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# An Investigation Of Cognitive And Non-Cognitive Variables That Affect Student-Athlete Graduation And Retention

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AN INVESTIGATION OF COGNITIVE AND NON-COGNITIVE VARIABLES THAT  
AFFECT STUDENT-ATHLETE GRADUATION AND RETENTION

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By

Lisa D. Campos

2009

## DEDICATION

This work is dedicated to my loving and supportive family. To my parents Joe and Rosaura Campos who have always pushed me to do better since the day I was born. You have never given up on me and have always believed I could finish this graduate program. I hope one day to provide the same unwavering love and support you have always given to me. To my husband Darren D'Attilio, who has always supported me and understood when we could not spend time together. Your patience through this process was greatly appreciated. To my sister Cristina, my nephews James and Jake, and brother-in-law, Patrick, thank you for your support. Hopefully I can be a role model to my favorite nephews.

AN INVESTIGATION OF COGNITIVE AND NON-COGNITIVE VARIABLES THAT  
AFFECT STUDENT-ATHLETE GRADUATION AND RETENTION

by

LISA D. CAMPOS, B.S., M.S.

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## ABSTRACT

Colleges and universities continue to be held to accountability measures typically related to student graduation rates. Intercollegiate athletic programs are not immune to such accountability measures. For instance, in recent years the National Collegiate Athletic Association adopted the Academic Progress Rate, which holds institutions accountable for the graduation, retention, and eligibility status of its student-athletes. It is the moral obligation of intercollegiate administrators to ensure student-athletes are receiving a quality education culminating in graduation. The recent climate of higher education makes it critical to examine the variables which influence graduation and retention of student-athletes.

This study examined student-athletes who entered the University of Texas at El Paso from 1998 to 2001. Using logistic regression analyses, pre-college, demographic, and college variables were investigated to determine which variables influence student-athlete graduation and retention. The independent variables used were: high school core grade point average, scholastic aptitude test score, high school class percentile, ethnicity, gender, parent income level, first semester college grade point average, first year college grade point average, scholarship status, eligibility status, and sport played.

Results of the study show, when compared to all other variables, the two most significant variables that predict student-athlete graduation and retention are eligibility status and first-semester grade point average.

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## CHAPTER ONE

### Introduction

Over the past several years, accountability has been a buzz word used by many higher education constituents. Colleges and universities are continually being compelled to meet different accountability measures, while preserving their institutional mission. These accountability measures usually have major consequences, typically related to loss of financial appropriations if they are not met (Allen, Robbins, Casillas, & Oh, 2008; DesJardins, Ahlburg, & McCall, 2002; Mangold, Bean, & Adams, 2003). One accountability measure that has become more widely used for institutions of higher education is graduation rate (Mangold et al.; McArdle & Hamagami, 1994). According to Mangold et al.,

one of the most pressing issues facing American universities is the number of students who fail to graduate. Low graduation rates cost universities scarce resources; weaken the ability to meet educational objectives; and are perceived to reflect the university's ability to meet the educational, social, and emotional needs of students (p. 540).

Intercollegiate athletics has not been immune to these same types of accountability measures and scrutiny. Since the inception of intercollegiate athletics, there has been the constant question of how athletic departments will be held accountable to the institutional mission and standards of higher education (Covell & Barr, 2001; Hanford, 1979; Knight Commission, 1991; McArdle & Hamagami, 1994; NCAA, 2006b; Plant, 1961; Sedlacek & Adams-Gaston, 1992; Thelin, 1994). Over the past 100 years, intercollegiate athletics has been publicly examined by external constituents and reports such as the 1929 Carnegie Foundation Report, the 1952 Presidents Report for the American Council on Education (ACE), Hanford's 1974 Study for

ACE, the 1991 and 2001 Knight Commission on Intercollegiate Athletics, and the 2006 NCAA Second Century Imperatives Report have all questioned the role intercollegiate holds within institutions of higher education and what its academic benefits are to student-athletes. However athletic departments fit into the institutional mission, the clear message from these reports is that institutions are responsible for their athletic departments and therefore should be held accountability for the conduct of the department (NCAA, 2006b).

The philosophical question of where athletics fits in the university is often a focus in the media. Intercollegiate athletic programs, particularly football and men's basketball, are often perceived as being corrupt, being involved in academic fraud, and having lower graduation rates, than the general student population (Ervin, Saunders, Gillis, & Hoglebe, 1985; Hanford; 1979; McArdle & Hamagami, 1994; Purdy, Eitzen, & Hufnagel, 1982; Ryan, 1989; Williams, 1949). Beyond the media, many researchers have attempted to conclude what impact, if any, participation in athletics has on student-athletes. While there is evidence that suggests participation in intercollegiate athletics has a negative impact on student-athletes' educational pursuits, there are also studies which cite the positive influence of participation in intercollegiate athletics. Furthermore, from educational backgrounds to demographic factors to college experiences, researchers have cited various independent variables which affect student-athletes success.

This chapter will present the statement of the problem, purpose of the study, research questions and the significant of the study.

#### Statement of the Problem

It is critical for intercollegiate athletic programs to continue to ensure student-athletes are being retained, are remaining eligible, and are successfully obtaining degrees, as the integrity of

athletic programs is under constant scrutiny by many constituents. Most importantly, it is the moral obligation of institutions to assist students in reaching their educational potential. Given the newest NCAA academic reform movement, it is as critical as ever to examine trends in retention, eligibility, and graduation and to explore what factors contribute to student-athlete success. There remain to be major implications for intercollegiate programs that do not graduate student-athletes and the new Academic Performance Program (APP) adds new standards and consequences for individual sport programs that are not retaining and graduating student-athletes. From recruiting student-athletes to providing academic support services, athletic administrators must continue to develop best practices for retaining, graduating, and keeping student-athletes eligible based on accurate and real-time information.

Over the past several years, it has become evident there are many variables that influence student-athlete success. Factors such as academic preparedness, family background, and specific sport demands are just a few examples of variables that may affect student-athlete success. Therefore, it is critical to examine what variables predict retention and graduation rates of student-athletes. The NCAA uses traditional academic variables (i.e. standardized test scores and high school grade point averages) as initial eligibility standards and demographic variables have been shown to have an effect on college success. This study seeks to examine select cognitive and non cognitive variables and how they affect student-athlete success.

#### Purpose of Study

The literature regarding student-athlete success is often contradictory. Various variables are credited for affecting student-athlete success, either positively or negatively. Furthermore, graduation rates for specific sport teams are higher than others. With the development of the NCAA Academic Performance Rates and the moral obligation to ensure student-athletes are

achieving the highest academic success possible, it is critical to continue to examine what factors contribute to student-athlete success.

The purpose of this study was to determine what academic and non-academic variables are highly related to graduation and retention among student-athletes and which variables place student-athletes at high risk of not graduating or being retained. In particular, this study will focus on student-athletes and will examine pre-college cognitive and demographic variables as well as college variables that are highly related to student-athletes' academic success. Because each sport is unique, the study will compare high profile sports (football and men's basketball) to the low profile sports (men's golf, men's cross country/track combined, men's tennis, women's basketball, women's golf, women's rifle, women's soccer, women's cross country/track combined, women's tennis, and women's volleyball) to examine if these sport groups differ.

#### Research Question and Hypotheses

The research questions guiding this study include:

1. To what degree do selected pre-college cognitive variables predict/affect graduation of student-athletes
2. To what degree do selected pre-college cognitive variables predict/affect retention of student-athletes
3. To what extent do demographic variables predict/affect graduation of student-athletes
4. To what extent do demographic variables predict/affect retention of student-athletes
5. To what extent do college variables predict/affect graduation of student-athletes
6. To what extent do college variables predict/affect retention of student-athletes
7. What are the different profiles between student-athletes who participate in the high profile sports compared to the low profile sports?

