivational differences within the student-athlete population's subgroups of gender, ethnicity, and type of sport. Therefore, to examine the mean differences between subgroups within the student-athlete population, analysis of variance (ANOVA) was conducted. Additionally, multivariate analysis of variance (MANOVA) was utilized to look for any significant effects. Finally, the study sought to determine if academic self-efficacy and academic goal orientation predict the academic performance of student-athletes. Multiple regression was utilized to determine whether academic self-efficacy and academic goal orientation were predictors of student-athlete academic performance.

The research questions guiding the study are as follows.

1. What is the relationship between mastery goal orientation with academic and athletic performance?

Hypotheses

a. There is no relationship between academic mastery-approach goal orientation and academic performance;

b. There is an inverse relationship between academic mastery-avoidance goal orientation and academic performance;

c. There is an inverse relationship between athletic mastery-approach goal orientation and academic performance;

d. There is no relationship between athletic mastery-avoidance goal orientation and academic performance.

e. There is a positive relationship between athletic mastery-approach goal orientation and athletic performance;

f. There is an inverse relationship between athletic mastery-avoidance goal orientation and athletic performance;

g. There is no relationship between academic mastery-approach goal orientation and athletic performance;

h. There is no relationship between academic mastery-avoidance goal orientation and athletic performance.

2. Second, what is the relationship between performance goal orientation and academic performance?

Hypotheses

a. There is a positive relationship between academic performance-approach goal orientation and academic performance;

b. There is an inverse relationship between academic performance-avoidance goal orientation and academic performance;

c. There is an inverse relationship between athletic performance-approach goal orientation and academic performance;

d. There is no relationship between athletic performance-avoidance goal orientation and academic performance;

e. There is a positive relationship between athletic performance-approach goal orientation and athletic performance;

f. There is an inverse relationship between athletic performance-avoidance goal orientation and athletic performance;

g. There is no relationship between academic performance-approach goal orientation and athletic performance;

h. There is a positive relationship between academic performance-avoidance goal orientation and athletic performance.

3. Third, do self-efficacy and goal orientation variables correlate consistent with theory?

Hypotheses

a. There is a positive relationship between academic self-efficacy and academic goal orientation;

b. There is a positive relationship between athletic self-efficacy and athletic goal orientation;

c. There is no relationship between academic self-efficacy and athletic goal orientation;

d. There is no relationship between athletic self-efficacy and academic goal orientation;

4. Fourth, what is the relationship between academic/athletic self-efficacy and academic/athletic performance?

Hypotheses

a. There is a positive relationship between academic self-efficacy and academic performance;

b. There is no relationship between athletic self-efficacy and academic performance;

c. There is a positive relationship between athletic self-efficacy and athletic performance;

d. There is no relationship between academic self-efficacy and athletic performance.

5. Fifth, because we are examining differences among gender, ethnicity, and type of sport, the following hypotheses were developed.

Gender Hypotheses

a. There are significant differences in academic performance of male and female student-athletes with female student-athletes performing better academically;

b. There are significant differences in mastery goal orientation of male and female student-athletes with more female student-athletes adopting a mastery goal orientation;

c. There are no differences in performance goal orientation of male and female student-athletes;

d. There are significant differences between male and female student-athletes in approach-avoidance motivation, with more

female student-athletes adopting an approach motivation in academics and athletics.

Ethnicity Hypotheses

a. There are significant differences in academic performance of minority and non-minority student-athletes;

b. There are no differences in mastery goal orientation of minority and non-minority student-athletes;

c. There are significant differences in performance goal orientation of minority and non-minority student-athletes;

d. There are no significant differences between minority and non-minority student-athletes in approach-avoidance motivation in athletics;

e. There are significant differences between minority and non-minority student-athletes in approach-avoidance motivation in academics, with more minority student-athletes adopting an avoidance motivation.

Type of Sport Hypotheses

a. There are significant differences in academic performance of high profile and low profile sport participants;

b. There are significant differences in mastery goal orientation of high profile and low profile sport participants;

c. There are significant differences in performance goal orientation of high profile and low profile sport participants;

d. There are significant differences between high profile and low profile sport participants in approach-avoidance motivation in academics, with more low profile sport participants adopting an approach motivation in academics, and with more high profile sport participants adopting an avoidance motivation in academics;

e. There are no significant differences between high profile and low profile sport participants in approach-avoidance motivation in athletics.

6. Sixth, do academic self-efficacy and academic goal orientation predict the academic performance of student-athletes?

Hypotheses

a. Academic self-efficacy and academic goal orientation predict the academic performance of student-athletes, but together more so than independently.

7. Seventh, what are the relationships between the two non-cognitive variables of college experiences and academic support with motivation and academic performance?

Methods

Rationale for Methods

Surveys were the primary method for gathering the data. Survey research is "a technique in which data are gathered by asking questions of a group of individuals called respondents," (Ary, Jacobs & Razavieh, 2002, p. 374). Administering surveys for the purpose of this study was useful because it allowed a collection of data from a large group of people. Since this study sought to only study a portion of the entire Division I student-athlete population, it is called a sample survey (Mertens, 2005). Additionally, the design of the survey was simple descriptive, in which it was administered at one-point in time to collect the data needed.

Correlational research examines how scores on two or more variables from the same group of subjects increase or decrease as scores on other variables increase or decrease. It investigates how the variables are related and the direction of the relationship (Ary, Jacobs & Razavieh, 2002). Correlation analysis is especially useful for helping to explain variance; the proportion of variance of the criterion variables accounted for by the predictor variables (Kachigan, 1991). The strength of the relationship is measured by the correlation coefficient. Another advantage of correlational research is that several variables can be included in one study (Mertens, 2005). Therefore, a correlational study allowed for exploration of the relationship between the predictor variables of self-efficacy (academic and athletic) and goal

orientation (academic and athletic) on the criterion variables of academic and athletic performance obtained from Division I student-athletes. It also allowed us to explore to what extent gender, ethnicity, and type of sport correlates with academic and athletic self-efficacy and academic and athletic goal orientation. It also allowed us to examine the relationship between the non-cognitive variables of college experiences and academic support with motivation and academic performance. A correlational study was also warranted for this research to examine whether the variables correlate as predicted by self-efficacy and achievement goal theories (Mertens, 2005).

Demographic variables were also collected in order to examine whether any significant differences exist between the subgroups of student-athletes on academic and athletic self-efficacy and academic and athletic goal orientation as a function of gender, ethnicity, and type of sport. Analysis of variance (ANOVA) can be used when you have more than two groups to compare or when you have different combinations of independent and dependent variables (Mertens, 2005). Therefore, mean scores on the demographic variables as well as on self-efficacy (academic and athletic) and goal orientation (mastery-approach academics, mastery-avoidance academics, performance-approach academics, performance-avoidance academics, mastery-approach athletics, mastery-avoidance athletics, performance-approach athletics, and performance-avoidance athletics) can be used to compare differences between the student-athlete subgroups. In other words, ANOVA can be utilized to see what mean differences exist for males vs. females; minorities vs. non-minorities; high profile vs. low profile sport participants; recruited vs. non-recruited; starter vs. non-starter; and full scholarship vs. partial scholarship vs. non-scholarship in regards

to academic and athletic self-efficacy and academic and athletic goal orientation. Likewise, multivariate analysis of variance (MANOVA) is used in the same way as ANOVA, except there is more than one dependent variable involved. MANOVA then, can be used to examine the effects of the motivational variables on the academic and athletic performances of student-athletes.

Finally, multiple regression was used to analyze whether academic self-efficacy and academic goal orientation (mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance) could predict the academic performance (as measured by self-reported cumulative college GPA) of Division I intercollegiate student-athletes. Regression analyses are useful for prediction. While correlation analyses can help explain the strength of relationships between variables, regression analyses can help explain the nature of that relationship. Multiple regression is similar to multiple correlation, and uses values on several predictor variables in order to estimate the values on a criterion variable (Kachigan, 1991). By using several predictor variables, instead of just one, the technique is designed to indicate the amount of variance that all of the predictor variables explain (Mertens, 2005). Therefore, multiple regression analyzed the values of academic self-efficacy and academic goal orientation (mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance) to determine how much of the variance of cumulative college GPA was explained by these variables.

Sample

Although Division I student-athletes represent the highest college level in their sport, there are differences within Division I. The top level student-athletes are

usually found at the Football Bowl Subdivision (formerly known as Division I-A) level because they are recruited with athletic scholarships. According to Ary, Jacobs & Razavieh (2002), correlational studies do not require extremely large samples. If a relationship exists, it should be evident in a moderate sample size (50-100). For correlational research Mertens (2005) suggests about 30 participants; for multiple regression Mertens (2005) suggests at a minimum 15 participants per variable; and for survey research at least 100 participants for each major subgroup and 20 to 50 participants for minor subgroups. Since this study focused on the Division I student-athlete population, more than 30 participants were needed in order to support the findings of the research. With eighteen variables (academic self-efficacy, athletic self-efficacy, mastery-approach goal orientation academics, mastery-avoidance goal orientation academics, performance-approach goal orientation academics, performance-avoidance goal orientation academics, mastery-approach goal orientation athletics, mastery-avoidance goal orientation athletics, performance-approach goal orientation athletics, performance-avoidance goal orientation athletics, gender (female vs. male), ethnicity (minority vs. non-minority), type of sport (high profile vs. low profile), starter vs. non-starter status, and cumulative college grade point average to be studied in this research, at least 270 participants should be used for multiple regression analysis. With three major subgroups (gender, ethnicity, and type of sport), each with two minor subgroups within them, at least 300 participants should be used for survey research. However, because we were interested increasing the probability that statistically significant relationships and predictions would be found, a larger sample needed to be used. A representative sample from the

population was used by researching intercollegiate student-athletes from two private universities sponsoring a Division I-FBS athletic program in the Southwestern portion of the United States, and attending school during the fall 2011 semester. Although the results of the study would not be generalizable to the entire Division I-FBS student-athlete population, it was of interest to private schools in this division and provided insight into this population for other researchers interested in studying student-athletes.

The student-athlete population at each school consisted of approximately 300-350 student-athletes. The entire group of student-athletes meeting certain criteria were selected for the study (N = 678). The student-athlete population was classified by the university's athletic department as being on one of the team rosters at the start of classes for the fall 2011 semester, being enrolled in at least 12 credit hours per semester, and being classified as regular degree-seeking students. A response rate of 70 percent has been recommended as acceptable for research (Mertens, 2005). With the overall student-athlete population at 678 student-athletes, a 70 percent response rate would have yielded a sample of approximately 475 Division I-FBS student-athletes.

Data Collection & Procedures

Prior to conducting the study, the researcher obtained Institutional Review Board (IRB) approval from the schools during summer 2011. This process involved visiting each school's IRB website and or in-person, if necessary, to obtain the appropriate forms. It took approximately 3-4 weeks. Initially, the Director of Athletics was contacted to obtain permission for the school's student-athletes to

participate in the study. The purpose of this initial contact was to increase the response rate and obtain permission of participation for this study. This was accomplished through e-mail and followed-up by a personal phone call through which the researcher identified herself, discussed the purpose of the study, and then requested cooperation. Contacting the Director of Athletics put a more personal face on the study and established trust before performing the actual data collection.

Obtaining permission from the schools' Director of Athletics was not very difficult once IRB approval was given; however, scheduling for the administration of the survey was challenging and labor-intensive. Most athletic departments conduct team meetings during the fall semester as part of orientation for the new school year. It was also beneficial to administer the surveys at the same time.

The researcher administered the survey either in-person or appointed a survey administrator to the student-athletes through team meetings conducted in the fall 2011 semester. The administrator explained the consent forms which addressed the following: that the study is voluntarily, they may discontinue it at any time, and the directions for completing the survey. The surveys took approximately 10-20 minutes to complete. Incomplete or unusable surveys were discarded. Likewise, those student-athletes without cumulative college GPAs, such as freshmen, were also discarded for the multiple correlation, ANOVA, MANOVA, and multiple regression analyses, but were collected for purposes of descriptive statistical comparisons.

Data for each variable were entered on a data collection form and then coded for entry into SPSS, a computer statistical analysis software package. Once

instruments were coded and scored original survey data was destroyed in order to maintain anonymity and ensure confidentiality.

Pilot Study

The researcher piloted the study with one of the university's student-athlete population who attended summer school during the summer 2011 semester. This sample consisted of approximately five student-athletes. The researcher administered the same survey to the pilot group; however, they were also interviewed and encouraged to provide feedback about the survey instrument through a focus group. Participants discussed the instrument in-person during the focus group interview and/or on paper. Specifically, a comments section was provided at the end of the survey, giving pilot participants the option to explain any problems with the questions asked and the ability to recommend revisions or additions to the questions asked on the survey. The purpose of piloting the study was to determine whether the instrument would be useable for the main study. The survey was revised in two ways based upon their recommendations. First, pilot group participants recommended the Likert scale, numbered one through six, be ordered from "Strongly Disagree to Strongly Agree," instead of from "Strongly Agree to Strongly Disagree." They believed this made more sense and was easier to read. Second, the pilot group recommended rewording two questions on the survey in the demographic section, namely the wording of the questions that asked about academic classification and eligibility status to include the phrase, "at the beginning of the fall 2011 semester." These changes made sense and therefore, the survey was revised accordingly.

Instruments

One survey instrument consisting of five measurement tools based upon the literature review was used for the purposes of this study (see appendix). Therefore, data was gathered from a demographic questionnaire, the Motivated Strategies for Learning Questionnaire (MSLQ), designed to measure academic self-efficacy, a revised version of the MSLQ to measure athletic self-efficacy, the Achievement Goal Questionnaire (AGQ), designed to measure goal orientation in academics, and the AGQ-S, designed to measure goal orientation in sport. The instrument will included a total of 52 questions and took approximately 10-20 minutes to complete.

Demographic Questionnaire

Each of the student-athletes was given a demographic questionnaire included as part of the survey to answer questions about the following: gender (male/female); ethnicity (Caucasian, African American, Hispanic/Latino, Asian American, Hawaiian Native/Pacific Islander, Native American/Alaskan Native, Non-Resident Alien, Two or more races, and Other); type of sport (high profile – Football, Men's Basketball, Women's Basketball, and Baseball/low profile – student-athletes from the following sports if present: Women's Bowling, Men's & Women's Cross Country, Equestrian, Women's Field Hockey, Men's & Women's Fencing, Men's & Women's Golf, Men's & Women's Gymnastics, Men's & Women's Ice Hockey, Men's & Women's Lacrosse, Men's & Women's Rifle, Rowing/Crew, Men's & Women's Skiing, Men's & Women's Soccer, Softball, Men's & Women's Swimming, Men's & Women's Tennis, Men's & Women's Track, Men's & Women's Volleyball, Men's & Women's Water Polo, and Wrestling); academic

classification (freshman, sophomore, junior, senior, fifth year, post-graduate); a question to control for first semester students (yes or no); recruited status (recruited/non-recruited); athletic scholarship status (full, partial, none); years of eligibility remaining (four, three, two, one, none), athletic performance measurement (starter or non-starter), and self-reported college cumulative grade point average as of the beginning of the fall 2011 semester. Freshmen may not have a cumulative grade point average if they did not attend summer school prior to their fall matriculation, but their data was still collected for the purpose of comparing descriptive statistics. Two additional questions were added at the end of the survey to address college experiences and academic support. Specifically, student-athletes were asked to rate the extent to which they believed their overall college experience has contributed to their academic motivation. They were then asked to rate the extent to which they believed the academic support provided by the institution contributed to their academic performance.

Self-Efficacy Measures

Self-efficacy was measured using the self-efficacy subscale from the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich, Smith, Garcia, & McKeachie, 1991; Garcia & Pintrich, 1995; Pintrich, 2004; Garcia-Duncan & McKeachie, 2005). The MSLQ was developed based upon social-cognitive theory involving motivation and learning strategies. This theoretical framework distinguishes the MSLQ from other measures of study skills and learning styles surveys, which have been criticized for being atheoretical (Garcia & Pintrich, 1995). By focusing on motivation and cognition the MSLQ also addresses the research on

academic performance outcomes. The MSLQ consists of a motivation section and a learning section. The motivation section proposes three general motivational constructs: expectancy, value, and affect. Expectancy refers to the student's belief in their ability to accomplish a task, with two subscales directed at assessing self-efficacy and control beliefs for learning. Garcia & Pintrich, (1995) defined the self-efficacy scale as one's expectancy for success, judgments of one's ability to accomplish a task, and confidence in one's skills to perform a task. The self-efficacy subscale consists of eight questions. Items are typically scored on a seven-point Likert-type scale, from 1 (Not at all true of me) to 7 (Very true of me). However, for the purpose of this study a six-point Likert-type scale will be used, so as to avoid participants selecting a neutral middle option, which could be considered a "cop out". Scale scores are constructed by taking the mean of the items that make up that scale.

The MSLQ has been developed for college and junior high school students. It has also been used in different languages and in different countries. In order to test construct validity Garcia & Pintrich (1995) performed confirmatory factor analysis of each of the items on the MSLQ. All of the items were correlated with a goodness-of-fit test. The motivation item (relevant for measuring the self-efficacy scale discussed here) resulted in a goodness of fit (GFI) of .77, an adjusted goodness of fit (AGFI) of .73, a root mean residual (RMR) of .07, and generated a X2/df ratio of 3.49. Goodness of fit values above .90 are more desirable, but according to Garcia & Pintrich (1995), these are reasonable. The RMR is acceptably low. A ratio of less than 5 is considered to be a good fit between the observed and reproduced

correlations (Garcia & Pintrich, 1995). Internal reliability estimates also provide additional support for the strength of the MSLQ subscales with the self-efficacy for learning and performance scale at .93 coefficient alpha (Pintrich, Smith, Garcia & McKeachie, 1991). Therefore, eight questions based upon the self-efficacy subscale of the MSLQ were developed for use in this study and designed to measure academic self-efficacy and are listed in Table 1 in the appendices. Self-efficacy in athletic settings was measured with a revised version of the eight questions developed from the self-efficacy subscale of the MSLQ and are listed in Table 2 of the appendices.

Achievement Goal Orientation Measures

Achievement goal orientation in academic settings was measured with the Achievement Goal Questionnaire (AGQ) developed by Elliot & McGregor (2001) and designed to assess the four achievement goals: mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance. It consists of 12 questions, with three questions to address each achievement goal. The AGQ was originally developed based upon the trichotomous achievement goal framework for mastery-approach, performance-approach, and performance-avoidance goals (Elliot, 1999; Elliot & Church, 1997). In Elliot & McGregor's (2001) study they added the fourth: mastery-avoidance goal orientation and tested the 2 X 2 framework for its validity in two separate studies. The researchers first conducted an exploratory factor analysis on the 12 achievement goal questions using principal-components extraction with varimax rotation. The analysis yielded four factors with an eigenvalue exceeding unity, and the factor solution accounted for 81.5 percent of the total variance. Factor one accounted for 36.4 percent of the variance and included

three performance-approach questions (eigenvalue = 4.37). Factor two accounted for 21.3 percent of the variance and included three mastery-avoidance questions (eigenvalue = 2.56). Factor three accounted for 14.9 percent of the variance and included three mastery-approach questions (eigenvalue = 1.79). Factor four accounted for 8.8 percent of the variance and included three performance-avoidance questions (eigenvalue = 1.06). All questions loaded above .70 on their primary factor (Elliot & McGregor, 2001). Participants' responses on the questions for each factor were then averaged to form four goal indexes, and each index had good reliability with Cronbach's alpha at .83 or above on all four factors. Elliot & McGregor (2001) then conducted confirmatory factor analysis on the four achievement goals and also found the four achievement goal constructs were independent constructs and internally consistent. Cronbach's alpha again was .83 or higher on all four factors, as evidence of reliability. Confirmatory factor analysis also revealed that the 2 X 2 achievement goal framework was a better fit to the data than the trichotomous model. Therefore, the AGQ based upon the 2 X 2 achievement goal framework was used as the instrument in this study to measure goal orientation in academics and is listed in Table 3 in the appendices.