The following hypothesis will guide this research study:

Hypothesis One ( $H_1$ ): High school core grade point average will be a better predictor of student-athlete six-year graduation rates than SAT/ACT score

Hypothesis Two ( $H_2$ ): SAT/ACT score will not significantly predict student-athlete six-year graduation rate

- Hypothesis Three (H<sub>3</sub>): First year college grades will significantly predict student-athlete six-year graduation rate
- Hypothesis Four (H<sub>4</sub>): First year college grades will significantly predict student-athlete first-year retention rate
- Hypothesis Five (H<sub>5</sub>): Eligibility will significantly predict student-athlete six-year graduation rate
- Hypothesis Six (H<sub>6</sub>): Eligibility will significantly predict student-athlete first-year retention rate
- Hypothesis Seven (H<sub>7</sub>): Ethnicity alone will not significantly predict student-athlete six-year graduation rate
- Hypothesis Eight (H<sub>8</sub>): Ethnicity alone will not significantly predict student-athlete first-year retention rate
- Hypothesis Nine (H<sub>9</sub>): Gender alone will significantly predict student-athlete six-year graduation rate
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- Hypothesis Eleven (H<sub>11</sub>): Sport played will significantly predict student-athlete six-year graduation rate
- Hypothesis Twelve (H<sub>12</sub>): Sport played will significantly predict student-athlete first year retention rate

### Significance

The literature review shows there are many social and academic variables that contribute to whether a student or a student-athlete graduates from college. Knowing this, it is important to

identify what factors affect the retention and graduation rates of student-athletes. This will enable athletic administrators to develop a student-athlete profile which identifies variables that place a student-athlete at high and low risks of graduating from the institution and being retained. The student-athlete profiles developed from this study will enable intercollegiate athletic programs to be more successful in recognizing high and low risk students. Intercollegiate athletic programs that focus on the student-athlete academic risk factors found in this study may not only be better aware and prepared to develop enhanced services and programs that will support student-athlete success and the goal of graduation, but will also be more prepared to meet the newest NCAA academic reform measures. This study will assist athletic administrators in identifying low and high risk student-athletes, which in turn will result in better initiatives to support their success. Furthermore, the researcher is unaware of any institutional studies that have examined student-athletes enrolled at the University of Texas at El Paso.

Furthermore, this study is timely as the latest charge by the NCAA has been to identify what variables may cause a student-athlete not to graduate from college. After analyzing national student-athlete data for the past 15 years, the NCAA has identified academic risk variables at entry into the institution, including high school core grade point average and ACT/SAT scores, as well as post-entry (NCAA, 2009). Using both the cognitive and non-cognitive variables identified in their study, the NCAA intends to develop a software program which will project which students are at greatest risk of not graduating from college. The software program will enable athletic administrators to assign student-athletes to a risk category based on the cognitive and non-cognitive background. The NCAA has reported student-athletes are “on a risk continuum,” throughout their college careers (NCAA, 2009, p. 2). Therefore, it is important to determine which variables place students at a higher risk of not earning their college degree.

Additionally, the NCAA recognizes each institution is unique and has encouraged institutions to conduct research on their individual campuses to determine what additional variables may need to be used based on the background characteristics of the student-athletes and individual institution mission.

## CHAPTER TWO

The following chapter will provide an overview of the history of the academic changes made by the National Collegiate Athletic Association (NCAA) as well as the current literature regarding student-athlete success.

### History of Academics in the NCAA

Before examining the current literature regarding student-athlete success, it is important to first understand the evolving academic landscape of intercollegiate athletics and academics.

#### *1990-1940*

The Intercollegiate Athletic Association of the United States (IAAUS), which in 1910 became the National Collegiate Athletics Association (NCAA) was formally established on March 31, 1906 (Covell & Barr, 2001, Hanford, 1979; Hawes, 1999; Thelin, 1994). This governing body was initially formed to address the rules and regulations in the sport of football (Covell & Barr; Hanford; Thelin). Eventually, the organization began addressing how athletics should fit into the institutional mission of colleges and universities. Prior to the establishment of the NCAA, athletic conferences, consisting of representation of various colleges and universities, governed rules regarding matters such as amateurism, recruiting, and academic requirements (Thelin).

Prior to the establishment of the NCAA, student-athletes were not held to any common academic standards. Therefore, it was initially left to athletic conferences and individual institutions to establish academic standards (Covell & Barr, 2001; Thelin, 1994). Although it had been reported the NCAA was “discounted as a weak organization” (Thelin, p. 59), when it was formed, the organization did attempt to regulate academics standards. At the 1906 NCAA Convention, the first eligibility policy for student-athletes was passed. The policy stated no

student would be allowed to participate in a game or contest, unless he or she was a full-time student, as prescribed by the institution (Falla, 1981 as cited by Covell & Barr). Although the goal of this provision was to help level the playing field among the various institutions that sponsored intercollegiate athletics, it did not address the fact that often institutions had different admission standards for student-athletes than for the general student population (Covell & Barr).

To further emphasize the connection between academics and athletics, in 1918, at the NCAA Convention, it was determined “that in every college and university, the Department of Physical Training and Athletics should be recognized as a department of collegiate instruction, directly responsible to the college or university administration” (Falla, 1981 as cited in Covell & Barr, 2001, p. 419). According to Covell and Barr, this was a strong indication athletic departments were to be integrated into the institution. To further examine the bond between the university and the athletic department during this time, in 1926, the Carnegie Foundation conducted a study on intercollegiate athletics and its relationship with universities and colleges. The Carnegie Foundation appointed Howard J. Savage to conduct the investigation (Savage, 1929 as cited by Cowley, 1999; Hanford, 1979; Thelin, 1994). The major finding of Savage’s report was that commercialization was the major problem with intercollegiate athletics, which led to abuses in recruiting and academics. Savage’s study suggested neither student-athletes nor the general student population benefited from intercollegiate athletics (Thelin). Savage’s solution was for college presidents to take control of college sports by making it a true amateurism entity (Cowley; Hanford). Although many faculty, presidents, coaches, and athletic administrators denied the alleged abuses in Savage’s report, in 1930, the NCAA endorsed the report. Despite Savage’s study, his ideal notion of what intercollegiate athletics should be was not adopted.

Academic standards continued to be a concern for the NCAA. In 1939, eligibility rules were developed by the NCAA for National Collegiate Championships. However, these standards were not made specific until 1946 (Falla, 1981 as cited in Covell & Barr, 2001). The new rule was the first effort to treat student-athletes the same as the general student population as this rule indicated in order to participate in intercollegiate athletics, student-athletes would need to be admitted under the same academic standards as the general student population (Covell & Barr). Furthermore, in order to continue to be eligible for competition, enrolled student-athletes were required to be full-time students, as defined by the institution (Covell & Barr).

#### *1950 - 1970*

In October 1951, the American Council on Education (ACE) commissioned a study on intercollegiate athletics. ACE proposed stricter eligibility policies for student-athletes. Student-athletes were to be held to the same academic admission standards as the general student population, not just for championship competition (Covell & Barr, 2001). Furthermore, ACE proposed the five accrediting organizations would enforce the rules, with the penalty being the loss of accreditation for those schools who did not comply with the new academic standards (Sperber, 1998 as cited by Covell & Barr; Hanford, 1979). Many presidents did not support this and the report was made less significant (Covell & Barr; Hanford).

In the early 1950's, the NCAA also amended its constitution to include the provision that enrolled student-athletes were required to make progress toward a degree, as defined by the institution (Falla, 1981 as cited by Covell & Barr, 2001). Furthermore, in 1959, additional academic provisions were strengthened by the NCAA, at least for championship competitions. Specifically, student-athletes competing in championship competitions were to be full-time

students, enrolled in no less than 12 semester hours (Falla, 1981, as cited by Covell & Barr, p. 425).