Achievement goal orientation in sport settings was measured with the Achievement Goal Questionnaire-Sport (AGQ-S). The AGQ was revised for applicability to the sport domain and designed to assess the four achievement goals in sport: mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance (Conroy, Elliot & Hofer, 2003). It was based upon the 2 X 2 achievement goal framework developed by Elliot & McGregor (2001). In their

research, Conroy, Elliot & Hofer (2003) sought to examine the psychometric properties of the 2 X 2 achievement goal framework to be used in sport settings. First, they evaluated plausible factor models of AGQ-S responses using data from Wave 1 to establish whether a priori factor model of scores is optimal. Second, the invariance of the factor structure, stability of individual differences, and stability of latent factor means was established using tests of longitudinal factorial invariance, differential stability, and latent growth curve modeling. A 21-day interval was selected for these measurements (Conroy, Elliot & Hofer, 2003). The researchers conducted a series of confirmatory factor analyses to examine the fit of the a priori 2 X 2 model against six other possible alternative models. They found the 2 X 2 model to be the best fit for the data, with each item loading significantly on it hypothesized latent variable, and all standardized parameters for item factor regressions exceeded .60. This model also achieved goodness-of-fit indices of .92 to .94, exceeding the conventional .90 minimum criteria for acceptable fit. The average internal consistencies were .70 for mastery-approach, .82 for mastery-avoidance, .88 for performance-approach, and .87 for performance-avoidance goal orientation. Longitudinal factor analyses revealed that the model achieved a level of factor invariance ranging from strict invariance (mastery-avoidance scores) to partial strong invariance (mastery-approach, performance-approach, performance-avoidance). Rank ordering true scores on the four factors yielded differential stability coefficients that exceeded the minimum criteria. Changes in mean scores over time were also minimal. Based on their findings, Conroy, Elliot & Hofer (2003) found that the 2 X 2 AGQ-S exhibited strong psychometric properties including factorial validity,

temporal stability, and external validity over a 21-day interval. Therefore, the AGQ-S was used as the instrument in this study to measure goal orientation in sports and is listed in Table 4 in the appendices.

As in the Greene, Dillon & Miller (2010) paper, the statements on both the AGQ and AGQ-S were followed by a six point Likert type agreement scale (1=Strongly Disagree to 6=Strongly Agree). These items measured the following variables for both academic and athletic motivation: mastery-approach, mastery-avoidance, performance-approach, and performance avoidance.

Data Analysis

First, descriptive statistics (means and standard deviations) were examined for the academic and athletic self-efficacy, academic and athletic goal orientation (mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance), self-reported cumulative college GPA, athletic starter status, gender, ethnicity, type of sport, academic classification, recruited status, athletic scholarship status, and years of eligibility remaining scores. Describing the population using these additional demographic data was helpful in making assessments about the generalizability of the findings. Second, in order to see if the variables were correlated with each other, the strength and direction of the relationships were measured using the correlation coefficient I. The size of the correlation coefficient indicates the strength of the relationship, with r = +1.00 indicating a perfect positive relationship, r = -1.00 as a perfect negative relationship, and r = 0.0 as no relationship. The closer the correlation coefficient is to +-1.00, the stronger the relationship or the more accurate the prediction (Mertens, 2005). A positive

correlation means the variables increase or decrease together. A negative relationship means that the variables are inverse to each other – or while one goes up, the other does down. More specifically, the correlation coefficient is a summary measure of the linear relationship between paired values of two random variables (Kachigan, 1991).

Based upon the same concept, a multiple correlation analysis is useful because it examines the relationships among several variables. In order to arrange all of the correlation coefficients between each pair of variables (Kachigan, 1991) a correlation matrix can be used. A correlation coefficient was calculated for all of the possible relationships that could exist between academic performance (self-reported cumulative college GPA), self-efficacy (academic and athletic) and achievement goal orientation (mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance), as well college experiences and academic support in both academics and sport. All of these were then placed into the correlation matrix in order to see the relationships that existed between the variables. This allowed us to tell which variables were most highly correlated with each other, which ones were most highly correlated with each of the individual variables, which ones clustered, and which ones were independent of each other (Kachigan, 1991).

Analysis of variance (ANOVA) can be used when presented with various qualitative and quantitative predictor and criterion variables (Kachigan, 1991). Specifically, ANOVA refers to a procedure for partitioning the total variation of data into separate parts. ANOVA is conducted when one has more than two groups to compare, more than one independent variable, and one dependent variable. Because

this study examined more than two groups (gender, ethnicity, type of sport, recruited status, starter status, and scholarship status) in regards to self-efficacy (academic and athletic) and goal orientation (mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance), ANOVA was utilized to understand the amount of variance both between and within the groups of data. Further, ANOVA allows the researcher to test the hypotheses about the differences among the groups using a ratio, called the F-ratio. The F-ratio uses group means as a measure of observed differences among groups. Variance between groups is captured by the numerator in the F-ratio, while variance within groups is captured by the denominator in the F-ratio. As variance between groups increases, the F-ratio increases. As variance within groups increases, the F-ratio decreases. When the numerator and denominator are equal, the differences between group means are no greater than would be expected by chance alone. If the numerator is greater than the denominator, a table of F-values determines whether the ratio is great enough to reject the null hypothesis at a predetermined level (Ary, Jacobs & Razavieh, 2002).

Multivariate analysis of variance (MANOVA), on the other hand, examines the combined effects of two or more independent variables on multiple dependent variables. Multivariate analysis of variance will result in an effect size, which is a technique used to measure the magnitude of the difference between groups, or the degree to which sample results diverge from the null hypothesis (Ary, Jacobs & Razavieh, 2002). In other words, effect size can be used to compare the magnitude of the relationships various independent variables have with a common dependent variable or "the degree to which the phenomenon is present in the population"

(Cohen, 1988, p. 9). It can also be used to help decide whether the difference an independent variable makes on a dependent variable is strong enough to recommend its implementation in practice. Multivariate analysis of variance can result in main effects or interaction effects. A main effect is the effect that an independent variable has on the dependent variable, without the influence of the other independent variables. An interaction effect is when the effect of one independent variable on a dependent variable change at different levels of the second independent variable. The following guidelines were used from Cohen (1988) to interpret the magnitude of the effect size: .01 = small effect, .06 = moderate effect, and .10 = large effect. Therefore, two MANOVA's were performed in this study: one to examine the effects of key demographic and motivation variables in academics and one to examine the effects of key demographic and motivation variables in sport.

Multiple regression is useful for prediction and was used to analyze whether academic self-efficacy and academic goal orientation (mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance) predicted the academic performance (as measured by self-reported cumulative college GPA) of Division I intercollegiate student-athletes. Multiple regression analysis results in a multiple regression equation. Kachigan (1991) recommends examining the beta coefficients in the equation in order to determine the relative importance of the predictor variables. The relative importance of the predictor variables can be obtained by taking the ratio of the squares of their respective betas. The beta coefficient, then determines how much the predictor variables account for the variance in the criterion variable. It is also useful because it provides us with a rank-

ordering of the predictor variables as to their accuracy in accounting for the variance of the criterion variable (Kachigan, 1991). For this study, then, multiple regression analysis was performed on the predictor variables of academic self-efficacy and academic goal orientation (mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance) to obtain a multiple regression equation with beta coefficients. Knowing the beta coefficients of each of these variables, provided information about how much variance they accounted for in college cumulative grade point average.

Limitations & **Assumptions**

While this study sought to be as inclusive of the Division I student-athlete population as possible there were limitations to its generalizability. Inferences from this study were limited to Division I institutions. Any inference to other level student-athletes (NCAA Division II, III, and NAIA, Junior College) would not be appropriate. A second limitation to this study was that only private universities in the Southwest region of the United States were sampled in the study. However, since Division I athletic departments share similar missions across the United States, the findings of this study will apply to those interested in the motivations of their student-athlete population. Additionally, private institutions will also find the study applicable. A third limitation of the current study was that Division I athletic departments across the country differ somewhat in the number and kinds of sports they offer, often in response to regional popularity. For example, in northern parts of the country Ice Hockey is very popular and is another high profile sport that the current schools in the present study do not offer. Otherwise, the schools are fairly

comparable with others in the ratio of men's and women's sports it must offer, as well as participation numbers required by Division I membership. A fourth limitation of this study was that GPA was self-reported as opposed to being collected from official university records. Finally, a fifth limitation was that freshman GPA may be a less valid indicator of academic performance than upper class GPA.

Two major assumptions of this study were that self-reported cumulative grade point average was a valid determinant of a student-athlete's academic performance and that being a starter vs. being a non-starter was a valid determinant of a student-athlete's athletic performance. It was also assumed that if necessary, an appointed survey administrator administered the survey in accordance with the protocols established by the researcher. A third assumption of the study was that student-athletes would report their answers honestly on the survey and that they would answer the same way whether the researcher (with whom they may be unfamiliar) or an individual from their school (whom they most likely are familiar) was the one to administer the survey. Students may have answered the questions in such a way they are reporting what they think the answer should be, rather than how they actually believed or felt about it.

Summary

Understanding what motivates student-athletes is important in instructing, advising, and graduating student-athletes from college. Moreover, it promotes providing student-athletes with a meaningful and quality educational experience. This study sought to understand whether academic and athletic motivation could predict the academic performance of this population. Further, it sought to

understand the differences in motivation which may exist between the student-athlete subpopulations of gender, ethnicity, and type of sport. Finally, the study examined whether a correlation exists between these subpopulations with self-efficacy and goal orientation theory. Surveys and demographic data collection of this information shed light on Division I student-athletes and help athletic departments identify those student-athletes who are academically and/or athletically motivated. While all students attending college should be motivated to earn a college degree, the fact is in athletics, this is not always the case. If student-athletes are unable to pursue their sport at the professional level, then they need to have a meaningful plan to remain in college and graduate so they can go on to become productive members of society. Helping student-athletes fulfill their potential should be the goal of every athletic department in the country.

CHAPTER FOUR

Results

"As any athlete knows, momentum is the most unstoppable force in sports. The only way to stop it is if you get in your own way, start making stupid mistakes, or stop believing in yourself."
--Rocco Mediate

Introduction

The purpose of this study was to examine the academic and athletic motivation of Division I student-athletes. In particular, it examined the relationship of academic and athletic self-efficacy and academic and athletic goal orientation on the academic and athletic performances of Division I intercollegiate student-athletes. The research questions guiding this study were as follows.

1. First, what is the relationship between mastery goal orientation with academic and athletic performance?

2. Second, what is the relationship between performance goal orientation with academic and athletic performance?

3. Third, do self-efficacy and goal orientation variables correlate consistent with theory?

4. Fourth, what is the relationship between academic/athletic self-efficacy and academic/athletic performance?

5. Fifth, what differences exist among the student-athlete population within each subgroup by gender, ethnicity, and type of sport?

6. Sixth, do academic self-efficacy and academic goal orientation predict the academic performance of student-athletes?

7. Seventh, what are the relationships between the two non-cognitive variables of college experiences and academic support with motivation and academic performance?

The results of the study are reported in the following sub-sections in this chapter: (1) Comparative analysis of the two private institution's student-athlete populations and the student-athlete sample on the key demographic; distribution of the student-athlete sample by sport and ethnicity; (2) reliabilities of the motivational constructs; (3) descriptive characteristics and ANOVAs of the student-athlete sample for cumulative college grade point average and the motivational constructs; descriptive characteristics of the student-athlete subgroups on cumulative college grade point average, starter status and on the motivational constructs; (4) correlations of the motivational constructs and academic performances; (5) analysis of academic performance (self-reported cumulative college GPA) and athletic performance (starter status) of selected predictor variables on the student-athlete sample; (6) description of results for each research question and corresponding hypotheses tested; and (7) summary of findings.

Comparative Analysis of Population and Sample

The population of prospective participants for the study consisted of 678 Division I student-athletes attending two private institutions during the Fall 2011 semester. All student-athletes were required to attend team compliance meetings during August and September 2011, during which the researcher or her designee

administered the surveys to those who volunteered to take part in the study at the end of each meeting. Of the 678 student-athletes, 274 student-athletes volunteered to participate in the study for the sample. Of this group, 65 more were excluded from the study because they indicated they were enrolled in their first full-time semester. The student-athletes in their first semester of college either did not report a college grade point average or had only attended college in the summer prior to their Fall 2011 matriculation. Academic performance could not be measured for those who did not report a cumulative college GPA. Likewise, one semester of summer school was not considered a good indicator of academic performance. This is due to the following reasons: summer school is not considered the first full-time semester of enrollment for matriculation purposes and it is a well known fact that student-athletes who attend summer school prior to college matriculation are often enrolled in more manageable courses that may not necessarily reflect their academic performance in college. Therefore, an adjusted sample of 209 student-athletes was included in the study.

Comparative demographic data for the overall and sample student-athlete populations in this study are presented in Table 5 in the appendices. Distributions of the student-athlete sample are presented in Tables 6 and 7 in the appendices. Although more males than females exist within each school's student-athlete population, more females took part in the survey. Likewise, both schools consist of a higher number of high profile sport participants, but more low profile sport participants volunteered for the survey. This can be seen in Table 6, which details the distribution of the student-athlete sample by sport. Of the 46 percent high profile

sport participants in the sports of baseball, football, men's basketball, and women's basketball, only 13 percent volunteered to take the survey. Therefore, in regards to gender and type of sport, the sample student-athlete population is not representative of the student-athlete population at the two schools.

The population and sample also slightly differed was with respect to academic classification. The majority of student-athletes in each school's population consist of freshmen. However, first semester students were removed from the study. The largest academic class represented in the study was juniors (39 percent), which was the second most represented class in the actual population (25 percent). Similarly, the number of student-athletes with four seasons of eligibility remaining was high in the student-athlete population, but very low in the sample, given that this group also most likely consisted of first semester student-athletes. The largest number of student-athletes in the sample were those who indicated they had two seasons of eligibility remaining. Otherwise, the student-athlete sample was fairly representative of the student-athlete population. Both the student-athlete population (62 percent) and sample (73 percent) consist mostly of non-minority, or White student-athletes. The remaining ethnicities represented are detailed in Table 7. Likewise, recruited status was well represented with 77 percent in the student-athlete sample and 76 percent in the overall student-athlete population. In regards to scholarship status, the majority of both the student-athlete population and sample were student-athletes who received athletic scholarships, as compared to those who do not. The only variation was that more full scholarship student-athletes were in the population, while those on partial scholarships were more highly represented in the

sample. This is not surprising given that fewer males and high profile sport participants actually took the survey, as these would have been highly represented in the full scholarship category due to being football student-athletes. However, the smallest number represented on both the population and the sample was those student-athletes who do not receive any athletic scholarship. Finally, although not determined in the overall student-athlete populations, 143 of the 209 student-athletes surveyed (68 percent), identified themselves as "starters" in their sport, the variable meant to measure athletic performance.

Reliability of Constructs

Table 8 shows the reliability of each of the motivational constructs. Reliability analysis utilized a Cronbach's alpha for the variables in each of the scales. Cronbach's alpha is a homogeneity measure in that it measures internal consistency. The more homogeneous the measure, the greater the inter-item consistency (Ary, Jacobs, & Razavieh, 2002). Researchers use Cronbach alpha when measures have items that are not recorded as right or wrong. Specifically, Cronbach's is appropriate when items on a scale have a range of values (Likert scaled items). High alpha coefficients indicate a high level of consistency of the items on a scale in measuring what they are supposed to measure. The closer the coefficient alpha value is to 1.00, the higher the reliability. The degree of reliability needed in a measure depends upon the extent to which the results are used. In other words, the need for accurate measurement increases as the consequences of decisions and interpretation become more important. Ary, Jacobs, & Razavieh, (2002) explain

that modest reliability ranges anywhere from .50 to .60. The highest reliabilities are at or above .90.

Reliability estimates for the motivational constructs were moderate to high. The academic self-efficacy coefficient alpha in this study was found to be .90, which is supported by the literature. Pintrich, Smith, Garcia & McKeachie, (1991) found the internal reliability estimate on the MSLQ subscale which measures self-efficacy for learning and performance to be at .93 coefficient alpha. Sport self-efficacy had not previously been researched in the literature, but was conceived using the same subscales on the MSLQ as were used to measure academic self-efficacy, but questions were revised to address athletic self-efficacy. Sport self-efficacy was found to have a coefficient alpha of .88.

The AGQ was designed to measure achievement goal orientation in learning environments, so it was used in this study for the achievement goal orientations in academics. Elliot & McGregor (2001) confirmed a .83 coefficient alpha of the AGQ using the 2 X 2 achievement goal model. As seen in Table 8 below, the academic constructs in this study range anywhere from .74 to .82, fairly similar to the results presented in the literature. Conroy, Elliot, & Hofer (2003) revised the AGQ for the 2 X 2 achievement goal model to address sport settings and developed the AGQ-S. They conducted test-retest reliability coefficients at four different waves and found the average coefficient of .70. In fact, according to Duda & Whitehead (1998) the test-retest reliability coefficients for achievement goal measures in sport typically range between .68 and .80. As seen in Table 8 below, the sport constructs in this study had coefficient alphas ranging from .76 to .82. The constructs were found to

have moderate to high reliabilities similar to the supporting literature. Therefore, the instrument used in this study was found to be reliable.

Table 8
Constructs Reliability

Variable	Cronbach's Alpha
MapAc	.80
MapS	.76
MavAc	.74
MavS	.79
PapAc	.82
PapS	.82
PavAc	.77
PavS	.76
SEAc	.90
SES	.88

Note. MapAc = mastery-approach academics; MapS = mastery-approach sports; MavAc = mastery-avoidance academics; MavS = mastery-avoidance sport; PapAc = performance-avoidance academics; PapS = performance-approach sport; PavAc = performance-avoidance academics; PavS = performance-avoidance sport; SEAc = self-efficacy academics; SES = self-efficacy sports.

Descriptive Characteristics of Student-Athlete Sample

Table 9 shows means and standard deviations of the GPA and motivational constructs of the student-athlete sample. These were then further separated into the subgroups of gender, sport, ethnicity, recruited status, scholarship status, starter status, academic classification, and years of remaining eligibility and described in Tables 10 through 17. A one-way analysis of variance (ANOVA) was performed to determine the statistical significance of the mean differences on GPA, starter status, and the motivational variables among all of the student-athlete subgroups, with 0.05 used as the level of significance for evaluating the F-Ratio. Although using 0.05 for

multiple tests is over lenient and may possibly violate concerns about Type I error, the purpose of running twelve ANOVA's was for inferential use. Those that appear to have significant mean differences were further explored in the MANOVA. Overall the avoidance item means were lower than the other constructs.

Table 9
Descriptive Characteristics of the Student-Athlete Sample

Variable	Mean	Standard Deviation (SD)
GPA	3.25	.51
START	1.30	.46
MapAc	5.23	.78
MapS	5.50	.69
MavAc	3.78	1.14
MavS	4.13	1.17
PapAc	4.74	1.02
PapS	5.11	.90
PavAc	3.68	1.37
PavS	3.90	1.37
SEAc	4.87	.77
SES	5.02	.76

Note. GPA = cumulative college grade point average; START = athletic starter status; MApAc = mastery-approach academics; MApS = mastery-approach sports; MAvAc = mastery-avoidance academics; MAvS = mastery-avoidance sport; PApAc = performance-avoidance academics; PApS = performance-approach sport; PAvAc = performance-avoidance academics; PAvS = performance-avoidance sport; SEAc = self-efficacy academics; SES = self-efficacy sports.

Table 10 shows means and standard deviations of the constructs in regards to gender. Starter status, mastery-avoidance sport, performance-avoidance in academics, performance-avoidance in sport, and self-efficacy in academics were found to be statistically significant. Thirty-two percent of males identified themselves as starters (mean starter status of 1.40), while sixty-eight percent of

females were starters (mean of 1.24). The difference between these means was significant (F = 5.98; p = .015). Females had a mean of 4.30 on mastery-avoidance in sport, while males had a mean of 3.85. The difference between these means was statistically significant (F = 7.52; p = .007). Females were found to adopt a mastery-avoidance orientation in sport more so than males. Females also had a higher mean on performance-avoidance in academics of 3.97. The difference between these means was statistically significant (F = 16.31; p < .0001). Females also had a higher mean of 4.25 on performance-avoidance in sport as compared to males. The difference between these means was also statistically significant (F = 25.22; p < 0001). The only other statistically significant variable was self-efficacy in academics with the mean for males at 5.02 and for females at 4.78. The difference between these means was significant (F = 4.49; p = .035).

Table 10
Descriptive Characteristics of the Student-Athlete Sample by Gender

Variable	N	Mean	Standard Deviation (SD)
GPA			
Male	78	3.23	.52
Female	127	3.26	.51
START			
Male	77	1.40	.49
Female	128	1.24	.43
MapAc			
Male	77	5.13	.86
Female	130	5.29	.73
MapS			
Male	77	5.40	.79
Female	130	5.56	.61
MavAc			
Male	76	3.62	1.13
Female	127	3.88	1.15

MavS				
	Male	77	3.85	1.09
	Female	126	4.30	1.18
PapAc				
	Male	76	4.72	1.06
	Female	128	4.75	1.00
PapS				
	Male	77	5.19	.84
	Female	128	5.07	.93
PavAc				
	Male	77	3.20	1.30
	Female	128	3.97	1.34
PavS				
	Male	77	3.32	1.19
	Female	129	4.25	1.35
SEAc				
	Male	75	5.02	.79
	Female	129	4.78	.75
SES				
	Male	74	5.04	.77
	Female	127	5.01	.75

Note. GPA = cumulative college grade point average; START = athletic starter status; MapAc = mastery-approach academics; MapS = mastery-approach sports; MavAc = mastery-avoidance academics; MavS = mastery-avoidance sport; PapAc = performance-avoidance academics; PapS = performance-approach sport; PavAc = performance-avoidance academics; PavS = performance-avoidance sport; SEAc = self-efficacy academics; SES = self-efficacy sports.

Table 11 shows means and standard deviations of the motivational constructs in regards to ethnicity. Ethnicity was defined as either non-minority (White) or minority (Non-white). The only statistically significant variable was GPA ($F = 20.76$; $p < .0001$). Non-minorities had a mean GPA of 3.34, while minorities had a mean GPA of 2.97.

Table 11
Descriptive Characteristics of the Student-Athlete Sample by Ethnicity

Variable		N	Mean	Standard Deviation (SD)
GPA				
	Minority	151	3.34	.45
	Non-minority	48	2.97	.59
START				
	Minority	150	1.32	.47
	Non-minority	49	1.27	.45
MapAc				
	Minority	153	5.29	.77
	Non-minority	48	5.07	.70
MapS				
	Minority	153	5.50	.72
	Non-minority	48	5.49	.60
MavAc				
	Minority	151	3.77	1.19
	Non-minority	46	3.88	.94
MavS				
	Minority	151	4.13	1.21
	Non-minority	47	4.10	.99
PapAc				
	Minority	151	4.80	1.03
	Non-minority	47	4.59	.94
PapS				
	Minority	152	5.11	.94
	Non-minority	47	5.09	.81
PavAc				
	Minority	152	3.63	1.39
	Non-minority	47	3.86	1.28
PavS				
	Minority	152	3.82	1.38
	Non-minority	47	4.11	1.32
SEAc				
	Minority	152	4.92	.80
	Non-minority	46	4.72	.67
SES				
	Minority	149	5.02	.77
	Non-minority	47	4.99	.76

Note. GPA = cumulative college grade point average; START = athletic starter status; MapAc = mastery-approach academics; MapS = mastery-approach sports; MavAc = mastery-avoidance academics; MavS = mastery-avoidance sport; PapAc = performance-avoidance academics; PapS = performance-approach sport; PavAc =

performance-avoidance academics; PavS = performance-avoidance sport; SEAc = self-efficacy academics; SES = self-efficacy sports.

Table 12 shows means and standard deviations of the motivational constructs in regards to sport. Type of sport was coded as either high profile or low profile and starter status as well as three motivational variables was statistically significant. First, seven percent of high profile sport participants identified themselves as starters (mean of 1.63 on starter status) while ninety-three percent of low profile sport participants were starters (mean of 1.23). The difference between these means was statistically significant ($F = 16.93$; $p < .0001$). Low profile sport participants had a mean of 5.56 and high profile sport participants had a mean of 5.14 on mastery-approach in sport. The difference between these means was statistically significant ($F = 9.15$; $p = .003$), indicating that low profile sport participants were more likely to adopt a mastery-approach orientation in sport than high profile sport participants. Low profile sport participants also had a higher mean on mastery-avoidance in sport at 4.20, while high profile sport participants had a mean of 3.68 on this variable. The difference between these means was statistically significant ($F = 4.55$; $p = .034$), suggesting that low profile sport participants were also more likely to adopt a mastery-avoidance orientation in sport as compared to high profile sport participants. On the performance-approach in academics variable, low profile sport participants had a mean of 4.79, while high profile sport participants had a mean of 4.36. The difference between these means was statistically significant ($F = 3.96$; $p = .048$), indicating that low profile sport participants were more likely to adopt a performance-approach in academics than high profile sport participants. The number

of student-athletes in high profile and low profile sports was not representative of the student-athlete population however. In particular, the number of high profile sport participants is very small and not representative of the sample. Therefore, this impacted the ability to interpret these results.

Table 12
Descriptive Characteristics of the Student-Athlete Sample by Sport

Variable	N	Mean	Standard Deviation (SD)
GPA			
High profile	27	3.10	.49
Low profile	178	3.27	.52
START			
High profile	27	1.63	.49
Low profile	178	1.25	.44
MapAc			
High profile	27	5.00	.95
Low profile	180	5.27	.75
MapS			
High profile	27	5.14	1.07
Low profile	180	5.56	.59
MavAc			
High profile	26	3.60	1.13
Low profile	177	3.81	1.15
MavS			
High profile	26	3.68	.87
Low Profile	177	4.20	1.19
PapAc			
High profile	25	4.36	1.12
Low Profile	179	4.79	1.00
PapS			
High profile	26	4.85	1.06
Low profile	179	5.15	.87
PavAc			
High profile	26	3.68	1.16

	Low profile	179	3.69	1.40
PavS				
	High profile	26	3.53	1.22
	Low profile	180	3.96	1.38
SEAc				
	High profile	26	4.72	.99
	Low profile	178	4.89	.73
SES				
	High profile	25	4.76	1.01
	Low profile	176	5.06	.71

Note. GPA = cumulative college grade point average; START = athletic starter status; MapAc = mastery-approach academics; MapS = mastery-approach sports; MavAc = mastery-avoidance academics; MavS = mastery-avoidance sport; PapAc = performance-avoidance academics; PapS = performance-approach sport; PavAc = performance-avoidance academics; PavS = performance-avoidance sport; SEAc = self-efficacy academics; SES = self-efficacy sports.

Table 13 shows the means and standard deviations of the motivational constructs in regards to recruited status. Recruited status provided the most interesting results with GPA, mastery-approach in academics, performance-approach in sport, performance-avoidance in academics, performance-avoidance in sport, self-efficacy in academics, self-efficacy in sport, and starter status all statistically significant. Non-recruited student-athletes had a mean GPA of 3.42, while recruited student-athletes had a mean GPA of 3.20. The difference between these means was significant ($F = 6.53$; $p = .011$). Non-recruited student-athletes also had a mastery-approach in academics mean of 5.43, while recruited student-athletes had a mean of 5.17 on this variable. The difference between these means was statistically significant ($F = 4.33$; $p = .039$). Eighty-seven percent of recruited student-athletes identified themselves as starters (mean of 1.22), while thirteen percent of non-recruited student-athletes were starters (mean of 1.59). These means are statistically

significant ($F = 25.03$; $p < .0001$). Recruited student-athletes had a mean of 5.19 as compared to non-recruited student-athletes at 4.82 on the performance-approach in sport variable. The difference between these means was statistically significant ($F = 6.59$; $p = .011$). Recruited student-athletes also had higher means on the performance-avoidance in academics variable at 3.78 as compared with non-recruited student-athletes at 3.33. The difference between these means was statistically significant ($F = 3.91$; $p = .049$). Recruited student-athletes had a mean of 4.04 on the performance-avoidance in sport variable, while non-recruited student-athletes had a mean of 3.40. The difference between these means was statistically significant ($F = 8.37$; $p = .004$). Again, recruited student-athletes also had a higher mean on the self-efficacy in sport variable at 5.07, while non-recruited student-athletes had a mean of 4.82. The difference between these means was statistically significant ($F = 3.98$; $p = .048$). Non-recruited student-athletes (5.25); however, had a higher mean on academic self-efficacy than recruited student-athletes (4.76). The difference between these means was statistically significant ($F = 15.06$; $p < .0001$). This data indicates that non-recruited student-athletes reported higher mean GPAs than recruited student-athletes; non-recruited student-athletes were more likely to adopt a mastery-approach orientation in academics as compared to recruited student-athletes; recruited student-athletes were more likely to be starters on their athletic teams than non-recruited student-athletes; recruited student-athletes were more likely to adopt a performance-approach orientation in sport as compared to non-recruited student-athletes; recruited student-athletes also scored a higher mean on performance-avoidance in academics and performance-avoidance in sport than non-

recruited student-athletes; recruited student-athletes were more likely to have higher self-efficacy in sport than non-recruited student-athletes; and non-recruited student-athletes reported higher academic self-efficacy than recruited student-athletes.

Table 13
Descriptive Characteristics of the Student-Athlete Sample by Recruited Status

Variable	N	Mean	Standard Deviation (SD)
GPA			
Recruited	157	3.20	.53
Non-recruited	47	3.42	.43
START			
Recruited	158	1.22	.42
Non-recruited	46	1.59	.50
MapAc			
Recruited	159	5.17	.83
Non-recruited	47	5.43	.55
MapS			
Recruited	159	5.52	.71
Non-recruited	47	5.42	.60
MavAc			
Recruited	155	3.86	1.12
Non-recruited	47	3.55	1.22
MavS			
Recruited	155	4.22	1.18
Non-recruited	47	3.87	1.09
PapAc			
Recruited	157	4.68	1.03
Non-recruited	46	4.90	1.00
PapS			
Recruited	157	5.19	.85
Non-recruited	47	4.82	1.00
PavAc			
Recruited	157	3.78	1.29
Non-recruited	47	3.33	1.59
PavS			
Recruited	158	4.04	1.32
Non-recruited	47	3.40	1.41

SEAc				
	Recruited	157	4.76	.78
	Non-recruited	46	5.25	.62
SES				
	Recruited	155	5.07	.77
	Non-recruited	45	4.82	.69

Note. GPA = cumulative college grade point average; START = athletic starter status; MapAc = mastery-approach academics; MapS = mastery-approach sports; MavAc = mastery-avoidance academics; MavS = mastery-avoidance sport; PapAc = performance-avoidance academics; PapS = performance-approach sport; PavAc = performance-avoidance academics; PavS = performance-avoidance sport; SEAc = self-efficacy academics; SES = self-efficacy sports.

Table 14 shows means and standard deviations of the motivational constructs on scholarship status. Scholarship status was defined as a student-athlete receiving either no athletic scholarship, partial athletic scholarship, or full athletic scholarship. Grade point average, mastery-approach in academics, performance-approach in academics, and starter status were statistically significant for scholarship status. Student-athletes without any athletic scholarship had the highest mean GPA of 3.39, followed by partial scholarship student-athletes at 3.31 and full scholarship student-athletes at 3.09. The difference between these means was statistically significant ($F = 5.82$; $p = .004$). Student-athletes without any athletic scholarship (5.44) also tended to adopt a mastery-approach orientation in academics more so than partial scholarship (5.29) and full scholarship student-athletes (5.05). The difference between these means was statistically significant ($F = 3.83$; $p = .023$). Student-athletes without any athletic scholarship also had the highest mean of 5.05 on performance-approach orientation in academics as compared to partial scholarship (4.79) and full scholarship (4.51) student-athletes ($F = 3.80$; $p = .024$). Student-athletes on partial athletic scholarship (4.10) tended to adopt a performance-

avoidance orientation in sport more so than full scholarship student-athletes (3.93) or those not on any athletic scholarship (3.39). These means were statistically significant ($F = 3.86$; $p = .023$). Student-athletes without any athletic scholarship had the highest mean on academic self-efficacy (5.23) as compared to those on partial athletic scholarship (4.84) and those on full athletic scholarship (4.72). These means were significant ($F = 5.82$; $p = .003$). Finally, ten percent of student-athletes without any athletic scholarship identified themselves as starters (mean of 1.61) as compared with fifty-one percent of partial scholarship student-athletes (mean of 1.21), and thirty-eight percent of full scholarship student-athletes were starters (mean of 1.27). These means were significant ($F = 11.52$; $p < .0001$).

Table 14

Descriptive Characteristics of the Student-Athlete Sample by Scholarship Status

Variable		N	Mean	Standard Deviation (SD)
GPA				
	None	39	3.39	50
	Partial	95	3.31	.48
	Full	71	3.09	.53
START				
	None	38	1.61	.50
	Partial	92	1.21	.41
	Full	75	1.27	.45
MapAc				
	None	39	5.44	.58
	Partial	94	5.29	.68
	Full	74	5.05	.94
MapS				
	None	39	5.44	.61
	Partial	94	5.56	.49
	Full	74	5.46	.90

MavAc			
None	39	3.71	1.30
Partial	92	3.83	1.06
Full	72	3.76	1.17
MavS			
None	39	4.02	1.17
Partial	93	4.26	1.12
Full	71	4.03	1.23
PapAc			
None	38	5.05	1.01
Partial	93	4.79	.90
Full	73	4.51	1.13
PapS			
None	39	4.84	.95
Partial	92	5.19	.76
Full	74	5.16	1.01
PavAc			
None	39	3.31	1.62
Partial	93	3.78	1.29
Full	73	3.77	1.31
PavS			
None	39	3.38	1.38
Partial	94	4.10	1.26
Full	73	3.93	1.44
SEAc			
None	38	5.23	.63
Partial	93	4.84	.69
Full	73	4.72	.88
SES			
None	37	4.78	.68
Partial	93	5.07	.65
Full	71	5.09	.90

Note. GPA = cumulative college grade point average; START = athletic starter status; MapAc = mastery-approach academics; MapS = mastery-approach sports; MavAc = mastery-avoidance academics; MavS = mastery-avoidance sport; PapAc = performance-avoidance academics; PapS = performance-approach sport; PavAc = performance-avoidance academics; PavS = performance-avoidance sport; SEAc = self-efficacy academics; SES = self-efficacy sports.

Table 15 shows means and standard deviations of the motivational constructs on starter status. Student-athletes who identified themselves as “starters” on their athletic teams had statistically significant results on mastery-approach in sport,

performance-approach in sport, and self-efficacy in sport. Starters had a mean of 5.59 on mastery-approach in sport, while non-starters had a mean of 5.30. This difference in means was statistically significant ($F = 8.02$; $p = .005$), indicating that starters were more likely to adopt a mastery-approach in sport than non-starters. Starters had a mean of 5.23 on performance-approach in sport, as compared with non-starters who had a mean of 4.84. This difference in means was statistically significant ($F = 8.31$; $p = .004$) and indicates that starters were more likely to adopt a performance-approach in sport than non-starters. Finally, starters also had a higher mean on self-efficacy in sport of 5.13 and non-starters had a mean of 4.74. This difference in means was statistically significant ($F = 11.49$; $p = .001$). This data indicates that starters also were more likely to report higher sport self-efficacy than non-starters.

Table 15
Descriptive Characteristics of the Student-Athlete Sample by Starter Status

Variable	N	Mean	(SD)
GPA			
Starter	139	3.21	.52
Non-starter	62	3.32	.49
MapAc			
Starter	141	5.22	.84
Non-starter	62	5.27	.65
MapS			
Starter	141	5.59	.68
Non-starter	62	5.30	.67
MavAc			
Starter	139	3.77	1.13
Non-starter	61	3.77	1.18
MavS			
Starter	137	4.16	1.22
Non-starter	62	4.05	1.06

PapAc				
	Starter	139	4.77	.99
	Non-starter	61	4.67	1.12
PapS				
	Starter	139	5.23	.87
	Non-starter	62	4.84	.94
PavAc				
	Starter	139	3.74	1.33
	Non-starter	62	3.58	1.43
PavS				
	Starter	140	3.99	1.39
	Non-starter	62	3.73	1.28
SEAc				
	Starter	139	4.83	.79
	Non-starter	61	4.96	.76
SES				
	Starter	139	5.13	.77
	Non-starter	58	4.74	.67

Note. GPA = cumulative college grade point average; START = athletic starter status; MapAc = mastery-approach academics; MapS = mastery-approach sports; MavAc = mastery-avoidance academics; MavS = mastery-avoidance sport; PapAc = performance-avoidance academics; PapS = performance-approach sport; PavAc = performance-avoidance academics; PavS = performance-avoidance sport; SEAc = self-efficacy academics; SES = self-efficacy sports.

Table 16 in the appendices shows the means and standard deviations of the motivational constructs by academic classification. Academic classification was defined as freshmen, sophomores, juniors, seniors, fifth years, and post-graduates. Post-graduate student-athletes had the highest means on all four statistically significant variables: mastery-approach in sport, performance-approach in sport, self-efficacy in academics, and self-efficacy in sport. They had a mean of 5.89 on mastery-approach in sport and statistically significant ($F = 3.43$; $p = .005$); a mean of 5.89 on performance-approach in sport and statistically significant ($F = 2.34$; $p = .043$); a mean of 5.88 in self-efficacy in academics and statistically significant (2.31; $p = .046$); and a mean of 5.75 in self-efficacy in sport and statistically significant (F

= 3.43; p = .005). Although not surprising that post-graduates would tend to adopt these motivational orientations more so than other student-athletes, the results may not be interpretable since the sample of post-graduate students was so small (n=3). Nothing else was significant concerning the academic classification of student-athletes.

Table 17 in the appendices shows means and standard deviations of the motivational constructs in regards to the subgroup, seasons of eligibility remaining. Only starter status was statistically significant. Two percent of student-athletes who indicated they had four seasons of eligibility remaining identified themselves as starters (mean of 1.73) and it was statistically significant (F = 4.44; p = .002). However, the sample size (n=11) of the group who reported four seasons of eligibility remaining could be considered problematic. As previously explained, 65 first full-time semester student-athletes were removed from the study. The majority of this group most likely would have reported they had four seasons of eligibility remaining. After they were removed, this left 11 student-athletes with four seasons of eligibility remaining. The only student-athletes who would have all of their eligibility remaining and not be in their first full-time semester at the institution would be those who did not compete their first year due to non-participation, red-shirting, or being medically unable to do so. It also does not make sense that those who had not yet competed considered themselves "starters." Therefore, these results are not interpretable.