In 1965, the NCAA adopted the first ever academic standard which was tied to awarding athletic financial aid (Covell & Barr, 2001). Specifically, student-athletes would not be eligible for athletic related financial aid unless they had a “predicted grade-point average of 1.600 (based on a maximum 4.000 scale) in the student-athletes sixth, seventh, or eighth semester in high school” (Covell & Barr, p. 425) based on scores on standardized tests and high school grade point averages (Cross, 1973). Additionally, current student-athletes had to maintain a 1.600 grade point average to remain eligible for athletic related aid (Covell & Barr). It was argued this eligibility requirement was too low and would result in student-athletes not earning a college degree while others argued the rule limited the institution’s ability to provide opportunities to minority students who did not meet the minimum requirements (Covell & Barr). This rule was soon changed. In 1973, the NCAA replaced the “1.6 rule” with the “2.0 rule” which was perceived to be a weaker standard. The “2.0 rule” allowed incoming student-athletes to be eligible for competition and athletic related financial aid if they graduated from high school with a 2.0 grade point average (“A history,” 1980 as cited in Covell & Barr; Cross). This rule eliminated the consideration of course content or test scores.

### *1970-2000*

In the late 1970s and 1980s the NCAA continued to vote against tougher eligibility policies but external concerns persisted. In 1977, the American Council on Education (ACE) appointed the Commission on Collegiate Athletics (COCA) to again study the relationship between intercollegiate athletics and the university (Covell & Barr, 2001; Hanford, 1979). ACE encouraged university presidents to become more involved in the academic issues facing

intercollegiate athletics. As a result of the ACE report, in 1982 a committee, which consisted of university presidents, was formed through the NCAA to review eligibility concerns (Covell & Barr; McArdle & Hamagami, 1994). Consequently, at the 1983 NCAA Convention, proposed legislation was passed regarding initial eligibility rules. This new proposal, commonly known as Proposition 48, required incoming student-athletes to meet minimum academic standards to be eligible to compete, practice, and receive athletic financial aid at a university or college. Specifically, high school students would need to meet these new initial eligibility requirements which included earning a minimum 2.0 grade point average computed from high school core course work. The core course work included 11 academic courses: English (3 years); Math (2 years); Social Science (2 years); Natural or Physical science (2 years); and additional academic electives (2 years). Furthermore, students would have to earn a 700 combined score (verbal and math) on the Scholastic Aptitude Test (SAT) or a 15 composite on the American College Test (ACT) (Covell & Barr; Klein & Bell, 1995; McArdle & Hamagami). The proposal was passed and took effect in August 1986 despite arguments standardized test scores and high school grade point averages do not predict student success in college.

With growing concern regarding the perceived diminishing opportunities being provided to potential student-athletes, particularly minority students, based on the minimum cut scores on the SAT and ACT, an NCAA research committee analyzed the effects of the then current initial eligibility rules (Covell & Barr, 2001). The NCAA found graduation rates did increase for African-Americans, but enrollment rates for this population decreased (Dempsey, 1997). Based on their findings, they recommended lowering the required minimum SAT and ACT scores. Although this idea was not adopted, it led to the development of the sliding scale concept, which would allow a combination of high school grade point average and SAT or ACT score to be used

for initial eligibility. At the 1986 NCAA Convention, with a vote of 209 to 95, the sliding scale concept was passed (Covell & Barr; Klein & Bell, 1995). This new rule would take effect with the 1990 entering freshmen cohort.

Proposals affecting initial eligibility continued to be passed. In the late 1980s, the membership began scrutinizing partial qualifiers. Partial qualifiers were entering freshman student-athletes who did not meet the initial eligibility rules, but did meet either the SAT/ACT cut-off score or the minimum grade point average. However, admitted partial qualifiers lost a year of athletic eligibility but could still practice during their initial year of enrollment. At the 1989 NCAA Convention, by a 163 to 154 vote, the membership voted to support Proposal 42 which eliminated the ability for “partial qualifiers” to receive athletic related aid, which was previously permissible (Covell & Barr, 2001). This would take effect beginning in August 1990. There was a public outcry by coaches and presidents regarding this vote. As a result, at the 1990 NCAA Convention, Proposal 26 was passed, which allowed partial qualifiers to receive institutional financial aid, but not from the athletic department. Additionally, partial qualifiers would not be able to compete or practice during their first academic year (Covell & Barr). Eventually, the concept of partial qualifiers was completely eliminated in 2002, effective 2005 (NCAA, 2003).

In addition to the passing of new academic legislation, the Knight Foundation, in 1989, funded a commission to investigate the perceived and real corruption in intercollegiate athletics that threatened the integrity of higher education as a whole (Knight, 1991). The commission’s first report, released in March of 1991, recommended a “one-plus-three” model. The premise of the model was presidential control over academic integrity, financial integrity, and independent certification (Knight).

At the 1992 NCAA Convention, the initial eligibility standards were again increased, to be effective by 1995. High school core course credits increased from 11 to 13 while a new sliding scale was incorporated (Covell & Barr, 2001). Prospective student-athletes entering college in 1995 would have to have a minimum 2.0 grade point average in 13 core courses with a combined SAT score of 1010 or a combined ACT score of 86 or incoming students could earn a minimum combined SAT score of 820 or combined ACT score of 86 with a core high school grade point average of 2.5 (NCAA, 2004). Initial eligibility rules were again changed in 2002, effective 2005, when the NCAA passed another proposal to increase the high school core course requirement from 13 to 14. The required minimum core high school grade point average (2.0) combined with the SAT (1010) or ACT (86) score did not change, but the minimum combined SAT or combined ACT score a prospective student-athlete would need was 400 and 37, respectively. With either of these two scores, the student's core high school grade point average would have to be a 3.5 (NCAA, 2004). Beginning in 2008, in order to be eligible to compete at a Football Bowl Series athletic program, entering freshmen must pass 16 core courses which include: English (4 years); Math [Algebra I or higher] (3 years); Natural or Physical science [including one year of lab science if offered by the high school] (2 years); Social Science (2 years); Extra Core Courses [from any category previously listed, or foreign language, nondoctrinal religion or philosophy] (4 years); and 1 extra year of English, math, or natural or physical science (NCAA, 2008b). Additionally, an entering freshman student must earn a high school grade point average in their core courses and earn a combined SAT or ACT score that matches their core course grade point average on the NCAA sliding scale (NCAA, 2008b). Although the number of core units required increased, the combination of core high school grade

point average and SAT or ACT scores remained the same as the requirements from 2005 (NCAA, 2008b).

#### *2000 to Present*

The NCAA continued scrutinizing student-athlete academic issues. The organization recognized low graduation rates for student-athletes have negative consequences for institutions of higher education, student-athletes, as well as for the NCAA. Therefore, in the early 2000s, the NCAA developed an academic reform package that including the creation of an accountability system using a graduate success rate (GSR) and the academic progress rate (APR). The APR is intended to reward sport programs that do well academically and punish those sport programs that do not. This system was part of the overall academic reform movement, which also included new initial eligibility standards for incoming freshmen, as previously described.

Today, the APR is a system which holds intercollegiate programs accountable in three specific areas: eligibility, retention, and graduation. The APR is a real-time assessment of how a team is performing academically. Since the NCAA working group found eligibility and retention were the best predictors of graduation, the APR matrix was developed to award two points each term to scholarship student-athletes who meet academic-eligibility standards and who remain with the institution or graduate (Brown, 2003). The purpose of the APR is to:

ensure that the Division I membership is dedicated to providing student-athletes with an exemplary educational and intercollegiate-athletics experience 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 (NCAA 2008b, p. 351).

Since its inception, the APR system has been continually modified. Currently, only scholarship student-athletes are used when calculating the APR. Team scores are measured against team scores in all sports, team scores in its respective sport only, and against the institution's federal graduation rate. Teams are subject to contemporaneous penalties based on their APR score. The contemporaneous "cut" off score is 925. Teams will be penalized a loss of a scholarship if a student-athlete, who is academically ineligible, leaves the institution and the team has an APR score lower than 925. There is a 10 percent cap on contemporaneous penalties, meaning teams will not lose more than 10 percent of their total scholarships in a year. Institutions are required to develop "academic recovery plans" for teams that score below a 925. In 2006, the Committee on Academic Performance and the NCAA Board of Directors supported the historical penalty benchmark be set at 900 (NCAA, 2006b). Teams below the 900 score, based on four years of data, are subject to historical penalties which would include public warning, scholarship reductions, loss of post season play and membership restrictions. Teams that fall below an APR score of 900 can seek relief if they demonstrate consistent and significant APR improvement and can meet one of the two institutional characteristic components. The institutional characteristic components include:

“an academic component requiring student-athletes on the team to have a projected federal graduation rate of 10 or more percentage points higher than the student body rate”; or

a resource component to identify whether the team falls in the bottom 10 percent of Division I schools in that sport in per-capita educational expenses, per-capita athletics department operating expenditures and average Pell Grant awards among

students at the schools with the fewest resources devoted to academic services

(Presidents Conduct Summer Meetings, 2006)

According to the NCAA Second Century Imperative Report (2006c), the academic reform plan takes a three-prong approach which includes further improvement of initial eligibility standards and progress toward a degree, establishing a new measurement for student-athlete success, and developing consequences for underperforming teams. The academic reform standards were developed from data-driven research and should have a significant impact on improving student-athlete academic success.

As is evident in the literature, the history of the intercollegiate athletic academic culture has been cyclical. There is a history of criticism about the enterprise, particularly regarding its academic validity, which continues to be scrutinized today. Over the past seventy years, various outside entities have attempted to “fix” the perceived academic problems, while calling for an increase of presidential involvement. More rules have been developed, which are intended to increase the academic success of student-athletes, while more accountability measures, such as the APR, are being instituted. Through the historical perspective presented, it is surprising that not more formal research has been conducted to examine what affects the continued rule changes and accountability measures have had on student-athlete success. Are student-athletes experiencing more positive academic outcomes over the past century? Are the more strict initial and continuing eligibility rules contributing to higher academic success? Academically, are student-athletes any different than the general student population? What factors are contributing to student-athlete success?

## Literature Review

Many studies have been conducted on college success for the general student population (Alexander, Riordan, Fennessey & Pallas, 1982; DesJardins et al., 2002; DesJardins et al., 1999; Harackiewicz et al., 2002; Mattson, 2007; Thomas, 1981; Ting, 1998; Wegner & Sewell, 1970; Zwick & Sklar, 2005) and for student-athletes (Ervin et al., 1985; Hood et al., 1992; Lang, Dunham, Alpert, 1988; Maggard, 2007; Mcardle & Hamagami, 1994; NCAA, 2009; Petrie & Russell, 1995). The research demonstrates what variables contribute to college success and how participation in intercollegiate athletics impacts a student-athlete's educational attainment and cognitive growth.

As is evident in the research, college success is defined differently. For the most part, the studies that examine the educational impact intercollegiate sports has on student-athletes use graduation rates (McArdle & Hamagami; 1994; NCAA, 2009), cognitive gains, and college grade point averages (Ervin et al., 1985; Hood et al., 1992; Lang et al., 1988; Maggard, 2007; Petrie & Russell, 1995) as the measure of success. The research cites various factors which may or may not affect student-athlete college success, particularly college variables, including semester grade point averages, time spent studying and social integration and individual variables such as high school class rank, socioeconomic status, and race. While studies have used a range of variables to explain the effects intercollegiate athletics has on student-athlete educational achievement, very few studies examine to what extent student-athlete's pre-college and college cognitive (i.e. high school grade point average, class rank, college grade point average) and demographic (i.e. gender, ethnicity) variables affect the success of the student-athletes, measured by graduation and retention. Although there may be various reasons that explain why a student-athlete reaches his or her educational goals, the current study focuses on

which background characteristics, pre-college, demographic, and college academic variables, if any, are highly related to a student-athlete's educational success. This review will cover how pre-college, demographic, and college variables affect student-athlete success.

#### *Pre-College Academic and Demographic Variables That Affect Student Success*

Descriptive statistics often illustrate student academic success can be affected by variables such as ethnicity, socio-economic status, high school grade point average, gender, intelligence, class rank, and more. When conducting a more in-depth analysis, these types of background characteristics can actually predict or are significantly correlated with the retention (Allen, Casillas, & Oh, 2008; Boudreaux, 2004; DesJardins et al., 2002; DesJardins et al., 1999) and graduation rates of students (Alexander et al., 1982; DesJardins et al., 2002; DesJardins et al., 1999; McArdle & Hamagami, 1994; NCAA, 2009; Thomas, 1981; Wegner & Sewell, 1970). Student-athlete academic achievement or lack of, in college can be attributed to their pre-college characteristics, including academic preparedness. Researchers report student-athletes, particularly football and men's basketball players, enter college with lower high school grade point averages, ACT or SAT scores, and with fewer academic high school courses than the general student population (Aries, McCarthy, Salovey & Banaji, 2004; Hood, Craig, & Ferguson, 1992; Maloney & McCormick, 1993; Purdy, Eitzen, & Hufnagel, 1982). In particular, Black student-athletes matriculate to college with lower SAT scores and fewer high school academic courses than their White counterparts (Ervin et al., 1985). Given the diverse backgrounds of student-athletes, it is important to examine to what extent, if any, student-athlete backgrounds have on student-athlete academic success.

#### *Pre-college Academic Variables*

High school achievement can reflect student motivation, engagement, and potential in reaching their academic goals in college. Pre-college academic variables significantly correlate with or predict general student population and student-athlete academic success in college (Aries et al., 2004; Ervin et al., 1985; Maloney & McCormick, 1993; McArdle & Hamagami, 1994; NCAA, 2009; Petrie & Russell, 1995; Purdy et al., 1982; Thomas, 1981; Wegner & Sewell, 1970). Furthermore, high school performance has been found to be the best single pre-college predictor of student-athlete graduation in college (NCAA, 2009).

#### *Class Rank.*

Even though it is not always the best single predictor of student success, high school class rank has been a variable that significantly correlates with or even predicts student success in college. However, when using high school rank as a predictor variable, it is important to keep in mind it is often a reflection of the strength of the high school the student attended.

Using a multiple regression analysis, when controlling for academic characteristics, class rank in high school was the strongest individual predictor of graduation ( $\beta = .353$ ;  $p < .05$ ) compared to intelligence ( $\beta = .120$ ), occupational aspiration ( $\beta = .094$ ) and socioeconomic status ( $\beta = .135$ ) (Wegner & Sewell, 1970). However, the sample used in the referenced study was from the 1950's and included only males. In another study, high school class rank was shown to be the second best predictor of graduating from college within six years for Black females ( $r = .183$ ) and White females ( $r = .101$ ) (Thomas, 1981). Additionally, when examining 3,120 Black and White students, using a logistic regression analysis, class rank ( $R^2 = .115$ ) was one of the strongest single predictor variables of college graduation along with ability ( $R^2 = .135$ ) and college track placement ( $R^2 = .143$ ) (Alexander, et al. 1982).