Correlations of Variables

In order to answer the research questions numbered one through four, simple bivariate correlations were used to examine relationships among the variables. Table 18 includes Pearson r coefficients for the motivational variables in this study.

The first research question guiding this study asked what the relationship is between mastery goal orientation with academic and athletic performance. Hypotheses that addressed the relationships between goal orientation and academic performance are listed below as follows:

a. There is no relationship between academic mastery-approach goal orientation and academic performance;

b. There is an inverse relationship between academic mastery-avoidance goal orientation and academic performance;

c. There is an inverse relationship between athletic mastery-approach goal orientation and academic performance;

d. There is no relationship between athletic mastery-avoidance goal orientation and academic performance.

e. There is a positive relationship between athletic mastery-approach goal orientation and athletic performance;

f. There is an inverse relationship between athletic mastery-avoidance goal orientation and athletic performance;

g. There is no relationship between academic mastery-approach goal orientation and athletic performance;

h. There is no relationship between academic mastery-avoidance goal orientation and athletic performance.

Correlation analyses revealed that academic performance measured by cumulative college GPA, had a positive relationship with mastery-approach in academics ($r = .22$; $p = .001$), indicating that student-athletes with higher GPAs had higher scores on mastery-approach academics. Grade point average was negatively related to mastery-avoidance in academics ($r = -.17$; $p = .016$). This indicates that student-athletes with lower GPAs tended to have higher scores on mastery-avoidance in academics. Grade point average was not significantly related to mastery-approach sport or mastery-avoidance sport. Because athletic performance was measured by starter status and a dichotomous variable, it was not possible to run correlation analysis to test the hypotheses regarding this variable. However, the question can be assessed by examining the significant means on starter status that were run from the ANOVA. Starter status was significant on mastery-approach in sports ($F = 8.02$; $p = .005$). This indicates that student-athletes, who had identified themselves as starters on their athletic teams, also had high scores on mastery-approach in sport. Starter status did not have significant means on mastery-approach academics, mastery-avoidance academics or mastery-avoidance sport.

The second research question asked what the relationship is between performance goal orientation with academic and athletic performance. Hypotheses

addressing the relationships between goal orientation and athletic performance are listed below:

a. There is a positive relationship between athletic performance-approach goal orientation and athletic performance;

b. There is an inverse relationship between athletic performance-avoidance goal orientation and athletic performance;

c. There is no relationship between academic performance-approach goal orientation and athletic performance;

d. There is a positive relationship between academic performance-avoidance goal orientation and athletic performance.

e. There is a positive relationship between academic performance-approach goal orientation and academic performance;

f. There is an inverse relationship between academic performance-avoidance goal orientation and academic performance;

g. There is an inverse relationship between athletic performance-approach goal orientation and academic performance;

h. There is no relationship between athletic performance-avoidance goal orientation and academic performance;

The differences in means were significant for athletic performance as measured by starter status for performance-approach sport ($F = 8.31$; $p = .004$), but

not for performance-avoidance sport, performance-approach academics, or performance-avoidance sport. Academic performance as measured by cumulative college GPA correlated positively with performance-approach academics ($r = .15$; $p = .031$); negatively with performance-avoidance academics ($r = -.20$; $p = .004$); and negatively with performance-avoidance sport ($r = -.18$; $p = .009$). This indicates that student-athletes who identified themselves as starters had high scores on performance-approach in sport and student-athletes with high GPAs also had high scores on performance-approach academics; low scores on performance-avoidance academics; and low scores on performance-avoidance sport. Grade point average did not correlate significantly with performance-approach in sport.

The third research question asked whether self-efficacy and goal orientation variables correlate consistent with theory. The following hypotheses were developed to answer this question.

a. There is a positive relationship between academic self-efficacy and academic goal orientation;
b. There is a positive relationship between athletic self-efficacy and athletic goal orientation;
c. There is no relationship between academic self-efficacy and athletic goal orientation;
d. There is no relationship between athletic self-efficacy and academic goal orientation;

Correlation analyses revealed that academic self-efficacy had a positive relationship to mastery-approach academics ($r = .64$; $p < .0001$); performance-

approach academics ($r = 51$; $p < .0001$). It was not significantly correlated with mastery-avoidance academics or performance-avoidance academics. Therefore, student-athletes with high scores on academic self-efficacy also tended to have high scores on mastery-approach and performance-approach in academics. Athletic self-efficacy was positively and significantly related to mastery-approach sport ($r = .74$; $p < .0001$) and performance-approach sport ($r = .72$; $p < .0001$). It was not significantly related with mastery-avoidance sport or performance-avoidance sport. In other words, student-athletes who reported high academic self-efficacy tended to also report high mastery-approach and performance-approach in sport orientations. Academic self-efficacy was positively related to mastery-approach sport and it was significant ($r = .44$; $p < .0001$) and positively related to performance-approach sport which was also significant ($r = .33$; $p < .0001$). Academic self-efficacy was not significantly correlated with mastery-avoidance sport or performance-avoidance sport. Athletic self-efficacy was significantly and positively related to mastery-approach academics ($r = .36$; $p < .0001$) and performance-approach academics ($r = .30$; $p < .0001$), but not with mastery-avoidance academics or performance-avoidance academics.

The fourth research question asked what the relationship is between academic/athletic self-efficacy and academic/athletic performance. Therefore, the following hypotheses were developed.

e. There is a positive relationship between academic self-efficacy and academic performance;

f. There is no relationship between athletic self-efficacy and academic performance;
g. There is a positive relationship between athletic self-efficacy and athletic performance;
h. There is no relationship between academic self-efficacy and athletic performance;

Correlation analyses indicated that academic self-efficacy had a positive relationship to GPA ($r = .44$; $p < .0001$) and this was a significant relationship. Athletic self-efficacy was not correlated with GPA. This indicates that student-athletes with high scores on academic self-efficacy also tended to have high GPAs. Again, due to the dichotomous nature of the starter status variable, significant means on the ANOVA were examined to address the hypotheses for this research question. Academic self-efficacy did not show as a significant mean on starter status. Athletic self-efficacy; however, did show a significant mean on starter status ($F = 11.49$; $p = .001$). Therefore, student-athletes with high athletic self-efficacy also had high scores on starter status.

Two additional variables were included in the correlation analysis. These examined the relationship between academic performance, athletic performance, and all motivational variables with college experience and academic support. College experiences were defined as the extent to which student-athletes believed their academic motivation was due to their overall college experience. Academic support was defined as the extent to which student-athletes believed their academic performance was due to academic support provided by their respective institutions.

College experiences were positively related to GPA ($r = .38$; $p < .0001$); mastery-approach academics ($r = .48$; $p < .0001$); mastery-approach sport ($r = .40$; $p < .0001$); performance-approach academics ($r = .34$; $p < .0001$); performance-approach sport ($r = .27$; $p < .0001$); academic self-efficacy ($r = .59$; $p < .0001$); and athletic self-efficacy ($r = .37$; $p < .0001$). Academic support was positively related to mastery-approach academics ($r = .152$; $p = .029$); mastery-approach sport ($r = .40$; $p < .0001$); performance-approach sport ($r = .37$; $p < .0001$); performance-avoidance sport ($r = .21$; $p = .003$); academic self-efficacy ($r = .20$; $p = .005$); and athletic self-efficacy ($r = .47$; $p < .0001$). For starters, motivational orientation was related to academic support while for non-starters, motivational orientation was related to college experience. No significant means were found on college experiences and academic support with athletic performance, however.

Table 18
Correlation Matrix of Variables

	GPA	MapAc	MapS	MavAc	MavS	PapAc	PapS	PavAc	PavS	SEAc	SES	EXP	SUPP
GPA	1.000	.223**	-.008	-.170*	-.082	.153*	-.031	-.202**	-.183**	.441**	.049	.380**	.034
MapAc	.223**	1.000	.520**	.218**	.100	.519**	.295**	.100	.052	.636**	.357**	.476**	.152*
MapS	-.008	.520**	1.000	.122	.266**	.307**	.647**	-.026	.098	.443**	.738**	.401**	.398**
MavAc	-.170*	.218**	.122	1.000	.603**	.115	.015	.315**	.293**	-.059	-.027	-.054	-.032
MavS	-.082	.100	.266**	.603**	1.000	.114	.148*	.265**	.325**	.017	.054	.071	.125
PapAc	.153*	.519**	.307**	.115	.114	1.000	.477**	.248**	.171*	.505**	.304**	.341**	.082
PapS	-.031	.295**	.647**	.015	.148*	.477**	1.000	.075	.239**	.328**	.719**	.269**	.372**
PavAc	-.202**	.100	-.026	.315	.265**	.248**	.075	1.000	.860**	-.084	-.036	.066	.133
PavS	-.183**	.052	.098	.293**	.325**	.171*	.239**	.860**	1.000	-.124	.086	.051	.209**
SEAc	.441**	.636**	.443**	-.059	.017	.505**	.328**	-.084	-.124	1.000	.518**	.585**	.198**
SES	.049	.357**	.738**	-.027	.054	.304**	.719**	-.036	.086	.518**	1.000	.369**	.465**
EXP	.380**	.476**	.401**	-.054	.071	.341**	.269**	.066	.051	.585**	.369**	1.000	.407**
SUPP	.034	.152*	.398**	-.032	.125	.082	.372**	.133	.209**	.198**	.465**	.407**	1.000

Note. * Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).
START = Starter Status; GPA = college cumulative grade point average; MapAc = Mastery-approach academics; MapS = Mastery-approach sport; MavAc = Mastery-avoidance academics; MavS = Mastery-avoidance sport; PapAc = Performance-approach academics; PapS = Performance-approach sport; PavAc = Performance-avoidance academics; PavS = Performance-avoidance sport; SEAc = Self-efficacy academics; SES = Self-efficacy sport; EXP = College Experiences; SUPP = Academic Support Services

Multivariate Analysis of Variance

Multivariate analysis of variance (MANOVA) was used to test for differences between group means on several variables. Several hypotheses were developed to answer the fifth research question concerning whether group differences existed among student-athletes by gender, ethnicity, and type of sport. These are listed below.

a. There are significant differences in academic performance of male and female student-athletes with female student-athletes performing better academically;

b. There are significant differences in mastery goal orientation of male and female student-athletes with more female student-athletes adopting a mastery goal orientation;

c. There are no differences in performance goal orientation of male and female student-athletes;

d. There are significant differences between male and female student-athletes in approach-avoidance motivation, with more female student-athletes adopting an approach motivation in academics and athletics.

e. There are significant differences in academic performance of minority and non-minority student-athletes;

f. There are no differences in mastery goal orientation of minority and non-minority student-athletes;

g. There are significant differences in performance goal orientation of minority and non-minority student-athletes;

h. There are no significant differences between minority and non-minority student-athletes in approach-avoidance motivation in athletics;

i. There are significant differences between minority and non-minority student-athletes in approach-avoidance motivation in academics, with more minority student-athletes adopting an avoidance motivation.

j. There are significant differences in academic performance of high profile and low profile sport participants;

k. There are significant differences in mastery goal orientation of high profile and low profile sport participants;

l. There are significant differences in performance goal orientation of high profile and low profile sport participants;

m. There are significant differences between high profile and low profile sport participants in approach-avoidance motivation in academics, with more low profile sport participants adopting an

approach motivation in academics, and with more high profile sport participants adopting an avoidance motivation in academics;

n. There are no significant differences between high profile and low profile sport participants in approach-avoidance motivation in athletics.

Given the results from the ANOVA, ethnicity and type of sport were not examined any further. However, group means were explored further on GPA, starter status, and the motivational variables by gender, recruited status, and scholarship status using multivariate analysis of variance.

Two separate MANOVAs were used to examine the academic and sport motivational variables separately. The first MANOVA examined the group differences on GPA and the academic motivational variables of mastery-approach academics, mastery-avoidance academics, performance-approach academics, performance-avoidance academics, and academic self-efficacy by gender, recruited status, and scholarship status. The second MANOVA examined group differences on starter status and the sport motivational variables of mastery-approach sport, mastery-avoidance sport, performance-approach sport, performance-avoidance sport, and sport self-efficacy by gender and recruited status. Scholarship status was removed from the second MANOVA as it was determined that it was not statistically significant.

In the academic MANOVA, neither overall main effects nor overall interaction effects were found in the analysis. However, separate univariate tests for the dependent variables (GPA and academic motivational variables) revealed that

gender had a main effect on mastery-approach in academics ($F = 4.10$; $p = .044$; partial eta squared = .024) and recruited status had a main effect on GPA ($F = 5.73$; $p = .018$; partial eta squared = .033). Females had a higher score on mastery-approach in academics than males and non-recruited student-athletes had higher GPAs than recruited student-athletes. There were no main effects or interaction effects on mastery-avoidance in academics, performance-approach in academics, performance-avoidance in academics, or academic self-efficacy by gender, recruited status, or scholarship status.

In the sport MANOVA, an overall large main effect was found for gender (Wilks' Lambda = .80; $F = 9.07$; $p < .0001$; partial eta squared = .201); and an overall moderate to large effect was found for recruited status (Wilks' Lambda = .93; $F = 2.55$; $p = .030$; partial eta squared = .066). An overall moderate to large two-way interaction effect of recruited status and starter status (Wilks' Lambda = .93; $F = 2.83$; $p = .017$; partial eta squared = .073) was found as well as an overall moderate to large three-way interaction effect of gender, recruited status, and starter status (Wilks' Lambda = .93; $F = 2.77$; $p = .019$; partial eta squared = .072). Separate univariate tests for the dependent variables (starter status and sport motivational variables) revealed that gender had a main effect on mastery-avoidance sports ($F = 4.28$; $p = .040$; partial eta squared = .023), performance-approach sports ($F = 8.46$; $p = .004$; partial eta squared = .044), and performance-avoidance sports ($F = 16.43$; $p < .0001$; partial eta squared = .082). Males had a higher score on performance-approach in sports, while females had higher scores on mastery-avoidance in sports and performance-avoidance in sports. There was also a main effect found on

recruited status for performance-approach in sport (F = 7.52; p = .007; partial eta squared = .039). Recruited student-athletes had a higher score on performance-approach in sport than non-recruited student-athletes. This result makes sense given that recruited student-athletes also had higher mean scores on performance-approach in sport. There was also a main effect of starter status on self-efficacy in sport (F = 7.36; p = .007; partial eta squared = .038). Student-athletes who identified themselves as starters had higher sport self-efficacy scores than non-starters.

The two-way interaction effect of recruited status and starter status was found on mastery-avoidance in sports (F = 9.72; p = .002; partial eta squared = .050). Recruited student-athletes who identified themselves as starters had higher scores on mastery-avoidance in sport than other student-athlete groups.

The three-way interaction effect of gender, recruited status, and starter status was found on performance-avoidance in sports (F = 5.93; p = .016; partial eta squared = .031). Non-recruited female student-athletes who identified themselves as starters had higher scores on performance-avoidance in sports than all other student-athlete groups. There were no effects of gender, recruited status, or starter status on mastery-approach in sports.

Predicting Academic Performance

The sixth research question asked whether academic self-efficacy and academic goal orientation predict the academic performance of student-athletes. Therefore, the following hypothesis was developed. Academic self-efficacy and academic goal orientation predict the academic performance of student-athletes, but together more so than independently. Hierarchical regression analysis was used to

examine the extent to which academic self-efficacy and the academic motivational variables (achievement goal theory) predicted academic performance. An alpha level of .05 was used as the minimum criterion for statistical significance. The results are displayed in table 15. The independent variables were entered into the equation in steps. In the first regression analysis, academic self-efficacy was entered first. Second, academic self-efficacy, mastery-avoidance academics, performance-avoidance academics, performance-approach academics, and mastery-approach academics were entered in simultaneously. Cumulative college GPA at the time the survey was administered (beginning of the Fall 2011 semester) was the dependent variable used to measure academic performance.

Academic self-efficacy accounted for approximately 20 percent of the variance in academic performance ($F = 47.72$; $p < .0001$). The remaining academic motivational variables alone contributed approximately 4 percent to the variance in academic performance, but they were not statistically significant ($F = 2.17$; $p = .074$). However, when they were added to academic self-efficacy, all of the variables together accounted for approximately 24 percent of the variance in academic performance ($F = 11.52$; $p < .0001$). In the overall regression model, only academic self-efficacy was a significant predictor of academic performance.

Table 19
Academic Motivation Regression Analysis

Variable	R^2	Unst. Coeff.		Stand. Coeff.	t	p
		B	Std. Error	Beta		
Model 1						
SEAc	.20	.30	.04	.45	6.91	.0001
Model 2						
SEAc	.24	.30	.06	.45	4.99	.0001

MapAc	.00	.06	.00	-.003	.997
MavAc	-.04	.03	-.09	-1.23	.219
PapAc	-.02	.04	-.04	-.54	.588
PavAc	-.05	.03	-.13	-1.79	.076

Note. SEAc = self-efficacy academics; MapAc = mastery-approach academics; MAvAc = mastery-avoidance academics; PApAc = performance-approach academics; PAvAc = performance-avoidance academics

An additional regression model was utilized to examine the predictability of the two additional non-cognitive variables, academic support and college experiences, upon academic performance. Since they were not interpretable within the correlations or ANOVA's, ethnicity, defined as either White or nonwhite and type of sport, defined as either high profile or low profile, and were also examined within the regression model. Hierarchical regression analysis was again used to examine whether any of the above variables predicted academic performance as measured by self-reported GPA. An alpha level of .05 was used as the minimum criterion for statistical significance. The results are displayed in table 20. The independent variables were entered into the equation in steps. In the first regression analysis, college experiences and academic support were entered in first. Second, college experiences, academic support, high profile vs. low profile type of sport, and White vs. nonwhite were entered in simultaneously. Third, college experiences, academic support, high profile vs. low profile type of sport, White vs. nonwhite, and all of the academic motivational variables in the previous regression (Table 19) were entered in simultaneously.

Academic support and college experiences accounted for approximately 18 percent of the variance in academic performance ($F = 20.46$; $p < .0001$). When type of sport and ethnicity were added in the second step to academic support and

experience, they accounted for 24 percent of the variance in academic performance ($F = 14.47$; $p < .0001$). When the academic motivational variables were added in the third step to academic support, college experiences, type of sport, and ethnicity, they accounted for approximately 33 percent of the variance in academic performance ($F = 10.96$; $p < .0001$). In the overall regression model, college experiences, ethnicity, and academic self-efficacy remained significant predictors of academic performance.