Class rank has also been used to predict college grades. A study of 471 freshman students enrolled in an introductory Psychology course showed, in addition to ability, measured by SAT/ACT scores ( $\beta = .33$ ;  $p < .01$ ), high school class rank was a significant predictor of the grades earned in the course ( $\beta = .33$ ;  $p < .01$ ) (Harackiewicz, Barron, Tauer, & Elliot, 2002). Therefore, the higher the class rank, the higher grades students earned. In examining first-generation, low income students who participated in the university's Title VI grant funded Student Support Services (SSS) program, high school class rank ( $R^2 = .34$ ) was the only variable, in a multiple regression analysis, that significantly predicted first semester college grade point average (Ting, 1998). In the same study, in addition to demonstrated community services and successful leadership experience, high school class rank was one of three predictors that significantly predicted second semester college grade point average. All three variables combined accounted for 48% of the explained variance (Ting). High school class rank ( $R^2 = .24$ ;  $p < .05$ ) and successful leadership ( $R^2 = .14$ ;  $p < .05$ ) experience were the only two reported variables that significantly predicted end of the first year college grade point average in Ting's study.

Class rank does not always predict student success. Class rank ( $r = .399$ ) modestly correlated with first semester college grades among at-risk football players, but was second to high school grade point average ( $r = .486$ ) (Maggard, 2007). In the same study, using a step-wise multiple regression analysis, class rank as a single predictor did not significantly predict at-risk football student-athlete first semester college grade point average. High school class rank only accounted for 1% of the variance when combined with high school grades and ACT Composite scores (Maggard). Furthermore, class rank was not significantly related to drop out rates in a study that examined nearly 4,000 students at a large public university, but was a significant

variable in stop-out rates in year two ( $r = -.0067$ ;  $p < .01$ ), year three ( $r = -.0080$ ;  $p < .01$ ), and year five ( $r = -.0065$ ;  $p < .01$ ) (DesJardins et al., 1999)

### *High School Grades and Standardized Tests.*

High school grade point average and scores on standardized tests have been found to be significant predictors of academic success for students and student-athletes. Comparisons of student-athletes and other students who have comparable academic backgrounds which include high school grade point average and ACT composite scores, have shown that both groups, with the exception of football, earn similar final university grade point averages (Hood et al., 1992). For those student-athletes who participated in the high profile sports (football, men's basketball, and wrestling), freshman grade point average was lower than both the general student population and the general student population with comparable academic backgrounds (Hood et al.).

Based on national data, the NCAA has found that although high school core grades and ACT or SAT scores independently are predictors of academic success in college, high school grades is the best single predictor of college graduation among student-athletes. Furthermore, high school core grades are two to three times better than test scores in predicting academic outcomes of student-athletes (NCAA, 2009). Specifically, student-athletes who earned between a 2.0 and 2.5 high school core-course grade point average did not academically perform as well as those with higher core-course grade point averages (NCAA, 2009).

Supporting the NCAA's research, high school grade point average has also been used to predict college grade point averages (Ervin et al., 1985; Lang et al., 1988; Maggard, 2007; Zwick & Sklar; 2005). In a linear regression analysis, although the standard regression coefficient of SAT score (.146) and high school grade point average (.376), combined, were both significant predictors of first-year college grade point average for over 4,000 students ( $R^2 = .220$ ;  $p < .01$ ),

high school grades were the best single predictor variable ( $R^2 = .205$ ;  $p < .05$ ) compared to SAT score ( $R^2 = .117$ ) (Zwick & Sklar). Furthermore, in a study of at-risk students admitted to a highly selective private institution, in addition to gender ( $r = .157$ ;  $p < .01$ ) and leadership experience ( $r = .132$   $p < .01$ ), high school grades ( $r = .182$ ;  $p < .01$ ) highly correlated with first semester and first year grades, while SAT scores did not (Mattson, 2007).

In regard to student-athletes, in a study which examined at-risk football players, high school grade point average ( $r = .486$ ) modestly correlated with first year college grade point average while ACT composite had a negative correlation ( $r = -.204$ ) (Maggard, 2007). In the same study, a step-wise regression analysis revealed high school grades were the only significant predictor for at-risk football student-athletes' first semester college grades. High school grades accounted for 21% of the variance (Maggard). Adding ACT scores did not increase the prediction of first semester college grade point average for at-risk football players (Maggard). In a study which predicted if 49 football student-athletes would earn below or above a 2.0 college grade point average, in a discriminant analysis, high school grades were found to be a significant predictor ( $F = 10.34$ ;  $p < .001$ ) of college grade point average, along with five other variables (Lang et al., 1988).

High school core grade point average has also been used to predict student-athlete college graduation. High school core grade point average has been found to have a positive correlation with college graduation among student-athletes (McArdle & Hamagami, 1994). Individually, among 3,224 student-athletes, high school core grade point average ( $r = .679$ ) was a significant predictor of college graduation within five years (McArdle & Hamagami). However, high school core grade point average and ACT/SAT score combined was a stronger predictor ( $r = .988$ ) of college graduation among the student-athletes studied (McArdle & Hamagami).

High school grade point average has also been used to predict retention rates among university students. In a study specific to student-athletes, compared to English grade point average ( $\beta = -1.979$ ), number of natural science courses ( $\beta = -.537$ ), number of social science courses ( $\beta = -.425$ ), total number of academic courses ( $\beta = .480$ ), and English core courses ( $\beta = .436$ ), high school grade point average ( $\beta = 2.532$ ;  $p = .001$ ) was the best predictor of student-athlete retention after two years of enrollment (Boudreaux, 2004).

Scores on standardized tests is another pre-college academic variable that has been associated with academic success, particularly for student-athletes (Maloney & McCormick, 1993; Purdy et al., 1982; Aries et al., 2004). For example, in an event history modeling analysis, students who scored high on the ACT were less likely to drop out of college after their second year of enrollment compared to students who scored lower on the ACT (DesJardins et al., 1999). In a hierarchical multiple regression analysis, which examined college grade point average for students from a highly selective college and highly selective university, adding verbal and math SAT scores to the model which only included demographic variables (race and sex), increased the explained variance from 11% at the college to 23% and from 13% at the university to 26%. Additionally, both verbal and math SAT scores were significant predictors of final grade point average ( $p < .001$ ).

In a multiple hierarchical regression analysis, when comparing the affects of non-academic variables to academic variables, ACT scores, individually, only accounted for 6% of the variance when predicting college grade point averages for minority football student-athletes ( $R^2 = .06$ ) and 4% for the nonminority football student-athletes ( $R^2 = .04$ ) (Petrie & Russell, 1995). In a study of football (42) and men's basketball (7) student-athletes enrolled in a developmental studies program, SAT scores were significantly related to developmental courses

required ( $r = -.74$ ) and second quarter development studies grade point average ( $r = .51$ ). Specifically, the higher the student-athlete's grade point average, the fewer courses the student was required to enroll in the development studies program and the higher the SAT score, the higher the second-quarter grade point average in the developmental studies program (Ervin et al., 1985).

In a study of 3,224 student-athletes, SAT/ACT ( $r = .951$ ) was a significant predictor of college graduation, and stronger than core high school grade point average ( $r = .679$ ) (McArdle & Hamagami, 1994). In a logit analysis, although SAT/ACT scores were found to be a stronger predictor of graduation (within five years of enrollment) than high school core grade point average, these two variables combined proved to be a stronger predictor than alone (McArdle, & Hamagami).

### *Demographic Variables*

Some studies have considered whether demographic variables such as ethnicity/race, gender, and socio-economic status affect academic achievement (Alexander et al., 1982; Allen et al., 2008; DesJardins et al., 1999; McArdle & Hamagami, 1994; Thomas, 1981).