Table 20
College Experiences/Academic Support Regression Analysis

Variable	R^2	Unst. Coeff. B	Unst. Coeff. Std. Error	Stand. Coeff. Beta	t	p
Model 1						
EXP	.18	.23	.04	.46	6.40	.0001
SUPP		-.07	.03	-.17	-2.29	.023
Model 2						
EXP	.24	.21	.04	.42	5.88	.0001
SUPP		-.05	.03	-.11	-.16	.122
Hi v Lo		.03	.10	.02	.25	.80
W v NW		-.30	.08	-.25	-3.74	.0001
Model 3						
EXP	.36	.13	.04	.27	3.30	.001
SUPP		-.04	.03	-.09	-1.37	.173
Hi v Lo		.05	.10	.03	.55	.58
W v NW		-.30	.08	-.25	-3.93	.0001
MApAc		-.08	.06	-.12	-1.31	.193
MAvAc		-.03	.03	-.07	-1.05	.294
PApAc		-.04	.04	-.09	-1.14	.257
PAvAc		-.05	.03	-.13	-1.97	.051
SEAc		.25	.06	.38	3.95	.0001

Note. EXP = college experiences; SUPP = academic support; Hi v Lo = high profile sport participants vs. low profile sport participants; W v NW = Whites vs. nonwhites; MapAc = mastery-approach academics; MAvAc = mastery-avoidance academics; PApAc = performance-approach academics; PAvAc = performance-avoidance academics; SEAc = self-efficacy academics

Research Questions and Hypotheses

The first research question investigated the relationship between mastery goal orientation with both academic and athletic performance. The first four hypotheses examined the relationship between the different mastery goal orientations with academic performance, as measured by GPA. The first hypothesis stated there is no relationship between academic mastery-approach and academic performance. However, Table 18 indicates that mastery-approach academics and GPA were positively correlated (r = .22) and was significant at the .01 level. Therefore, based upon the evidence, the first hypothesis was not supported. Hypothesis two stated there would be an inverse relationship between academic mastery-avoidance and academic performance. This was in fact the case with mastery-avoidance academics and GPA negatively correlated (r = -.17) and was significant at the .05 level. Therefore, hypothesis two was supported. Hypothesis three stated there would be an inverse relationship between athletic mastery-approach and academic performance. Although the two variables were inversely correlated (r = -.01), the correlation was not significant. Therefore, hypothesis three was not supported. The fourth hypothesis stated that there would be no relationship between athletic mastery-avoidance and academic performance. This was in fact the case. The variables were not significantly correlated (r = -.08). Therefore, hypothesis four was supported.

The next four hypotheses examined the relationship between the different mastery goal orientations with athletic performance, as measured by starter status. The fifth hypothesis stated that there would be a positive relationship between athletic mastery-approach and athletic performance. However, as discussed previously, this question could not be answered using correlational analysis given

that the starter status variable is dichotomous in nature. Therefore, significant mean differences between starters and non-starters were examined using ANOVA. Starters (69 percent) had a higher mean (5.59) on mastery-approach in sports than non-starters (31 percent) and these were significant. Therefore, the fifth hypothesis was not supported. The sixth hypothesis stated that there would be an inverse relationship between athletic mastery-avoidance and athletic performance. This could not be determined and no significant mean differences existed on the mastery-avoidance sport variable for starter status. Therefore, the sixth hypothesis was not supported. The seventh hypothesis stated there is no relationship between academic mastery-approach and athletic performance. This in fact was the case. No significant mean differences were found on mastery-approach in academics on starter status. Therefore, the seventh hypothesis was supported. The eighth hypothesis stated there is no relationship between academic mastery-avoidance and athletic performance. This was also found. Mastery-avoidance academics did not show a significant mean difference on starter status between starters and non-starters. Therefore, hypothesis eight was supported.

The second research question investigated the relationship between performance goal orientation with academic and athletic performance. Again, the first four hypotheses examined the motivational variables with academic performance and the last four examined them with athletic performance. The first hypothesis to address this research question stated there would be a positive relationship between academic performance-approach and academic performance as measured by GPA. Table 18 indicates that performance-approach academics and

GPA did positively correlate with each other (r = .15) significantly at the .05 level. Therefore, the first hypothesis was supported. The second hypothesis stated there would be an inverse relationship between academic performance-avoidance and academic performance. This was in fact the case with the variables negatively correlating (r = -.20) and significant at the .01 level. Therefore, the second hypothesis was supported. The third hypothesis stated that there would be an inverse relationship between athletic performance-approach and academic performance. Although these two variables have an inverse relationship, they were not significantly correlated with each other. Therefore, hypothesis three was not supported. The fourth hypothesis stated there is no relationship between athletic performance-avoidance and academic performance. However, Table 18 shows that performance-avoidance sport and GPA were inversely correlated (r = -.18) and significant at the .01 level. Therefore, the fourth hypothesis was not supported.

Hypothesis five stated there would be a positive relationship between athletic performance-approach and athletic performance. Performance-approach in sport did have a significant mean difference on starter status. Therefore, hypothesis five was supported. The sixth hypothesis stated there would be an inverse relationship between athletic performance-avoidance and athletic performance. Again, correlation cannot be inferred and means were examined. No significant differences were found for means on performance-avoidance on the starter status variable. Therefore, hypothesis six was not supported. The seventh hypothesis stated that there is no relationship between academic performance-approach and athletic performance. This was the case. No significant differences were found for means

on performance-approach academics or on starter status. Therefore, hypothesis seven was supported. The eighth hypothesis stated there would be a positive relationship between academic performance-avoidance and athletic performance. No significant differences were found for means on performance-avoidance academics or on starter status. Therefore, hypothesis eight was not supported.

The third research question investigated whether self-efficacy and goal orientation variables correlate consistent with achievement goal theory. The first hypothesis to address this research question stated there would be a positive relationship between academic self-efficacy and academic goal orientation. Therefore, in order to either support or not support the hypothesis, the relationships between academic self-efficacy with academic mastery-approach, academic mastery-avoidance, academic performance-approach, and academic performance-avoidance were examined. Self-efficacy in academics and mastery-approach academics were strongly and positively correlated ($r = .64$) and significant at the .01 level. Although self-efficacy in academics and mastery-avoidance academics had showed an inverse relationship ($r = -.06$), it was not significant. Self-efficacy in academics and performance-approach academics were also strongly positively correlated ($r = .51$) and significant at the .01 level. Self-efficacy in academics and performance-avoidance academics had an inverse relationship ($r = -.08$), but it was not a significant correlation. Therefore, the hypothesis can be partially supported and partially not supported. Given that academic self-efficacy was strongly and positively correlated at the .01 significance level with both mastery-approach and performance-approach in academics, the hypothesis is supported. However, it was

partially not supported since academic self-efficacy was not correlated with mastery-avoidance or performance-avoidance in academics. Therefore, once can draw from these results that academic self-efficacy is related to approach motivations and not avoidance motivations in regards to academic performance.

The second hypothesis to address this research question stated there would be a positive relationship between athletic self-efficacy and athletic goal orientation. Therefore, in order to either support or not support the hypothesis, the relationships between athletic self-efficacy with athletic mastery-approach, athletic mastery-avoidance, athletic performance-approach, and athletic performance-avoidance were examined. Self-efficacy in sport and mastery-approach sport had a strong positive relationship ($r = .74$) and was significant at the .01 level. Self-efficacy in sport and mastery-avoidance sport did not have a significant relationship at all. Self-efficacy in sport and performance-approach sport also had a strong positive relationship ($r = .72$) and was significant at the .01 level. However, self-efficacy in sport and performance-avoidance sport did not have a significant relationship. Therefore, the hypothesis can be partially supported and partially not supported. Athletic self-efficacy was strongly and positively correlated with both mastery-approach and performance-approach in sport, but did not register a significant relationship with either mastery-avoidance or performance-avoidance in sport. The hypothesis was partially supported due to the relationship between athletic self-efficacy and the approach motivations in sport, but was partially not supported since no relationship existed between athletic self-efficacy and the avoidance motivations in sport.

Therefore, once can draw from these results that athletic self-efficacy is related to approach motivations and not avoidance motivation in athletic performance.

The third hypothesis to address the research question stated there is no relationship between academic self-efficacy and athletic goal orientation. Therefore, in order to either support or not support this hypothesis, the relationships between academic self-efficacy with athletic mastery-approach, athletic mastery-avoidance, athletic performance-approach, and athletic performance-avoidance were examined. Self-efficacy in academics and mastery-approach sport were positively correlated (r = .44) and significant at the .01 level. Self-efficacy in academics and mastery-avoidance sport were not significantly related to each other. Self-efficacy in academics and performance-approach sport were positively correlated (.33) and significant at the .01 level. Self-efficacy in academics and performance-avoidance sport were inversely related (r = -.12), but the relationship was not significant. Therefore, the hypothesis can be partially not supported and partially supported. Academic self-efficacy is positively correlated with both mastery-approach and performance-approach in sport while it is not related to mastery-avoidance and performance-avoidance in sport. These results show that academic self-efficacy is related to approach motivations, but not avoidance motivations in regards to athletic performance.

The fourth hypothesis to address the third research question stated there is no relationship between athletic self-efficacy and academic goal orientation. Therefore, in order to either support or not support this hypothesis, the relationships between athletic self-efficacy with academic mastery-approach, academic mastery-avoidance,

academic performance-approach, and academic performance-avoidance were examined. Self-efficacy in sport and mastery-approach academics were positively correlated (r = .48) and significant at the .01 level. Self-efficacy in sport and mastery-avoidance academics had an inverse relationship (r = -.03), but it was not significant. Self-efficacy in sport and performance-approach academics were positively correlated (r = .30) and significant at the .01 level. Self-efficacy in sport and performance-avoidance academics had an inverse relationship (r = -.04), but were not significantly correlated. Therefore, the hypothesis can be partially not supported and partially supported. Athletic self-efficacy is positively correlated with both mastery-approach and performance-approach in academics. However, it is not significantly related to either mastery-avoidance or performance-avoidance in academics. These results show that athletic self-efficacy is related to approach motivations, but not avoidance motivations in athletic performances.

The fourth research question examined the relationships between academic and athletic self-efficacy with academic and athletic performance. The first hypothesis to address this research question stated that academic self-efficacy would be positively related to academic performance. Table 18 shows that self-efficacy in academics and academic performance as measured by GPA had a strong positive relationship (r = .44) and were significant at the .01 level. Therefore, the first hypothesis was supported. The second hypothesis of this group stated that athletic self-efficacy would not be related to academic performance. The variables, in fact, were not significantly related to one another. Therefore, hypothesis two was supported. The third hypothesis to address this research question stated that athletic

self-efficacy would be positively related to athletic performance. Although the variables were significantly correlated at the .01 level, they were negatively correlated (r = -.24) instead of positively correlated with each other. Therefore, the third hypothesis was not supported. The fourth hypothesis stated that academic self-efficacy is not related to athletic performance. This was in fact the case. Self-efficacy in academics and starter status were not significantly related to each other. Therefore, the fourth hypothesis in regards to this research question was supported.

The fifth research question examined the differences among the subgroups of student-athletes by gender, ethnicity, and type of sport. The first hypothesis to address this research question stated there would be significant differences in the academic performance of male and female student-athletes with female student-athletes performing better academically. Academic performance was measured by GPA. Although female student-athletes did have a higher mean GPA (3.26) as compared to male student-athletes (3.23), it was not a significant difference (p = .66). Therefore, the first hypothesis is not supported.

The second hypothesis to address the fifth research question stated that there would be significant differences in mastery goal orientation of male and female student-athletes with more female student-athletes adopting a mastery goal orientation. In order to examine this hypothesis, the mean differences between males and females on mastery-approach academics, mastery-avoidance academics, mastery-approach sport, and mastery-avoidance sports were reviewed. There were significant mean differences between male and female student-athlete means on mastery-avoidance in sport. Females were more likely to adopt a mastery-avoidance

goal orientation in sport (4.30) as compared with males (3.85) and this difference was significant ($p = .01$). Males and females did not differ significantly on the other mastery goal orientations, although females tended to have higher means in all other areas. Therefore, since females tended to adopt a mastery goal orientation (at least in mastery-avoidance sports), the hypothesis is supported.

The third hypothesis of this group stated there would not be any differences between male and female student-athletes in performance goal orientation. Therefore, the mean differences between males and females were examined on performance-approach in academics, performance-avoidance in academics, performance-approach in sport, and performance-avoidance in sport. Females were more likely to adopt a performance-avoidance goal orientation in sport (4.25) as compared with males (3.32) and this difference was significant ($p < .0001$). Females were also more likely to adopt a performance-avoidance goal orientation in academics (3.97) as compared with males (3.20) and this difference was significant ($p < .0001$). Although female means were higher on performance-approach academics, it was not a significant difference from the males. Additionally, although not significant, males had a higher mean difference on performance-approach in sport. Since significant mean differences did exist between males and females on the performance goal orientations (at least in performance-avoidance in sport and performance-avoidance academics), the hypothesis was not supported.

Hypothesis four stated that there would be significant differences between male and female student-athletes in approach-avoidance motivation, with more female student-athletes adopting an approach motivation in academics and athletics.

Based on the previous analysis between males and females on mastery-approach academics, mastery-approach sport, mastery-avoidance academics, mastery-avoidance sport, performance-approach academics, performance-approach sport, performance-avoidance academics, and performance-avoidance sport, the only significant mean differences were on mastery-avoidance sport, performance-avoidance sport, and performance-avoidance academics, with more females than males adopting an avoidance motivation than males. Therefore, the fourth hypothesis to address the fifth research question cannot be supported.

In regards to the subgroup of student-athletes by ethnicity, hypothesis five stated there would be significant differences in the academic performance of minority and non-minority student-athletes. This was in fact the case. Non-minority student-athletes had a higher mean GPA (3.34) than minority student-athletes (2.97) and this was significant ($p < .0001$). Therefore, hypothesis five is supported.

The sixth hypothesis in regards to the fifth research question about ethnicity stated there would not be any significant differences in mastery goal orientation of minority and non-minority student-athletes. In order to examine these differences, means between minorities and non-minorities were examined for mastery-approach academics, mastery-avoidance academics, mastery-approach athletics and mastery-avoidance athletics. Although non-minorities had higher means on all but mastery-avoidance academics, none were significant. Additionally, although minorities had higher means on mastery-avoidance academics, it was not noted as a significant difference. Therefore, hypothesis six is supported.

The seventh hypothesis stated that there would be significant difference in performance goal orientation of minority and non-minority student-athletes. Performance-approach in academics, performance-avoidance in academics, performance-approach in athletics, and performance-avoidance in athletics were examined to determine any significant mean differences between minorities and non-minorities. Non-minorities did have higher means on the performance-approach items, while minorities had higher means on the performance-avoidance items. However, there were not any significant mean differences found. Therefore, hypothesis seven is not supported.

The eighth hypothesis, also in regards to the ethnicity subgroup for the fifth research question stated there would not be any significant differences between minority and non-minority student-athletes in approach-avoidance motivation in athletics. Since no significant mean differences existed between minorities and non-minorities, as described above, this hypothesis was supported.

Hypothesis nine stated there would be significant differences between minority and non-minority student-athletes in approach-avoidance motivation in academics, with more minority student-athletes adopting an avoidance motivation. Again, although minorities had higher means on mastery-avoidance and performance-avoidance in academics, there were not any significant mean differences. Therefore, hypothesis nine is not supported.

In regards to type of sport, mean differences were explored for student-athletes in high profile and low profile sports. The first hypothesis to address this portion of the fifth research question stated there would be significant differences in

academic performance of high profile and low profile sport participants. The mean GPAs of each of these groups was evaluated in order to test this hypothesis. Although low profile sport participants had a higher mean GPA (3.27) as compared with high profile sport participants (3.10), the mean difference did not reach a significant level.

The second hypothesis stated there would be significant differences in mastery goal orientation of high profile and low profile sport participants. In order to evaluate the mean differences between these two groups, mastery-approach academics, mastery-avoidance academics, mastery-approach sports, and mastery-avoidance sports items were examined. Low profile sport participants had a higher mean on mastery-approach in sports (5.56) as compared with high profile sport participants (5.14) and was a significant difference ($p = .003$). Low profile sport participants also had a higher mean on mastery-avoidance in sports than high profile sport participants and it was a significant difference ($p = .034$). Significant mean differences did not appear between them on mastery-approach in academics or mastery-avoidance in academics.

The third hypothesis to address type of sport within the fifth research question stated there would be significant differences in performance goal orientation of high profile and low profile sport participants. In order to test this hypothesis, mean differences were examined between these groups on performance-approach in academics, performance-avoidance in academics, performance-approach in sports, and performance-avoidance in sports. Only one mean was significantly different. High profile (4.36) and low profile sport participants (4.79) differed

significantly on performance- approach in academics, with low profile sport participants more likely to adopt a performance-approach orientation in their academics. No other significant mean differences existed among the remaining performance goal orientations.

Hypothesis four within this group stated there would be significant differences between high profile and low profile sport participants in approach-avoidance motivation in academics, with more low profile sport participants adopting an approach motivation in academics and with more high profile sport participants adopting an avoidance motivation in academics. Although low profile sport participants had higher means on mastery-approach academics, mastery-approach sport, performance-approach academics, and performance-approach sport, not all were significantly different from high profile sport participants. The two significant mean differences occurred on the mastery-approach in sport (5.56) and performance-approach in academics (4.79) only. Additionally, low profile sport participants also had higher means on avoidance goal orientations as opposed to high profile sport participants. Of these avoidance items (mastery-avoidance academics, mastery-avoidance sport, performance-avoidance academics, and performance-avoidance sport), only mastery-avoidance in sport was significantly different, but with low profile sport participants (4.20) at a higher mean than high profile sport participants (3.68). Although hypotheses one through four of the fifth research question found significant means between high profile and low profile sport participants, the hypotheses were not testable given the low number of high profile sport participants who took part in the survey.

The sixth research question investigated whether academic self-efficacy and academic goal orientation predict the academic performance of student-athletes. The hypotheses to address this research question stated that academic self-efficacy and academic goal orientation predict the academic performance of student-athletes, but together more so than independently. Academic self-efficacy accounted for 20 percent of the variance in academic performance among student-athletes and was significant ($p < .0001$). The academic goal orientations of mastery-approach, performance-approach, mastery-avoidance, and performance-avoidance contributed an additional 4 percent, but did not do so significantly. All of the academic self-efficacy and academic goal orientation motivational variables together however, contributed to 24 percent of the variance in academic performance and were significant ($p < .0001$). Therefore, the hypothesis is supported.

The seventh research question examined the relationships between the non-cognitive variables of college experiences and academic support with motivation and academic performance. College experiences were positively related to academic performance as measured by self-reported cumulative college GPA, mastery-approach academics, mastery-approach sport, performance-approach academics, performance-approach sport, academic self-efficacy and athletic self-efficacy. Academic support was positively related to mastery-approach academics, mastery-approach sport, performance-approach sport, performance-avoidance sport, academic self-efficacy, and athletic self-efficacy. Additionally, academic support and college experiences together predicted approximately 18 percent of the variance in academic

performance and an overall regression model, college experiences remained a significant predictor of academic performance.

Summary

The purpose of this study was to examine the academic and athletic motivation of Division I student-athletes. In particular, it examined the relationship of academic and athletic self-efficacy and academic and athletic goal orientation on the academic and athletic performances of Division I intercollegiate student-athletes. Academic performance was measured by self-reported cumulative college grade point average while athletic performance was measured by starter status. It also sought to examine significant differences among subgroups of student-athletes by gender, ethnicity, and type of sport.

First, descriptive statistics on the demographic variables revealed that the sample student-athlete population did not accurately represent the overall student-athlete populations at the two private institutions who volunteered to take part in the study. This created problems with interpreting the data, particularly in regard to the type of sport subgroup so that the differences between high profile and low profile sport participants could not be properly examined.

Second, analysis of variance was utilized and ruled out further examination of type of sport, ethnicity, academic classification, and seasons of eligibility remaining as they presented problems with the sample size and did not reveal significant mean differences. However, these analyses revealed significant group mean differences on GPA, starter status, and the motivational variables by gender, recruited status, and scholarship status.

Academic self-efficacy, mastery-approach in academics, and performance-approach in academics were positively correlated with GPA. Mastery-avoidance in academics, performance-avoidance in academics, and performance-avoidance in sport were negatively correlated with GPA. Mastery-approach in sports and performance-approach in sports were both negatively correlated with starter status. The analyses also revealed that self-efficacy and goal orientation do in fact, correlate consistent with theory in that self-efficacy positively correlates with an approach motivation as opposed to avoidance motivations.