#### *Socio-economic Status.*

In a logistic regression analysis involving over 3,000 Black and White students that compared socioeconomic status (measured by yearly income, father and mother education, father's occupation and household items), sex, and race, in one, two and three-way interactions, the best fitting model that predicted college graduation was socio-economic status combined with race ( $r^2 = .075$ ) (Alexander et al., 1981). In the same study, using the best fit model, students in the high socioeconomic status category were predicted to graduate at higher rates than those in the low and medium socio-economic category, regardless of race. Specifically, the predicted

probability for those in the high socio-economic group was as follows: Black females (.356); White females (.408); Black males (.356), and White males (.408). This was in comparison to those in the low socio-economic category: Black females (.154); White females (.094); Black males (.154), and White males (.94). Black students with low socio-economic and medium socioeconomic status graduated from college at a higher rate than their White counterparts, but Whites with high socioeconomic status graduate at a higher rate than their Black counterparts when only considering socioeconomic status, race, and sex (Alexander, et al.). When academic variables (ability [measured by test scores], high school track [college track versus non-college track], class rank) were added to the best fit background model (socio-economic and race combined), it became obvious that the fit of the model improved significantly ( $r^2 = .235$ ). The results of this improved model show students grouped in the high academic variables category were more likely to graduate than those grouped in the low category (Alexander et al., 1982). More specifically, Black females and Black males with high socioeconomic status and a strong academic background were predicted to graduate at a rate of 65.8% and 65% higher, respectively, than their Black counterparts who had weaker academic backgrounds. Furthermore, in this model, it was predicted that Black females with high socio-economic status and a strong academic background (.750) were the most likely to graduate from college, followed by Black males with high socio-economic status and a strong academic background (.737). Furthermore, when academic variables were added to the social background best fit model, Black students were more likely to graduate than their White counterparts at every level of socioeconomic status (Alexander et al.). White females and males with high socioeconomic status and a strong academic background were also predicted to graduate at higher rates, 55.1% and 62.8%, respectively, than their White counterparts who had weaker academic backgrounds (Alexander et

al.). Accordingly, it is believed that academic preparedness is a stronger predictor than demographic characteristics (Alexander et al.; Maloney & McCormick, 1993).

When using father's occupation and mother's and father's education as the measures for socioeconomic status, socioeconomic status is a stronger predictor of graduation rates within four years of enrollment for Black males than for White males and females and Black females. However, when using the same independent variable, socioeconomic status is a stronger predictor of graduation beyond four years from enrollment for Black females followed by White males (Thomas, 1981). Socioeconomic status has also been used to predict first-year grade point averages. Students with higher socioeconomic status earned higher grade point averages (Allen et al., 2008).

#### *Family Support.*

Family support has been shown to be a significant influence on academic success for Black students (Herndon & Hirt, 2004). The most frequent theme from in-depth interviews with twenty Black senior students enrolled at predominately White universities was family influence (i.e. moral, financial) (Herndon & Hirt).

#### *Ethnicity.*

In regard to student-athletes, some studies have found race is not a significant predictor of graduation when controlling for other variables (Alexander et al., 1982; McArdle & Hamagami, 1994). In a multilevel logit model, although as a single variable, race ( $r = -.133$ ) was a significant predictor of graduation among student-athletes, when adding the other student-level variables (core high school grade point average, SAT/ACT, sex, race, sport played, redshirt, travel), race was not a significant variable that predicted student-athlete graduation within 5 years of enrollment (McArdle & Hamagami).

In regard to retention, in an event history modeling study, it was found that Black students were more likely than Whites to stop out of college in year three ( $r=.7769$ ;  $p<.01$ ) and year four ( $r=.8060$ ;  $p<.01$ ), and Blacks had a greater probability of dropping out of college after year three ( $r=.8647$ ;  $p<.05$ ) than Whites (DesJardins et al., 1999).

When examining the interaction of ethnicity/native language with SAT and high school grade point average, although the combined group regression equation was significant ( $R^2=.224$ ;  $p<.01$ ), it was found first year college grade point average over predicted for the Black/English group and the Hispanic/English group by .13 and .14 of a grade point, respectively, while the model accurately predicted first year college grade point average for the White/English group (+.01) (Zwick & Sklar, 2005). Furthermore, when examining SAT and high school grade point average separately with the ethnicity/native language groups, it was found that first year college grade point average was predicted less accurately when combined for the Black/English (high school gpa = .17; SAT =.17) and the Hispanic/English group (high school gpa =.19; SAT = .14). When conducting a regression analysis for the ethnicity/language group, high school grade point average was a significant predictor of first year college grade point average for Black/English ( $r = .286$ ;  $p < .01$ ), Hispanic/English ( $r = .313$ ;  $p < .01$ ), and White/English ( $r = .363$ ;  $p < .01$ ) (Zwick & Sklar). SAT score was a significant predictor variable only for the White/English group (.141;  $p<.01$ ) (Zwick & Sklar).

#### *Gender.*

Gender has also been a variable that affects college success (Aries et al., 2004; McArdle & Hamagami, 1994). Of 3,224 student-athletes studied, graduation from college within five years for White females (62.6%) and Black females (37.8%) were higher than their male counterparts (McArdle & Hamagami). Using multiple academic (core grade point average and

SAT/ACT), demographic (sex, race), and athletic student-level variables (sport played), in a logit model, results showed sex ( $r = -.237$ ) was a significant predictor for graduation, meaning females were predicted to graduate at higher rates than their male counterparts (McArdle & Hamagami). Furthermore, in a hierarchical multiple regression analysis, being female ( $p < .05$ ) was a significant positive predictor of college grade point average, compared to race (Aries et al.).

### *Institutional and Structural Variables*

There is research that indicates the general student population and student-athletes can be impacted by institutional or structural factors as well (Adler & Adler, 1985; Benson, 2000; Christie & Dinham, 1991; NCAA, 2009; Petrie & Russell, 1995; Pritchard & Wilson, 2003; Sedlacek & Adams-Gason, 1992; Thomas, 1981; Wegner, & Sewell, 1970). Although the present study only utilizes cognitive pre-college, demographic, and some college factors as independent variables, it is important to briefly examine a student-athlete's college experience, as their academic, social and athletic experience can affect their educational aspirations.

### *College Grades*

College grade point averages have been shown to predict college graduation and persistence (DesJardins et al., 2002; DesJardins et al., 1999; NCAA, 2009). Specifically, the NCAA has found that the best single predictor of college graduation is college grade point average. Furthermore, first-year college performance has been shown to be the strongest predictor of third year retention (Allen et al., 2008).

College grades can be predictors of college success. In a study of White and Black students (male and female), college grades were the best single predictor of college graduation (within six years) for Black females ( $r = .179$ ), Black males ( $r = .273$ ), White males ( $r = .311$ ) and White females ( $r = .179$ ) (Thomas, 1981). As is evident, college grades was a better

predictor for White males than the rest of the sample studied. When comparing race differences, the study showed college grades was a slightly stronger predictor for graduating from college in four years for Black males (.147) than for White males (.091), White females (.093), and Black females (.098). In event history studies, college grade point average was shown to be positively related to graduation as well as a significant variable in stop-out and drop-out rates (DesJardins et al., 2002; DesJardins et al., 1999). Specifically, college cumulative grade point average was a significant predictor of stop-out in year one ( $r = .0102$ ;  $p < .01$ ), year two ( $r = .0082$ ;  $p < .01$ ), year three ( $r = .0055$ ;  $p < .01$ ), year four ( $r = .0042$ ;  $p < .01$ ), and year five ( $r = .0023$ ;  $p < .01$ ) (DesJardins et al., 1999). The higher the college cumulative grade point average, the lower the probability of stopping out. Furthermore, student-athletes had a lower stop-out rate than that general population, but this was only significant in year two ( $p < .01$ ) (DesJardins et al., 1999).

While some studies have shown pre-college academic variables may predict college graduation, it is argued pre-college academic variables predict only first-year academic outcomes (Allen et al., 2008). Furthermore, although research has correlated a strong academic background to academic achievement, there is research that disputes cognitive variables predict college success (Klein & Bell, 1995; Sedlacek and Adams-Gaston, 1992, Thomas, 1981). For instance, while there were many limitations to the study, when using a step-wise regression model, a group of 105 student-athletes' first semester grades were correlated with their SAT scores. The result revealed SAT scores did not predict first semester grades (Sedlacek and Adams-Gaston). Rather first semester grades were better predicted using noncognitive variables. This conclusion was also established by Thomas when examining college completion rates between White and Black students.

### *Institutional Culture and Support*

Institutional culture has been found to have an impact on the educational success of students. The campus culture is different among colleges and universities depending on factors such as the type of college (i.e. public vs. private), type of support provided to student-athletes, and expectations from faculty and staff. Different types of colleges recruit or admit different types of students which could affect graduation rates, even when controlling for student background characteristics (Wegner & Sewell, 1970; Thomas, 1981). For instance, it has been shown when controlling for other independent variables, attending a private college was a strong predictor of graduation within three to four years of enrollment for males and White females (Thomas).

After analyzing ten years (1992-93 through 2002) of Federal Graduation Rates it was found although, overall, when university graduation rates increase so do student-athlete graduation rates. When accounting for institutional differences through cohort comparisons, it was found that as the general student body graduation rate increased, the student-athlete graduation decreased, relative to their cohort (Ferris, Finster, & McDonald, 2004).

Fostering high expectations of college success contributes to positive educational outcomes (Adler & Adler, 1985, Benson, 2000; Thomas, 1981). Research has shown students who enter college with high expectations are more likely to graduate, particularly White females and White males (Thomas). There is a belief student-athletes, particularly males, do not enter college with high expectations (Snyder, 1996). However, it has been found this is not always true. Despite the different background characteristics of student-athletes, at the start of their freshman year, student-athletes had the same degree aspirations, regardless of the sport (Briggs,

1996). Additionally, at least at one private college, student-athletes, men's basketball players in particular, enrolled in college with aspirations of doing well and graduating (Adler & Adler). Furthermore, participating in intercollegiate athletics was a moderate predictor of being motivated to earn a degree (Ryan, 1989). These high expectations are evident through their first year of college. However, as has been reported, student-athletes receive messages from coaches, faculty, and teammates that academics are not a priority and that, as a student-athlete, academic expectations are lower (Adler & Adler; Benson).

Campus support is another campus culture variable which can affect student-athlete success. In the classroom, student-athletes feel professors only view them as athletes and therefore are treated differently, whether in a positive or negative manner (Adler & Adler, 1985; Benson, 2000). Furthermore, student-athletes feel a disconnect with their academic careers, as advisors often select which courses to enroll a student-athlete (Adler & Adler, Benson). As a result of negative experiences in their educational environment and negative messages they receive about their educational aspirations, student-athletes' attitudes about academics sometimes turns negative and they conform to the messages they are hearing. Through a participant-observation study, Adler and Adler studied men's college basketball players for over a four-year period and described how these students progressed from a "early phase of idealism about their impending academic experiences to an eventual state of pragmatic detachment" (p. 248) because of the institutional messages they received. Benson also noted this poor attitude toward academics by the football players he interviewed. Based on the impact of the student-athlete experience, it is believed "structural factors are ultimately much stronger predictors of athletes' academic success than any of their initial individual characteristics" (Adler & Adler, p. 248).

### *The Sport*

Another structural factor which may impact the educational attainment of student-athletes is the sport itself, although there is contradictory research in this area. Some authors believe participation in intercollegiate athletics does not negatively affect academic outcomes of student-athletes (Hood et al., 1992; McArdle & Hamagami, 1994; Pascarella et al., 1999) while others have stated “there is evidence athletes in the male revenue sports of football and basketball have relatively low probability of receiving an education compared to non-athletes or athletes in the other sports” (Purdy et al., 1982, p. 445). Although student-athletes may enter college with lower pre-college academic variables than their general student counterpart, when comparing student-athletes with other students who have similar academic backgrounds, both groups earned similar final university grade point averages, with the exception of football (Hood et al.). When evaluating if participation in intercollegiate athletics impacted cognitive gains of student-athletes compared to the general student population after second and third years of college, no differences were noted (Pascarella et al., 1999). In a study examining 1,293 football and men’s basketball student-athletes, in a logit model, when holding academic (core high school grade point average and SAT/ACT) and demographic (sex, race, sport played, redshirt, on traveling team) variables constant, participating in men’s football or basketball increases the probability of graduation within 5 years (McArdle & Hamagami). Based on these studies, participation in intercollegiate athletics did not affect a student-athlete’s academic success.

Playing the sport has also been found to have a negative impact on educational attainment (Adler & Alder, 1985; Aries et al., 2004). As reported in a case study, time demands, the competitive culture of the sport, and the media attention, specifically for men’s basketball players, negatively interfered with their academic pursuits (Adler & Alder). In the Growth,

Opportunities, Aspirations and Learning of Students in college study, conducting by the NCAA, Division I football and men's basketball players reported they dedicate more time to their sport than to academics during the season (NCAA, 2007b). Student-athletes feel overwhelmed with the time demands of their sport and feel the pressure to win at all costs. The players feel fatigued and do not have the time or energy for academics (Adler & Adler). This results in athletics becoming their only priority, interfering with their educational goals. Although the results were not statistically significant, a study of student-athletes who spend at least 10 hours participating in their sport underperformed compared to other students with the similar SAT and demographic background (Aries et al.). Conversely, students who commit over 10 hours to an extracurricular activity performed just as well as students with similar SAT and demographic backgrounds (Aries et al.). The emotional health of students, in general, also has an impact on academic success (Pritchard & Wilson, 2003). For instance, students experiencing high stress are more likely to earn lower grade point averages and were more likely not to be retained. The NCAA has found that, in general, student-athlete grade point averages were better out-of-season than in-season and student-athletes were enrolled in more credits while out-of-season (NCAA, 2007b).

Additionally, in Maloney and McCormick's (1993) study, the authors found football and men's basketball student-athletes earned a grade point average that was one-tenth lower than other student-athletes with the same background characteristics. This resulted in a graduation rate of about 53 percent for football and less than 50 percent graduation rate for basketball. However, these results were not predicted by SAT or high school class rank. Rather, the lower grade point averages occurred during each sports season of competition; therefore, the authors concluded that student-athletes in revenue sports were being exploited.

### *Social factors*

Living on-campus, participating in extra-curricular activities, being provided with support are factors that have shown to have a positive affect on academic success. These types of social integration provides students an opportunity to meet new people, make new friends, learn about other campus activities, and make the transition from high school friendships to college friendships (Christie & Dinham, 1991; Ryan, 1989). Although intercollegiate athletics is considered an extracurricular activity, there is research that suggests this extracurricular activity does not have the social integration impact as one might expect. Student-athletes feel isolated from the general student population, as they tend to socialize only with other student-athletes (Adler & Adler, 1985). On the contrary, in a separate study, participation in intercollegiate athletics was a moderate predictor of developing interpersonal and leadership skills (Ryan).

For student-athletes, the college environment, particularly on a predominately White campus, can be very different from the diverse environment they were raised, which can make the transition to college difficult. In-depth interviews with Black students revealed negotiating the college environment, developing a sense of community with other Black students, and finding spiritual support were three early college influences that helped the students persist to their Senior year of college (Herndon & Hirt, 2004). These three factors represented almost 33 percent of the responses made by the twenty Black students interviewed.