Third, two MANOVA's were performed in order to further examine any effects for academic performance and athletic performance. In regards to academic performance, females showed significantly higher means on mastery-approach goal orientation in academics and non-recruited student-athletes had higher mean GPAs. For athletic performance, the analysis revealed main effects of gender, recruited status, and starter status. Females had higher group means on mastery-avoidance in sports and performance-avoidance in sports, while males had a higher group mean on performance-approach in sports. Recruited student-athletes had a higher group mean on performance-approach in sports. Student-athletes who identified themselves as starters on their athletic teams had higher means on self-efficacy in sport.

The MANOVA also revealed a two-way interaction effect of recruited status and starter status with recruited student-athletes who identified themselves as starters having a higher mean on mastery-avoidance in sports. It also revealed a three way interaction effect of gender, recruited status, and starter status with non-recruited

females who had identified themselves as starters as having higher means on performance-avoidance in sports.

Fourth, since one of the main goals of this study was to determine predictors for academic performance, multiple regression was used. Regression analysis revealed that academic self-efficacy alone as well as academic self-efficacy combined with the academic goal orientation motivational variables of mastery-approach in academics, mastery-avoidance in academics, performance-approach in academics, and performance-avoidance in academics accounted for enough variance to be considered significant predictors of academic performance. A second regression revealed that college experiences, ethnicity, and academic self-efficacy were also significant predictors of academic performance. Implications of these results and suggestions for future study are presented in the next chapter.

CHAPTER FIVE

Discussion and Conclusion

"I learned that the only way you are going to get anywhere in life is to work hard at it. Whether you're a musician, an athlete, or a businessman, there is not getting around it. If you do, you'll win – if you don't, you won't."
--Bruce Jenner

Introduction

The purpose of this study was to examine the academic and athletic motivation of Division I intercollegiate student-athletes upon their academic and athletic performances. The first task was to determine the academic motivational orientation of student-athletes by examining the relationship between achievement goals and academic performance. The second task was to determine the athletic motivational orientation of student-athletes by examining the relationship between achievement goals and athletic performance. The third task was to determine whether achievement goals and self-efficacy correlated within the survey population as they do according to achievement goal theory and self-efficacy theory. The fourth task was to examine the relationships between academic/athletic self-efficacy and academic/athletic performance among the student-athlete population. The fifth task was to determine whether any significant differences existed among student-athletes by gender, ethnicity, and type of sport. The sixth task was to determine what predicted the academic performance of student-athletes. The seventh and final task was to examine the relationships between the non-cognitive variables of college experience and academic support with motivation and academic performance.

Discussion

Regarding the first task, significant positive correlations were found to exist in the student-athlete sample between both academic mastery-approach and academic performance-approach achievement goals to academic performance, as measured by self-reported cumulative college GPA. Likewise, athletic mastery-approach and athletic performance-approach achievement goals were significant and positively related to academic performance. Neither academic nor athletic achievement goals grounded in avoidance were related to academic performance. The results indicate that student-athletes who have an approach orientation in academics tend to perform better academically and athletically.

Regarding the second task, significant mean differences were found to exist between both academic mastery-approach and academic performance-approach achievement goals to athletic performance, as measured by starter status. Additionally, the mean difference was significant on athletic performance for athletic mastery-approach and athletic performance-approach achievement goals. Neither academic nor athletic achievement goals grounded in avoidance were related to athletic performance. The results indicate that student-athletes who have an approach orientation in sport tend to perform better academically and athletically.

Additional significant correlations were found on college experiences and academic support, as both were positively related to approach motivation in academics and sport as well as to academic and athletic self-efficacy. This indicates that student-athletes who believed their academic motivation came from their overall

college experience, had higher GPAs, higher self-efficacy, and both academic and athletic approach achievement goals. The only exception was a significant correlation between academic support and performance-avoidance sport. This indicates that student-athletes who have a performance-avoidance orientation in sport also rate academic support highly.

The results suggest that the approach-avoidance motivational orientation was an important factor in determining the relationship between achievement goal orientation and the academic and athletic performances of student-athletes. This is consistent with motivational literature. Approach vs. avoidance motivation or positive vs. negative valence lies at the heart of motivational theory (Lewin, Demob, Festinger & Sears, 1944; Alpert & Haber, 1960; Atkinson, 1957; Covington & Berry, 1976; McClelland, Atkinson, Clark & Lowell, 1953; Weiner, 1972, as cited in Elliot, 2006). Recent research suggests that individuals who have an approach orientation utilize more adaptive learning techniques and have more positive learning outcomes, leading to better academic performance than those who do not (Elliot, 1994; Elliot & Harackiewicz, 1996; Elliot & Church, 1997; Elliot, 1999; Elliot & McGregor, 1999; Pintrich, 2000; Elliot & McGregor, 2001; Harackiewicz, Barron, Pintrich, Elliot & Thrash, 2002; Van Yperen, 2003; Van Yperen, 2006; Sideridis, 2007; Van Yperen & Renkema, 2008; Van Yperen, Elliot & Anseel, 2009). Approach motivation has also been tied to better athletic performance in high school athletes and elite Olympic athletes (Lochbaum & Roberts, 1993; Halvari & Kjormo, 1999).

Although this study did not find type of achievement goal as a key determinant in academic or athletic performance, it did confirm the importance of the

approach-avoidance motivational concept in regards to student-athletes. This study suggests that student-athletes who adopt an approach orientation to motivation tend to perform better academically. It also builds upon previous work about approach motivation relating to athletic performance, but now incorporates college student-athletes within the research. College student-athletes, like high school and elite athletes, tend to perform better athletically if they adopt an approach orientation to motivation. Motivational literature also discusses the benefit of adopting multiple achievement goals as well as whether achievement goals can transfer across both academic and athletic domains (Steinberg, Singer & Murphey, 2000; Roberts, 1992; Duda & Nicholls, 1992; Ryska, 2002; Ryska & Vestal, 2004; Green, Dillon & Miller, 2010). This study adds to the literature that suggests student-athletes who adopt an approach motivation in academics also tend to adopt an approach motivation in athletics.

In regards to the third task, this study found that self-efficacy and achievement goal variables correlated as expected by self-efficacy theory and achievement goal theory with regard to approach orientations, but not so with regard to avoidance orientations. Bandura (1982) believed perceived self-efficacy helps determine approach-avoidance orientation to motivation. Perceived self-efficacy is the way an individual views their capability to accomplish a task. If an individual reports a high self-efficacy, he/she will be more likely to approach a task and persist in it. On the other hand, if an individual has a low self-efficacy, he/she will more likely avoid the task. Achievement motivation focuses on the goals an individual will adopt (mastery or performance) and whether they are motivated by the desire to

achieve success (approach motivation) or whether they are motivated by the desire to avoid failure (avoidance motivation) (Elliot & McGregor, 2001). In other words, self-efficacy should correlate positively with mastery-approach and performance-approach achievement behavior, while self-efficacy should be negatively related to mastery-avoidance and performance avoidance achievement behavior.

Both academic and athletic self-efficacy were significantly and positively correlated with both mastery-approach and performance-approach achievement goals in both academic and athletic settings. Consistent with Bandura's theory (1982), self-efficacy is positively related to approach motivation. This study supports previous findings of a significant relationship between mastery goals and perceived ability in educational settings (Greene & Miller, 1996a; Greene & Miller, 1996b; Elliot & McGregor, 2001) and in sport settings (Lochbaum & Roberts, 1993; Ryska, 2002; Ryska & Vestal, 2004; Bagoien & Halvari, 2005).

On the other hand, no significant relationships were found for academic and athletic self-efficacy with both mastery-avoidance and performance-avoidance achievement goals in both academic and athletic settings, although the relationships were generally negative in direction. As such, the findings only partially supported literature with respect to the relationship between self-efficacy and achievement goals. However, other studies also did not find significant relationship between self-efficacy and achievement goals (Miller, Behrens, Greene & Newman, 1993; Duda & Nicholls, 1992; Miller, Greene, Montalvo, Ravindran & Nichols, 1996).

Perhaps the reason for these inconclusive findings lies in the concept of valence. The results from this study suggest that valence is a more important factor than the type of achievement goal adopted. It could be that self-efficacy is related to both mastery-approach and performance-approach achievement motivation, but not such an important factor in adopting a mastery-avoidance and performance-avoidance orientation to achievement motivation. More recent work utilizing the 2 X 2 achievement model suggests that positive or negative valence may contribute to an individual's dominant achievement goal orientation. Van Yperen (2006) conducted a 2 X 2 MANOVA and only found generalized self-efficacy to be statistically significant with valence (approach vs. avoidance) ($F = 11.33$; $p = .04$), but not with the competence definition (mastery vs. performance) or with competence x valence. Additionally, he found that individuals who adopted dominant approach goals had a stronger sense of self-efficacy than individuals with dominant avoidance goals. Therefore, it is possible that self-efficacy is more strongly related to an approach orientation to motivation than an avoidance orientation to motivation.

The fourth task was to examine the relationships between academic/athletic self-efficacy and academic/athletic performance. The significant and positive relationship between academic self-efficacy and academic performance as measured by GPA was expected. No relationship was found between athletic self-efficacy and academic performance. In order to determine how academic/athletic self-efficacy behaved with athletic performance, significant means of the starter status variable

had to be examined. As hypothesized, the analysis of variance found that the difference between athletic self-efficacy and athletic performance was significant.

It is not surprising that students who perform better academically and athletically express confidence in their abilities in these domains. Self-efficacy has been shown to be positively related to academic performance in the literature with the general student population (Schunk, 1988; Pintrich & DeGroot, 1990; Garcia & Pintrich, 1995; Greene & Miller, 1996; Miller, Greene, Montalvo, Ravindran & Nichols, 1996; Miller, Behrens, Greene & Ertmer, 2000; Bandura, Barbaranelli & Pastorelli, 1996; Zimmerman, 1996; Schunk & Ertmer, 2000; Bandura, Barbaranelli, Caprara & Pastorelli, 2001; Linnenbrink & Pintrich, 2003; Bandura, Caprara, Barbaranelli & Pastorelli, 2003; Bembenutty & Zimmerman, 2003; Jakubowski & Dembo, 2004; Choi, 2005) as well as with student-athletes in academics (Sedlacek & Adams-Gaston, 1992; Eiche, Sedlacek, & Adams-Gaston, 1997; Garrett, 2000) and in athletics (Duda & Nicholls, 1992; Ommundsen & Pedersen, 1999; Ryska, 2002; Ryska & Vestal, 2004; Skjesol & Halvari, 2005; Bagoien & Halvari, 2005). Many of these studies found self-efficacy or perceived ability to be the strongest predictor of academic and athletic performance. This study also found academic self-efficacy and athletic self-efficacy as important factors in both the academic and athletic performance of Division I student-athletes, as expected by the literature and self-efficacy theory.

The fifth task was to examine mean differences on academic and athletic performance as well as the motivational variables (mastery-approach academics, mastery-avoidance academics, performance-approach academics, performance-

avoidance academics, mastery-approach sport, mastery-avoidance sport, performance-approach sport, and performance-avoidance sport) of student-athlete subgroups including gender, ethnicity, and type of sport. Ethnicity did not present any new information in regards to academic performance or achievement motivation. Due to the low number of responses by type of sport, these findings could not be interpreted. However, findings on both are discussed briefly here.

The only significant mean ($p < .0001$) with regard to ethnicity was GPA, with non-minorities having higher mean GPAs (3.34) as compared to minorities (2.97). Previous literature supports the fact that minorities tend to have lower GPAs than non-minorities (NCAA, 2009; Sellers, 1992; Petrie & Russell, 1995). However, the fact that ethnicity itself was not a significant factor in academic motivation is not completely surprising. Research suggests that differences on academic performance between groups of students and student-athletes alike are much less likely to do with race or ethnicity than other factors such as parent education or economic status (Garrett, 2000; Simons, Van Rheenen & Covington, 1999). Since there were not any other significant means or new information presented concerning ethnicity, it was not explored further.

This study also sought to examine type of sport as a student-athlete subgroup, defined as either high profile (baseball, men's basketball, women's basketball, and football), or low profile, which consisted of the remaining sports. However, of the 209 student-athletes in the sample, only 27 were from high profile sports. Although the results may not be able to be interpreted, this study found that low profile sport participants were more likely to adopt mastery-approach and mastery-avoidance

motivational orientations to sport, and performance-approach motivational orientations to academics more so than high profile sport participants. Also, high profile student-athletes had identified themselves as starters on their athletic teams more so than low profile student-athletes.

It is reasonable to assume that student-athletes in low profile sports have fewer expectations of a professional athletics career opportunity than high profile sport participants because there are more opportunities to pursue the high profile sports in the professional leagues. Therefore, it makes sense that low profile student-athletes may adopt a mastery-approach orientation with a focus on self-improvement or participating in the sport for the inherent value in it, rather than on proving their competence to others.

In regards to adopting a mastery-avoidance orientation in sport, low profile sport student-athletes also tended toward this orientation more so than high profile student-athletes. Having a mastery orientation indicates that success in sport is important to low profile sport participants. However, having an avoidance orientation indicates that they also are motivated to avoid failure as well as to achieve success. Therefore, low profile sport participants seemed to fear not mastering their sport more so than high profile student-athletes. Low profile sport participants are most likely performing their sport for the last time and perhaps view this as their opportunity to achieve at the highest level.

It is not unexpected that low profile sport participants would tend to adopt a performance-approach motivation in academics as compared with high profile sport

participants. Performance-approach goals have been found to sometimes predict academic achievement in certain performance situations (Harackiewicz, Barron & Elliot, 1998; Harackiewicz, Barron, Pintrich, Elliot & Thrash, 2002; Midgley, Kaplan & Middleton, 2001; Elliot, McGregor & Gable, 1999). Although not significant in this study, low profile sport participants also reported higher scores on GPAs. So, it makes sense that low profile sport participants adopted a performance-approach motivational orientation in academics more so than high profile sport participants.

Finally, it is not surprising that more high profile sport participants would identify themselves as starters on their athletic teams than low profile sport participants because they are usually the starters. High profile sport participants have been found to identify more with their athletic role (Adler & Adler, 1987; Simons & Van Rheenen, 2000; Gaston, 2003) than low profile sport participants.

Although ethnicity and type of sport were not explored any further, data analysis revealed recruited status and starter status to be interesting student-athlete subgroups. Therefore, in addition to gender, recruited status and starter status are discussed here.

Significant mean differences and effects were found in regards to gender. This study found that female student-athletes, more so than male student-athletes, tend to adopt an avoidance orientation in sport and an approach orientation in academics. Significant mean differences revealed that females had higher scores on mastery-avoidance in sport, performance-avoidance in sport, performance-avoidance in academics, and lower scores on academic self-efficacy. Gender also showed a

small to moderate main effect on mastery-avoidance and moderate to large effect on performance-avoidance in sport with more females adopting these achievement motivations. There was also a moderate main effect of gender on performance-approach sport, but more males than females adopted this achievement goal in sport. In regards to their academics; however, there was a small to moderate main effect of gender on mastery-approach academics with more females adopting this achievement goal than males. Greene, Dillon & Miller (2010) also found that females were significantly higher on mastery-approach in academics, in addition to sport. Therefore, it is unexpected that when compared to males, females would tend to adopt mastery-avoidance in sport, performance avoidance in sport, performance-avoidance in academics and also report lower academic self-efficacy. Perhaps this finding is a function of sample size since the sample in the Greene, Dillon & Miller (2010) study included more males from high profile sports.

Although not significant, this study did find that females reported higher GPAs than males, while females reported lower self-efficacy scores for academics than males. Pintrich & DeGroot (1990) found that self-efficacy is one of the strongest predictors of academic performance. Self-efficacy theory states that individuals with high self-efficacy are more likely to develop an approach orientation to a task. Because female student-athletes tend to earn higher GPAs than male student-athletes (NCAA, 2009), it stands to reason according to theory that females would have higher academic self-efficacy and be less likely to adopt an avoidance motivation. Additionally, Greene & Miller (1996) found a significant correlation between learning goal orientation (mastery) and perceived ability (perceived self-

efficacy). In other words, students with high perceived ability were more likely to adopt a mastery goal orientation. Again, one would think that females, who tend to perform better academically, would report higher self-efficacy than males and be less likely to adopt a performance-avoidance motivational orientation in academics. However, this study produced mixed results in that the analysis of variance showed that females tended to adopt an avoidance motivational orientation in academics, while the multivariate analysis of variance found a main effect of gender, with females adopting an approach motivational orientation in academics.

Significant mean differences and effects were also found in regards to recruited status. Recruited student-athletes reported lower GPAs and scored lower on mastery-approach in academics and self-efficacy in academics than non-recruited student-athletes. Additionally, they reported higher scores on performance-approach in sport, performance-avoidance in academics, performance-avoidance in sport, self-efficacy in sport and starter status than non-recruited student-athletes. There was also a small to moderate main effect of recruited status on performance-approach sport with more recruited student-athletes adopting this achievement goal than non-recruited student-athletes and a small to moderate main effect of recruited status on GPA with non-recruited student-athletes earning higher GPAs than recruited student-athletes.

Since recruited student-athletes were recruited to the institution primarily for their athletic ability, it makes sense they would adopt a performance-approach in sport orientation, have higher self-efficacy in sport, and be starters on their athletics teams, more so than non-recruited student-athletes and is consistent with theory.

They are the most talented and start for their teams, which reinforces their athletic self-efficacy. With high self-efficacy, they are more likely to approach the task of competing in their sport. Recruited student-athletes would be interested in showing individuals like their coaches that they perform better than other recruited student-athletes and they most likely have confidence in their athletic abilities to do so.

In regards to their academics; however, recruited student-athletes had lower GPAs and were more likely to adopt a performance-avoidance motivational orientation than non-recruited student-athletes and have lower academic self-efficacy than non-recruited student-athletes. If recruited student-athletes are unable to devote as much time to their academics as non-recruited student-athletes, then there is a chance recruited student-athletes may not perform as well academically. As the literature indicates, students who adopt a performance-avoidance orientation in educational settings tend to do so because they fear performing worse than others (Elliot & Harackiewicz, 1996; Pintrich, 2000; Elliot, McGregor & Gable, 1999; Church, Elliot & Gable, 2001; Elliot & McGregor, 2001; McGregor & Elliot, 2002; Harackiewicz, Barron, Pintrich, Elliot & Thrash, 2002; Elliot, Shell, Henry & Maier, 2005; Van Yperen, 2006; Sideridis, 2007; Van Yperen, Elliot & Anseel, 2009). Recruited student-athletes, more so than non-recruited student-athletes, may adopt a performance-avoidance orientation in academics because of this very fact. In other words, because they focus so much on performing their sport and may not focus enough on their academics, they tend to avoid performing academic tasks because they are afraid of failure. Additionally, as supported by self-efficacy and achievement goal orientation theory, self-efficacy is highly correlated with approach

motivation because individuals tend to be confident in tasks where they have had success and will continue to approach those tasks (Bandura, 1982; Greene & Miller, 1996a; Greene & Miller, 1996b; Elliot & McGregor, 2001; Lochbaum & Roberts, 1993; Ryska, 2002; Ryska & Vestal, 2004; Bagoien & Halvari, 2005).

Since this study found that recruited student-athletes reported higher avoidance orientation than non-recruited student-athletes, it is not surprising that they would report lower academic self-efficacy than non-recruited student-athletes. Again, according to theory the higher self-efficacy in a domain, the more likely he/she will approach the task. Since recruited student-athletes reported lower self-efficacy, they would be more likely to want to avoid the task, which is what this study found.

Another result found in regards to recruited status was that recruited student-athletes also were more likely to adopt a performance-avoidance motivational orientation in sport than non-recruited student-athletes. One would think the most highly talented student-athletes (recruited and starting) would not be motivated this way in their sport. However, with so much at stake this may be explained by fear of not performing as well as their peers. Research indicates that fear of failure is a positive predictor of performance-approach, performance-avoidance, and mastery-avoidance goal orientation adoption in academics (Elliot & McGregor, 2001). In a later study, Conroy & Elliot (2004) found that fear of failure is also related to performance-approach, performance-avoidance, and mastery-avoidance achievement goals in sport. The researchers concluded that fear of failure may have a causal influence on achievement goals. Greene, Dillon & Miller (2010) also found that

student-athlete in high profile sports were higher on both mastery and performance avoidance goals, suggesting that this group of student-athletes needs to learn to focus less on fear. Based upon this previous research, it is possible that recruited student-athletes may adopt both performance-approach and performance-avoidance goals in sport due to a fear of failure. Perhaps recruited student-athletes are concerned they may not perform as well as the other highly talented student-athletes.

The fact that non-recruited student-athletes had higher GPAs higher academic self-efficacy and were more likely to adopt a mastery-approach orientation in academics than recruited student-athletes was not surprising, given that non-recruited student-athletes are not recruited by the institution for athletics. One would expect non-recruited student-athletes then, to earn higher GPAs. Additionally, research conducted using achievement goal theory indicates that students who tend to adopt a mastery-approach orientation in academics utilize more adaptive learning strategies and have more positive learning outcomes, leading to higher GPAs (Pintrich, 2000; Elliot & Harackiewicz, 1996; Elliot, McGregor & Gable, 1999; Church, Elliot & Gable, 2001; McGregor & Elliot, 2002; Elliot, Shell, Henry & Maier, 2005; Elliot, 2005; Harackiewicz, Barron, Pintrich, Elliot & Thrash, 2002). Since non-recruited student-athletes reported earning higher GPAs it is expected they would also be more likely to adopt a mastery-approach goal orientation in academics. The results presented here in regards to recruited vs. non-recruited student-athletes supports the theory.

Another interesting subgroup that data analysis revealed was that of the "starter vs. non-starter." Starters had significantly higher means than non-starters on

mastery-approach sport, performance-approach sport, and athletic self-efficacy. Additionally, there was a small to moderate main effect found of starter status on athletic self-efficacy, with starters reporting higher athletic self-efficacy than non-starters. One would expect student-athletes who are "starters" on their teams to be the most highly performing athletically and to believe in their ability to perform in their sport, more so than those who do not "start." This is supported by both self-efficacy theory and achievement goal theory. Perceived ability or self-efficacy determines whether an individual will adopt an approach or avoidance orientation to a task (Bandura, 1982; Schunk, 1996). It is reasonable then that student-athletes who identified themselves as "starters" have high self-efficacy in athletics. Additionally, their starter status acts as a "performance accomplishment," something Bandura (1982) considered to be the most influential source of self-efficacy beliefs. Accomplishments in sport reinforce self-efficacy for sport. Likewise, Duda & Nicholls (1992) found that perceived ability was the most significant predictor of intrinsic motivation in sport. Because intrinsic motivation has been positively related to approach orientation (Elliot & Harackiewicz, 1996) it is understandable that "starters" who have high self-efficacy are more intrinsically motivated in their sport and as a result, adopt an approach orientation. In other words, the most highly talented student-athletes in their sport tend to believe in their athletic capabilities and as a result, tend to adopt a mastery-approach or performance-approach orientation in sport.

Also of interest is the finding of a moderate two-way interaction effect of recruited status and starter status on mastery-avoidance in sport. Student-athletes

who identified themselves as recruited and as starters were more likely to adopt a mastery-avoidance sport achievement goal. This may be due to the idea that the desire to achieve perfection is related to mastery-avoidance goals as found by Van Yperen (2006). Individuals who adopt a mastery-avoidance goal tend to do so because they desire to avoid failure. They fear failing at mastering the task at hand. Elite athletes have been identified as individuals who may be more likely to adopt a mastery-avoidance achievement goal orientation (Elliot, 2005). Since recruited student-athletes who are starters on their athletic teams are most likely the most talented athletes at the college level, it makes sense that some are perfectionists or have perfectionist tendencies and would thus; adopt a mastery-avoidance goal orientation.

Another finding of interest was a small to moderate three-way interaction effect with gender, recruited status, and starter status on performance-avoidance in sport. Female student-athletes, who had identified themselves as non-recruited, but as starters, were more likely to adopt a performance-avoidance sport achievement goal. Student-athletes who were not originally recruited by the institution for their athletics ability, may only be extrinsically motivated by sport. They may begin to develop their athletic talent more at the college level and eventually earn a "starting" place or status on the team, which acts as an external motivator for them to continue to perform in their sport. If this is the case, they may fear performing worse than others and losing their new starter status, thereby adopting a performance-avoidance orientation in sport.

The sixth task of this study was to examine whether academic self-efficacy and academic motivation could predict academic performance. Regression analysis revealed that academic self-efficacy alone contributed to 20 percent of the variance in academic performance as measured by self-reported GPA. As previously discussed self-efficacy has been positively related to academic performance in the general student population (Schunk, 1988; Pintrich & DeGroot, 1990; Garcia & Pintrich, 1995; Greene & Miller, 1996; Miller, Greene, Montalvo, Ravindran & Nichols, 1996; Miller, Behrens, Greene & Ertmer, 2000; Bandura, Barbaranelli & Pastorelli, 1996; Zimmerman, 1996; Schunk & Ertmer, 2000; Bandura, Barbaranelli, Caprara & Pastorelli, 2001; Linnenbrink & Pintrich, 2003; Bandura, Caprara, Barbaranelli & Pastorelli, 2003; Bembenutty & Zimmerman, 2003; Jakubowski & Dembo, 2004; Choi, 2005) as well as with student-athletes in their academics (Sedlacek & Adams-Gaston, 1992; Eiche, Sedlacek, & Adams-Gaston, 1997; Garrett, 2000). The findings reported here are consistent with theory and prior research.

The academic achievement orientation variables alone did not significantly contribute to the variance in academic performance. This is contrary to the research on achievement motivation. Achievement goals have been related to academic performance in numerous studies over the years (Elliot, McGregor & Gable, 1999; Church, Elliot & Gable, 2001; McGregor & Elliot, 2002; Elliot, Shell, Henry & Maier, 2005; Elliot & McGregor, 2001). Elliot, McGregor & Gable (1999) found that performance-approach goals predicted exam performance, $F(1,158) = 6.91$, $p < .01$ (ß = .15), and performance-avoidance goals negatively predicted exam

performance, $F(1, 158) = 6.20$, $p < .05$ (ß = -.15). The overall model revealed 51 percent of the variance in exam performance could be explained by the basic regression model (mastery goals, performance-approach goals, performance-avoidance goals, and GPA). Elliot & McGregor (2001) also found performance-approach goals were a positive predictor of exam performance, $F(1, 163) = 5.35$, $p < .05$ (ß = .18), while performance-avoidance goals were a negative predictor of exam performance, $F(1, 163) = 10.42$, $p < .005$ (ß = -.27). Church, Elliot & Gable (2001) found the same with performance-approach goals positively predicting graded performance, $F(1, 262) = 5.32$, $p < .05$, (ß = .14) and performance-avoidance goals as negative predictors of graded performance, $F(1, 262) = 19.66$, $p < .0001$, (ß = -.28). The researchers also found mastery goals as positive predictors of graded performance, $F(1, 262) = 9.14$, $p < .005$, (ß = .20). Perhaps achievement goals alone did not predict academic performance for the student-athletes in this study due to a small variation in academic performance among the student-athlete sample. Or, perhaps self-reported cumulative college GPA did not accurately represent true academic performance, and therefore, the achievement variables did not predict academic performance in this particular study. On the other hand, academic achievement may operate differently in the student-athlete population than in the general student body. Adler & Adler (1987) found that athletic participation alone had a negative impact on academic achievement. Pacarella, Bohr, Nora & Terenzini (1993) also found athletic participation to create adverse consequences for the cognitive development of male and female student-athletes as compared with the general student body. And, in their study about student-athlete experiences, Potuto

& O'Hanlon (2006) found that although student-athletes believed their athletic participation negatively affected their academic performance, student-athletes believed it was worth the tradeoff. Because student-athletes may knowingly allow their academic performance to suffer as a result of their athletic participation, the same relationships found between achievement motivation and academic performance in the general student body may not follow the same theorized relationship in the student-athlete population.

However, when the academic achievement orientation variables were added to the regression with academic self-efficacy, these variables explained 24 percent of the variance in academic performance. Therefore, this study found that academic self-efficacy was the strongest single predictor of academic performance, but academic self-efficacy and academic achievement motivation together predicted the academic performance of student-athletes. This finding is supported by the literature. Numerous studies have found perceived ability or self-efficacy to interact with achievement goals for academic performance (Nicholls, 1984; Dweck, 1986; Pintrich, 2000; Elliot & McGregor, 2001; Ames & Archer, 1988; Miller, Behrens, Greene & Newman, 1993; Greene & Miller, 1996; Miller, Greene, Montalvo, Ravindran & Nichols, 1996; Garret, 2000; Gaston, 2003; Ryska & Vestal, 2004). This study confirmed that academic self-efficacy and an academic achievement motivational orientation combined better predict the academic performance of Division I student-athletes than they do as single factors.

In addition to motivational orientation, two questions were included in the survey. One, called college experiences, was developed to assess whether college

experience contributes to the motivation to succeed academically. The other, called academic support was developed to assess whether these services had a positive impact upon academic performance. However, these did not behave the same way among the student-athletes in this study. Recruited student-athletes had higher means on academic support, while non-recruited student-athletes reported higher means on college experiences. Because recruited student-athletes are not necessarily recruited for their academic ability, athletic departments may tend to target university academic support services to recruited student-athletes more so than to non-recruited student-athletes. There is also an assumption in college athletics that non-recruited student-athletes are better prepared academically than recruited student-athletes because they were admitted to the institution primarily due to academic rather than athletic performance. In other words, recruited student-athletes may utilize academic support services more than non-recruited student-athletes. Therefore, this would make sense that a positive relationship existed between academic support services and academic performance for recruited student-athletes. Non-recruited student-athletes may believe their overall college experiences contribute to their motivation to succeed academically because they are able to have a more well-rounded overall college experience than recruited student-athletes. Often times, non-recruited student-athletes may have more opportunities to be involved on campus than recruited student-athletes. This may be due to the fact that higher expectations and structure exist in sport for recruited student-athletes than non-recruited student-athletes. Therefore, recruited student-athletes may have less free time to participate in all of the other college experiences.

Correlations revealed significant positive relationships between college experiences and academic support with academic performance as well as with the approach orientations and self-efficacy in academics and sport. Regression analysis also revealed college experiences, alone, and with academic support together as significant predictors of academic performance. Student affairs professionals are concerned with the college experience and the services offered for college students to be successful. In *Four Critical Years Revisited*, Alexander Astin (1993) studied college environments and their effect on academic outcomes. The environment included type of educational program and faculty to which the student was exposed as well as many other aspects of the undergraduate experience, such as the peer group. He found that student involvement reflects the amount of time and energy a student invests in the educational process and showed that almost any form of student involvement in the college experience benefits learning and student development.

College experience is also related to student retention (Tinto, 1987). In *Leaving College: Rethinking the Causes and Cures of Student Attrition*, Tinto (1987) developed a theory of student departure from college. According to his work, effective retention lies in the college's commitment to students. Therefore, student attrition is a reflection of college life and overall college experience. Both college experience and retention are related to student success. Tinto (1997) identifies the following six areas that impact success in college: institutional commitment; high expectations; academic, social, and financial support; monitoring and feedback; involvement defined as academic and social integration; and learning. Therefore,

efforts to enhance student success must consider the nature of the college experience and the support provided. This study contributes to the literature about college experience and academic support. Student-athletes who have an approach motivation in academics and sport, report high academic and athletic self-efficacy, tend to earn higher GPAs, and tend to believe their academic motivation comes from their overall college experience. Future studies could utilize student development theory and achievement goal theory together as the theoretical framework for further research on student-athlete motivation and academic performance.

Limitations

Anticipated limitations for this study were the generalizability of the findings given that the sample included only Division I student-athletes from private institutions in the Southwestern portion of the United States. However, additional limitations arose when conducting the study in regards to the sample size not being representative of the student-athlete population. Specifically, analyses related to type of sport could not be interpreted due to the small response from participants in high profile sports. Of the 209 student-athletes who made up the sample, only 27 were high profile sport participants. Therefore, any results found concerning this group should be interpreted with caution.

Another limitation of this study was the lack of variability in academic performance of the student-athlete sample when compared to similar research. This was also found in the Greene, Dillon & Miller (2010) study. The mean GPA of the sample was 3.25, with a standard deviation of .515 and variance of only .265. The

lack of academic diversity of the sample makes it difficult to interpret the results. Student-athletes, however, may be a more homogenous population than other student groups.

Directions for Future Research

Future studies should continue to seek to study populations from a variety of institutional types to increase generalizability of the findings. Of particular interest are Division I-FBS schools from public institutions and Bowl Championship Series (BCS) conferences since this is where the majority of concerns in intercollegiate athletics lie. The Knight Commission sites Division I-FBS big-time athletic programs as those who operate with little regard to academics other than for maintaining athletic eligibility (Knight Commission, 2001).

Future research should also seek to better reach the high profile student-athlete through multiple institutions with random samples drawn from each. It was an unfortunate result that high profile sport participants were not accurately represented in the study. Although there were not enough high profile sport participants to analyze for the study, it can be said that for whatever reason, the majority of them were not motivated to complete the survey, although they had the same opportunity to participate as all students. It can be said they avoided the task. The question is why? Did they avoid it because they felt it took up too much time? A study conducted by the NCAA in 2010 indicated that time commitment to athletics is still the highest for high profile student-athletes. Division I-FBS football student-athletes report the highest in-season commitment to sport at approximately 43.3

hours per week. Baseball reported 42.1 hours; men's basketball at 39.2 hours; women's basketball at 37.6 hours; all other women's sports at 33.3 hours and all other men's sports at 32 hours per week (NCAA, 2010). Did they avoid it for fear they would not complete it properly? Did they avoid it because they were not interested in it? Or, did they avoid it because they did not see the value in it?

Future research should also explore further approach-avoidance motivational orientation such as task interest and perceived instrumentality, or even other motivational theories to explain the academic behavior of high profile student-athletes. Task interest is the level of interest an individual has for a task and has been found to be related to performance and achievement goals (Van Yperen, 2003). Perceived instrumentality is an individual's perception of whether one views the task at hand as instrumental to one's future goals (Greene, Dillon & Miller, 2010). It would be of interest to study how Division I student-athletes view the perceived instrumentality of academics vs. sport. This would help us to understand further the factors that cause one to adopt a particular motivational orientation. One such theory may be expectancy-value theory operating within a valence framework (Feather, 1988). Feather's work was based upon the general student population and found that personal values induce valence once they are engaged. In other words, depending upon whether an individual finds value in the task at hand, determines whether they will adopt an approach or avoidance motivation toward that task.

Future studies should focus upon specific subgroups of the student-athlete population, such as those who are recruited and those who excel athletically. The data from this study suggests that these groups of student-athletes have different

motivational orientations than other subgroups and further research should seek to explore possible explanations, including additional exploration about fear of failure.

Implications for Theory and Practice

Implications for Theory

Several implications can be gathered from the results of this study. First, the findings on females and the achievement avoidance orientation was not consistent with previous studies and did not operate as expected by theory. Specifically, females, who earned higher GPAs than males, reported lower self-efficacy and tended to adopt an achievement avoidance orientation. Second, the study provides additional support for the relationship posed by theory that academic self-efficacy and achievement motivation act as predictors of academic performance. Third, this research suggests that student-athletes who have a strong sense of academic and athletic self-efficacy will be more likely to adopt an approach achievement orientation in both domains of their lives, leading to more adaptive academic and athletic outcomes. Fourth, researchers from the educational profession and sport profession can use the same theory – the 2 X 2 achievement goal theory model developed by Elliot & McGregor (2001) to further explore the achievement motivations of student-athletes.

Implications for Practice

First, the findings suggest that motivational variables as well as cognitive variables should be considered when advising and instructing student-athletes.

Second, the research suggests that the academic self-efficacy of student-athletes will support the adoption of an approach achievement orientation and therefore, improvements in academic performance. Because of this, individuals developing NCAA policy such as the Academic Performance Program (APP) should consider that retention and eligibility may not be the best measures of academic achievement. Third, professionals working with Division I intercollegiate student-athletes should understand that student-athlete subgroups are motivated in different ways, depending upon gender, recruited status, and starter status. Recruited student-athletes who are starters on their athletic teams may experience an athletic culture at the collegiate level different from those who are not recruited and do not start.

Conclusion

Division I intercollegiate student-athletes represent a unique population of college students on college campuses today. They face competing demands in their often conflicting roles as students and athletes. In an ideal world all Division I student-athletes would seek to earn a meaningful college degree in order to go on and become productive members of society. In reality, while many student-athletes strive to earn a college degree, others are not motivated to attend college to obtain an education. Without the proper environment and motivation for academic performance, some Division I student-athletes are unable to obtain a college degree and leave the college environment unprepared for life after college athletics.

The purpose of this study was to examine the academic and athletic motivation of Division I student-athletes. In particular, it examined the relationship

of academic/ athletic self-efficacy and academic/athletic goal orientation on the academic/athletic performances of Division I intercollegiate student-athletes. Academic performance was measured by cumulative college grade point average while athletic performance was measured by starter status. It also sought to examine significant differences among subgroups of student-athletes by gender, ethnicity, and type of sport.

This study confirmed the use of self-efficacy and achievement goal theory in student-athlete research. Academic motivation and college experiences were significant predictors of academic performance for Division I intercollegiate student-athletes. The results also suggest that student-athletes who adopt an approach motivation (either mastery-approach or performance-approach) tend to have better academic and athletic performances than those who adopt avoidance motivations. Additionally, self-efficacy was more strongly related to approach motivation than avoidance motivation. Therefore, the approach-avoidance motivation concept was an important factor in determining the relationship between self-efficacy and achievement goals as well as the relationship between achievement goal orientation and the academic/athletic performances of student-athletes. Finally, gender, recruited status, and starter status emerged as significant subgroups that were motivated in different ways towards their academics and sport and should be examined further in future research.

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Appendix A: Survey Motivation Questions

Table 1
Academic Self-Efficacy

1. I believe I will receive excellent grades in my classes.
2. I am certain I can understand the most difficult material presented in my classes.
3. I am confident that I can understand the basic concepts taught in my classes.
4. I am confident that I can understand the most complex material presented by my instructors in my classes.
5. I am confident I can do an excellent job on the assignments and tests in my classes.
6. I expect to do well in my classes.
7. I am certain I can master the skills being taught in my classes.
8. Considering the difficulty of my classes, the teachers, and my skills, I think I will do well in my classes.

Table 2
Athletic Self-Efficacy

1. I am performing well in my sport.
2. I am certain I can understand the most difficult strategies and skills for my sport.
3. I am confident I can understand the basic concepts for my sport.
4. I am confident I can understand the most complex strategies and skills for my sport.
5. I am confident I can do an excellent job on the strategies and skills needed to perform well in my sport.
6. I believe I am performing well in my sport.
7. I am certain I can master the strategies and skills being taught in my sport.
8. Considering the difficulty of my sport, my coach, and my skills, I think I will perform well in my sport.

Table 3
Achievement Goal Orientation in Academics

Performance-Approach

1. It is important for me to do better in my classes than other students.
2. It is important for me to do well compared to other students in my classes.
3. My goal in my classes is to get a better grade than most other students.

Performance-Avoidance

1. I just want to avoid performing worse than other students in my classes.
2. My goal in my classes is to avoid performing worse than everyone else.
3. It is important for me to avoid being one of the worst performers in my classes.

Mastery-Approach

1. I want to learn as much as possible from my classes.
2. It is important for me to understand the content of my classes as thoroughly as possible.
3. I desire to completely master the material presented in my classes.

Mastery-Avoidance

1. I worry that I may not learn all that I possibly could in my classes.
2. Sometimes I am afraid that I may not understand the content of my classes as thoroughly as I would like.
3. I am often concerned that I may not learn all that there is to learn in my classes.

Table 4
Achievement Goal Orientation in Athletics

Performance-Approach
1. It is important for me to perform better than other athletes in my sport.
2. It is important for me to do well compared to other athletes in my sport.
3. My goal is to do better in my sport than most other athletes.
Performance-Avoidance
1. I just want to avoid performing worse in my sport than other athletes.
2. My goal is to avoid performing worse in my sport than all other athletes.
3. It is important for me to avoid being one of the worst performers in my sport.
Mastery-Approach
1. I want to perform as well as it is possible for me to perform in my sport.
2. It is important for me to master all aspects of my performance in my sport.
3. It is important to me to perform as well as I possibly can in my sport.
Mastery-Avoidance
1. I worry that I may not perform as well as I possibly can in my sport.
2. Sometimes I am afraid that I may not perform as well as I would like to in my sport.
3. I am often concerned that I may not perform as well as I can perform in my sport.

Appendix B: Survey

Fall 2011 Student Athlete Survey

Directions - Part 1: Please answer the following questions by checking (√) the blank that best describes you.

1. In which sport do you participate? If you participate in more than one sport, please indicate your major sport only.

___ (1) BASEBALL

___ (2) MEN'S BASKETBALL

___ (3) WOMEN'S BASKETBALL

___ (4) WOMEN'S BOWLING

___ (5) MEN'S CROSS COUNTRY

___ (6) WOMEN'S CROSS COUNTRY

___ (7) EQUESTRIAN

___ (8) WOMEN'S FIELD HOCKEY

___ (9) MEN'S FENCING

___ (10) WOMEN'S FENCING

___ (11) FOOTBALL

___ (12) MEN'S GOLF

___ (13) WOMEN'S GOLF

___ (14) MEN'S GYMNASTICS

___ (15) WOMEN'S GYMNASTICS

___ (16) MEN'S ICE HOCKEY

___ (17) WOMEN'S ICE HOCKEY

___ (18) MEN'S LACROSSE

___ (19) WOMEN'S LACROSSE

___ (20) MEN'S RIFLE

___ (21) WOMEN'S RIFLE

___ (22) ROWING/CREW

___ (23) MEN'S SKIING

___ (24) WOMEN'S SKIING

___ (25) MEN'S SOCCER

___ (26) WOMEN'S SOCCER

___ (27) SOFTBALL

___ (28) MEN'S SWIMMING

___ (29) WOMEN'S SWIMMING

___ (30) MEN'S TENNIS

___ (31) WOMEN'S TENNIS

___ (32) MEN'S TRACK

___ (33) WOMEN'S TRACK

___ (34) MEN'S VOLLEYBALL

___ (35) WOMEN'S VOLLEYBALL

___ (36) MEN'S WATER POLO

___ (37) WOMEN'S WATER POLO

___ (38) WRESTLING

2. What is your gender?

___ (1) MALE

___ (2) FEMALE

3. What is your ethnic origin?

___ (1) CAUCASIAN

___ (2) AFRICAN AMERICAN

___ (3) HISPANIC/LATINO

___ (4) ASIAN AMERICAN

___ (5) HAWAIIAN NATIVE/PACIFIC ISLANDER

___ (6) NATIVE AMERICAN/ALASKAN NATIVE

___ (7) NON-RESIDENT ALIEN

___ (8) TWO OR MORE RACES

___ (9) OTHER

4. What is your current academic classification as of the fall 2011 semester?

___ (1) FRESHMAN

___ (2) SOPHOMORE

___ (3) JUNIOR

___ (4) SENIOR

___ (5) FIFTH YEAR SENIOR

___ (6) POST-GRADUATE

5. Is this your first semester at this institution?

___ (1) YES

___ (2) NO

6. How many years of eligibility will you have left as of the fall 2011 semester, including this season?

___ (1) NONE

___ (2) ONE

___ (3) TWO

___ (4) THREE

___ (5) FOUR

7. Which best describes you?

___ (1) RECRUITED

___ (2) NON-RECRUITED

8. Which best describes you?

___ (1) NO ATHLETIC SCHOLARSHIP (WALK-ON STUDENT-ATHLETE)

___ (2) PARTIAL ATHLETIC SCHOLARSHIP (1 %-99 %)

___ (3) FULL ATHLETIC SCHOLARSHIP (100%)

9. Which best describes you?

___ (1) STARTER

___ (2) NON-STARTER

_____ 10. What is your cumulative college grade point average before beginning the fall 2011 semester (on a scale of 0.00 – 4.00)?

Directions - Part 2: The following statements represent beliefs you have as a student-athlete about your academic and athletic abilities and your reasons for doing the work required in your sport and school work. Please read each statement below and indicate how much you agree or disagree. Be sure to answer each question independently. Use the 6-point scale below to indicate your response.

	Strongly Disagree					Strongly Agree
11. I want to learn as much as possible from my classes…….1	2	3	4	5	6	
12. I want to perform as well as it is possible for me to perform in my sport……1	2	3	4	5	6	
13. It is important for me to do better in my classes than other students……1	2	3	4	5	6	
14. It is important for me to perform better than other athletes in my sport……1	2	3	4	5	6	
15. I believe I will receive excellent grades in my classes……..1	2	3	4	5	6	
16. I am performing well in my sport……1	2	3	4	5	6	
17. I worry that I may not learn all that I possibly could in my classes……..1	2	3	4	5	6	
18. I worry that I may not perform as well as I possibly can in my sport……1	2	3	4	5	6	
19. I just want to avoid performing worse than other students in my classes……1	2	3	4	5	6	
20. I just want to avoid performing worse than other athletes in my sport……1	2	3	4	5	6	
21. I am certain I can understand the most difficult material presented in my classes……..1	2	3	4	5	6	

22. I am certain I can understand the most difficult strategies and skills for my sport……1 2 3 4 5 6

23. It is important for me to understand the content of my classes as thoroughly as possible……..1 2 3 4 5 6

24. It is important for me to master all aspects of my performance in my sport……1 2 3 4 5 6

25. Sometimes I am afraid that I may not understand the content of my classes as thoroughly as I would like……..1 2 3 4 5 6

26. Sometimes I am afraid that I may not perform as well as I would like to in my sport…….1 2 3 4 5 6

27. I am confident I can understand the basic concepts taught in my classes……1 2 3 4 5 6

28. I am confident I can understand the basic concepts for my sport……1 2 3 4 5 6

29. It is important for me to do well compared to other students in my classes……1 2 3 4 5 6

30. It is important for me to do well compared to other athletes in my sport……1 2 3 4 5 6

31. My goal in my classes is to get a better grade Than most other students……1 2 3 4 5 6

32. My goal is to do better in my sport than most other athletes……..1 2 3 4 5 6

33. I am confident that I can understand the most complex material presented by my instructors in my classes……..1 2 3 4 5 6

34. I am confident that I can understand the most complex strategies and skills for my sport…….1 2 3 4 5 6

35. I am certain I can master the skills being taught in my classes……1 2 3 4 5 6

36. I am certain I can master the skills and Strategies being taught in my sport…….1	2	3	4	5	6
37. My goal is to avoid performing worse in my classes than everyone else……..1	2	3	4	5	6
38. My goal is to avoid performing worse in my sport than all other athletes……1	2	3	4	5	6
39. Considering the difficulty of my classes, the teachers, and my skills, I think I will do well in my classes……1	2	3	4	5	6
40. Considering the difficulty of my sport, my coach, and my skills, I think I will perform well in my sport……1	2	3	4	5	6
41. I desire to completely master the material presented in my classes……..1	2	3	4	5	6
42. It is important to me to perform as well as I possibly can in my sport……..1	2	3	4	5	6
43. I am often concerned that I may not learn all that there is to learn in my classes….1	2	3	4	5	6
44. I am often concerned that I may not perform as well as I can perform in my sport…….1	2	3	4	5	6
45. I expect to do well in my classes……..1	2	3	4	5	6
46. I believe I am performing well in my sport……1	2	3	4	5	6
47. It is important for me to avoid being one of the worst performers in my classes……1	2	3	4	5	6
48. It is important for me to avoid being one of the worst performers in my sport……1	2	3	4	5	6
49. I am confident I can do an excellent job on the assignments and tests in my classes……1	2	3	4	5	6

50. I am confident I can do an excellent job on the strategies and skills being taught in my sport……..1	2	3	4	5	6
51. My experiences in college have generally supported my motivation to succeed academically……1	2	3	4	5	6
52. My experiences with academic support services have made a positive difference in my academic performance……..1	2	3	4	5	6

Appendix C: Student-Athlete Demographics, Distributions, and Descriptives

Table 5
Student-Athlete Population and Sample Demographic Characteristics

Variable	Overall Population N	%	Sample Population N	%	Adjusted Sample N	%
Population	678	100%	274	100%	209	100%
Gender						
Male	387	57%	105	38%	79	38%
Female	291	43%	169	62%	130	62%
Sport						
High profile	309	46%	36	13%	27	13%
Low profile	369	54%	238	97%	182	87%
Ethnicity						
Non-minority	417	62%	198	75%	153	75%
Minority	261	38%	67	25%	50	25%
Recruited Status						
Recruited	515	76%	208	76%	161	77%
Non-recruited	163	24%	63	23%	47	23%
Scholarship Status						
None	165	24%	56	20%	39	19%
Partial	203	30%	126	46%	95	46%
Full	310	46%	92	34%	75	36%
Starter Status						
Starter	N/A	N/A	180	68%	143	68%
Non-Starter	N/A	N/A	85	32%	62	30%
Academic Classification						
Freshmen	186	28%	61	22%	5	3%
Sophomores	151	22%	54	20%	51	24%
Juniors	171	25%	85	31%	82	39%
Seniors	130	19%	62	23%	62	30%
Fifth Years	27	4%	6	2%	6	3%
Post-graduates	13	2%	6	2%	3	1%
Seasons of Eligibility Remaining						
Zero Years	0	0%	16	6%	14	7%
One Year	117	17%	53	19%	51	24%
Two Years	150	22%	79	29%	76	36%
Three Years	162	24%	65	24%	56	27%
Four Years	249	37%	61	22%	12	6%

Table 6
Distribution of Student-Athletes by Sport

Variable	Overall Population N	%	Sample Population N	%	Adjusted Sample N	%
Population	678	100%	274	100%	209	100%
MBA	28	4.1%	0	0%	0	0%
MBB	33	4.9%	2	.70%	2	1.0%
WBB	29	4.3%	6	2.2%	3	1.4%
WBO	8	1.2%	6	2.2%	4	1.9%
MCC	36	5.3%	17	6.2%	14	6.7%
WCC	32	4.7%	7	2.6%	5	2.4%
MFB	219	32.3%	28	10.2%	22	10.5%
MGO	9	1.3%	3	1.1%	3	1.4%
WGO	15	2.2%	13	4.7%	11	5.3%
WCR	53	7.8%	37	13.5%	29	13.9%
MSO	27	4.0%	25	9.1%	17	8.1%
WSO	28	4.1%	26	9.5%	21	10.0%
WSB	17	2.5%	8	2.9%	7	3.3%
WSW	26	3.8%	21	7.7%	16	7.7%
MTE	15	2.2%	2	.70%	2	1.0%
WTE	22	3.2%	8	2.9%	6	2.9%
MTR	30	2.9%	30	10.9%	20	9.6%
WTR	31	4.6%	23	8.4%	18	8.6%
WVB	30	4.4%	11	4.0%	9	4.3%

Note. MBA = Baseball; MBB = Men's Basketball; WBB = Women's Basketball; WBO = Bowling; MCC = Men's Cross Country; WCC = Women's Cross Country; MFB = Football; MGO = Men's Golf; WGO = Women's Golf; WCR = Crew/Rowing; MSO = Men's Soccer; WSO = Women's Soccer; WSB = Softball; WSW = Women's Swimming & Diving; MTE = Men's Tennis; WTE = Women's Tennis; MTR = Men's Track; WTR = Women's Track; WVB = Volleyball.

Table 7
Distribution of Student-Athletes by Ethnicity

Variable	Overall Population N	%	Sample Population N	%	Adjusted Sample N	%
Population	678	100%	274	100%	209	100%
Caucasian	417	61.5%	198	72.3%	153	73.2%
African Am.	150	22%	23	8.4%	17	8.1%
Hispanic/Lat.	27	4.0%	13	4.7%	7	3.3%
Asian Am.	10	1.5%	6	2.2%	4	1.9%
Hawaiian Nat.	0	0%	0	0%	0	0%
Al/Nat. Am.	11	1.6%	6	2.2%	4	1.9%
NR Alien	24	3.5%	5	1.8%	5	2.4%
Two or More	19	2.8%	10	3.6%	10	4.8%
Other	10	1.5%	3	1.4%	4	1.5%
Unknown	0	0%	9	3.3%	6	2.9%

Note. African Am. = African American; Hispanic/Lat. = Hispanic/Latino; Asian Am. = Asian American; Hawaiian Nat. = Hawaiian Native; Al/Nat. Am. = Alaskan/Native American; NR Alien = Non-Resident Alien; Two or More = Two or More Races

Table 16
Descriptive Characteristics of the Student-Athlete Sample by Academic Classification

Variable	N	Mean	(SD)
GPA			
Freshmen	5	3.14	.71
Sophomores	50	3.19	.58
Juniors	79	3.32	.49
Seniors	62	3.22	.48
5th Years	6	3.02	.40
Post-graduates	3	3.78	.15
START			
Freshmen	4	1.25	.50
Sophomores	51	1.37	.49
Juniors	81	1.25	.43
Seniors	60	1.27	.45
5th Years	6	1.67	.52
Post-graduates	3	1.67	.58
MapAc			
Freshmen	5	4.60	1.86
Sophomores	50	5.38	.65
Juniors	81	5.24	.78
Seniors	62	5.13	.74
5th Years	6	5.22	.78
Post-graduates	3	5.67	.58
MapS			
Freshmen	5	4.53	2.01
Sophomores	50	5.57	.50
Juniors	81	5.49	.73
Seniors	62	5.58	.44
5th Years	6	4.94	1.10
Post-graduates	3	5.89	.19
MavAc			
Freshmen	4	3.58	1.50
Sophomores	50	3.87	1.05
Juniors	79	3.95	1.20
Seniors	61	3.57	1.12
5th Years	6	4.06	.77
Post-graduates	3	2.22	.38
MavS			
Freshmen	5	3.67	1.11

	Sophomores	49	4.23	1.17
	Juniors	80	4.24	1.26
	Seniors	60	4.03	1.06
	5th Years	6	3.67	1.07
	Post-graduates	3	3.33	.33
PapAc				
	Freshmen	5	3.80	1.80
	Sophomores	49	4.88	.92
	Juniors	81	4.75	1.07
	Seniors	61	4.73	.95
	5th Years	5	4.53	.56
	Post-graduates	3	4.22	1.68
PapS				
	Freshmen	5	4.33	1.70
	Sophomores	49	5.24	.74
	Juniors	82	5.02	1.01
	Seniors	60	5.21	.74
	5th Years	6	4.50	.78
	Post-graduates	3	5.89	.19
PavAc				
	Freshmen	5	4.00	.41
	Sophomores	50	3.94	1.38
	Juniors	80	3.69	1.42
	Seniors	61	3.54	1.35
	5th Years	6	3.22	1.31
	Post-graduates	3	2.78	1.39
PavS				
	Freshmen	5	3.87	.99
	Sophomores	50	4.19	1.47
	Juniors	81	3.90	1.34
	Seniors	61	3.82	1.36
	5th Years	6	2.83	.69
	Post-graduates	3	3.11	1.07
SEAc				
	Freshmen	5	4.10	1.21
	Sophomores	49	4.81	.65
	Juniors	80	4.85	.86
	Seniors	61	4.95	.67
	5th Years	6	4.96	.73
	Post-graduates	3	5.88	.13
SES				
	Freshmen	5	4.05	1.75
	Sophomores	49	4.99	.67
	Juniors	80	5.07	.78
	Seniors	58	5.17	.56
	5th Years	6	4.50	1.06

Post-graduates	3	5.75	.00

Note. GPA = cumulative college grade point average; START = athletic starter status; MapAc = mastery-approach academics; MapS = mastery-approach sports; MavAc = mastery-avoidance academics; MavS = mastery-avoidance sport; PapAc = performance-avoidance academics; PapS = performance-approach sport; PavAc = performance-avoidance academics; PavS = performance-avoidance sport; SEAc = self-efficacy academics; SES = self-efficacy sports.

Table 17
Descriptive Characteristics of the Student-Athlete Sample by Seasons of Eligibility Remaining

Variable	N	Mean	(SD)
GPA			
Zero	14	3.14	.48
One	49	3.27	.47
Two	75	3.24	.51
Three	55	3.25	.57
Four	12	3.34	.54
START			
Zero	14	1.21	.43
One	49	1.31	.47
Two	75	1.19	.39
Three	56	1.39	.49
Four	11	1.73	.47
MapAc			
Zero	14	5.14	.78
One	51	5.20	.72
Two	74	5.25	.79
Three	56	5.22	.85
Four	12	5.36	.72
MapS			
Zero	14	5.52	.80
One	51	5.59	.41
Two	74	5.48	.73
Three	56	5.48	.81
Four	12	5.36	.64
MavAc			
Zero	13	3.62	1.21
One	51	3.52	1.09
Two	72	3.98	1.12
Three	56	3.71	1.19
Four	11	4.24	1.10
MavS			
Zero	13	3.92	.98
One	50	3.94	1.16
Two	73	4.32	1.14
Three	55	4.10	1.28
Four	12	4.14	.99
PapAc			
Zero	13	5.10	.58

	One	50	4.49	1.05
	Two	74	4.85	1.01
	Three	55	4.68	1.07
	Four	12	4.94	1.03
PapS				
	Zero	13	5.15	.83
	One	50	5.12	.78
	Two	75	5.01	1.03
	Three	55	5.21	.85
	Four	12	5.19	.86
PavAc				
	Zero	13	4.05	1.45
	One	51	3.38	1.36
	Two	73	3.77	1.34
	Three	56	3.70	1.35
	Four	12	4.00	1.61
PavS				
	Zero	13	3.85	1.39
	One	51	3.82	1.39
	Two	74	3.88	1.33
	Three	56	3.99	1.40
	Four	12	4.00	1.48
SEAc				
	Zero	13	4.78	.74
	One	51	5.01	.70
	Two	73	4.89	.85
	Three	55	4.78	.75
	Four	12	4.66	.73
SES				
	Zero	13	4.93	.94
	One	49	5.19	.56
	Two	73	5.01	.79
	Three	54	4.98	.84
	Four	12	4.68	.64

Note. GPA = cumulative college grade point average; START = athletic starter status; MapAc = mastery-approach academics; MapS = mastery-approach sports; MavAc = mastery-avoidance academics; MavS = mastery-avoidance sport; PapAc = performance-avoidance academics; PapS = performance-approach sport; PavAc = performance-avoidance academics; PavS = performance-avoidance sport; SEAc = self-efficacy academics; SES = self-efficacy sports.