### *Hypotheses to be Studied*

The following hypothesis will guide this research study:

- Hypothesis One (H<sub>1</sub>): High school core grade point average will be a better predictor of student-athlete six-year graduation rates than SAT/ACT score
- Hypothesis Two (H<sub>2</sub>): SAT/ACT score will not significantly predict student-athlete six-

- year graduation rate
- Hypothesis Three (H<sub>3</sub>): First year college grades will significantly predict student-athlete six-year graduation rate
- Hypothesis Four (H<sub>4</sub>): First year college grades will significantly predict student-athlete first-year retention rate
- Hypothesis Five (H<sub>5</sub>): Eligibility will significantly predict student-athlete six-year graduation rate
- Hypothesis Six (H<sub>6</sub>): Eligibility will significantly predict student-athlete first-year retention rate
- Hypothesis Seven (H<sub>7</sub>): Ethnicity alone will not significantly predict student-athlete six-year graduation rate
- Hypothesis Eight (H<sub>8</sub>): Ethnicity alone will not significantly predict student-athlete first-year retention rate
- Hypothesis Nine (H<sub>9</sub>): Gender alone will significantly predict student-athlete six-year graduation rate
- Hypothesis Ten (H<sub>10</sub>): Gender alone will significantly predict student-athlete first-year retention rate
- Hypothesis Eleven (H<sub>11</sub>): Sport played will significantly predict student-athlete six-year graduation rate
- Hypothesis Twelve (H<sub>12</sub>): Sport played will significantly predict student-athlete first year retention rate

For a summary of the literature reviewed, refer to Table 2-1 below.

**Table 2. 1**

	Graduation	College Grades	Retention
High School Grades	Student-Athletes* <sup>8</sup> Student-Athletes <sup>12</sup>	General Student Population* <sup>9</sup> Football <sup>11</sup> At-risk Football <sup>6</sup> At-Risk Students (private) <sup>10</sup> Black/English <sup>9</sup> Hispanic English <sup>9</sup> White/English <sup>9</sup>	Student-Athletes <sup>13</sup>
Standardized Test Scores	Student-Athletes <sup>8</sup> Student-Athletes** <sup>12</sup> Black Students <sup>3</sup> White Students <sup>3</sup>	White/English <sup>9</sup> Freshman <sup>4</sup> Overall Student Population <sup>9</sup>	Students (public) <sup>7</sup>
High School Grades & Standardized Test Scores	Student-Athletes*** <sup>12</sup>	General Student Population <sup>9</sup>	
Class Percentile/Rank	Males <sup>1</sup> Black Females <sup>2</sup> White Females <sup>2</sup> Black Students <sup>3</sup> White Students <sup>3</sup>	Freshman <sup>4</sup> First-Generation/Low Income <sup>5</sup>	Students (public/stopout) <sup>7</sup>
Socio-economic Status	Black Males and Females* <sup>3</sup> White Males* <sup>3</sup> White Females* <sup>3</sup> Black & White Males <sup>2</sup> Black and White Females <sup>2</sup>	Students (public) <sup>16</sup>	
Gender	Female Student-Athletes <sup>12, 16</sup> Student-Athletes <sup>17</sup>	At-Risk Students (private) <sup>10</sup>	
Ethnicity	Student-Athletes** <sup>12</sup>		Black Students <sup>7</sup>
Gender & Ethnicity	Black Students* <sup>3</sup> White Students* <sup>3</sup> Student-Athletes <sup>12</sup>		
College Grades	Student-Athletes <sup>8</sup> Black Females <sup>2</sup> Black Males <sup>2</sup> White Males <sup>2</sup> Student Population (public) <sup>7</sup>		Student-Athletes <sup>7, 8</sup> Student Population (public) <sup>7</sup>

\*more significant than SAT; \*\*more significant than GPA; \*\*\*more significant than GPA and SAT individually  
<sup>1</sup>Wegner & Sewell (1970); <sup>2</sup>Thomas (1981); <sup>3</sup>Alexander, et al. (1982); <sup>4</sup>Harackiewicz et al. (2002); <sup>5</sup>Ting (1998);  
<sup>6</sup>Maggard (2007); <sup>7</sup>DesJardins et al. (1999); <sup>8</sup>NCAA (2009); <sup>9</sup>Zwick & Sklar (2005); <sup>10</sup>Mattson (2007); <sup>11</sup>Lang et al. (1988); <sup>12</sup>McArdle & Hamagami (1994); <sup>13</sup>Boudreaux;

## Accountability Measures

As mentioned before, the annual federal graduation rate and the graduation success rate are two matrixes the NCAA uses to evaluate student-athlete success. The federal graduation rate is a measure of how many full-time students who entered the university in a specific year graduate from that same institution within six years. This rate only includes student-athletes who receive athletic related aid. Although the federal graduation rate is more of a retention indicator, it is important to note that with the exception of one year, over the past seven consecutive years, nationally, student-athletes have had a higher federal graduation rate than the general student population (NCAA, 2008c). The most recent rate which includes the 2001-02 freshman cohort, reveals student-athletes graduated at the rate of 64 percent compared to the general student population freshmen cohort who graduated at a 62 percent rate. However, male student-athletes graduated at a lower rate than the general male student population while female student-athletes graduated at a higher rate than the general female population. It is interesting to note in the most recent published rates, Black and Hispanic student-athletes graduated at a higher rate than their counterparts in the general student population while White student-athletes graduated 1 percent lower than the White general student population. Additionally, Black men's basketball and football players graduated at a higher rate than Black students overall (NCAA, 2008a).

The Graduation Success Rate (GSR) also reveals positive outcomes regarding student-athletes. With the urging from college and university President's who wanted more accurate data regarding student-athlete graduation rates, the NCAA developed the GSR (Division I Graduation). The GSR calculation includes the freshman cohort used in the federal graduation rate plus student-athletes who enrolled into the institution mid-year and students who transferred into the institution. The GSR also subtracts those student-athletes who fit the allowable

exclusions category and those who leave the institution, but are academically eligible to compete. In the 1998-2001 cohorts, in Division I, although 18,655 student-athletes transferred from their institutions, they were excluded from the GSR calculation because they were eligible for competition when they transferred (NCAA, 2008c).

Today, the national GSR for Division I athletes is 78 percent (NCAA, 2008a). Recent data on the Graduation Success Rate show the rate has continually increased overall since 1995 and for both males and females (Division I Graduation). Males continue to have a lower graduation success rate than females and Black have a lower graduation success rate than Whites. Although men's basketball and football GSR have not consistently improved since 1995, their rates in 2001 are higher than in 1995; however, their rates are not as high as the overall student-athlete.

## CHAPTER THREE

### Methods

The purpose of this study was to examine the relationship between selected variables and student-athlete graduation within six years from enrollment and first-year retention from the University of Texas at El Paso. This chapter will describe the institution, sample population, data collection procedures, and research methods.

#### *University of Texas at El Paso*

The University of Texas at El Paso (UTEP) was established in 1914. UTEP is a four-year institution that offers 81 bachelor's degrees, more than 70 master's degrees, and 14 doctorate degrees (UTEP, 2008b). UTEP serves over 20,000 full-time and part-time undergraduate and graduate students. Of the 16,975 undergraduates enrolled, 78.2% are Hispanics, 8.6% White, 7.3% Mexican National, 2.9% Black (UTEP, 2008a). Fall enrollment for the years studied were: 14,677 (1998); 14,695 (1999); 15,224 (2000) and 16,220 (2001). Six-year and eight-year graduation rates for the cohorts studied (data not available for cohort 2001 eight-year graduation rate) were: 27%, 38% (1998); 29%, 40% (1999); 29%, 38% (2000) and 29% (2001) (UTEP, 2008b).

Incoming freshmen students who rank in the top half of their class or who earn a minimum 920 SAT score or 20 ACT composite score are admitted to UTEP automatically. For those students who do not meet these minimum standards and are Texas residents, they are eligible to enroll in a special admission program called START.

The University of Texas at El Paso is a member of the National Collegiate Athletic Association (NCAA), Football Bowl Series (FBS) division, formerly known as Division 1A. The athletic department offers 16 sports which include: football, men's and women's cross country,

women's volleyball, women's soccer, women's rifle, women's basketball, men's basketball, men's and women's indoor/outdoor track and field, women's golf, men's golf, women's tennis, and softball. Softball was added in 2004, therefore, this sport is not included in the study. The athletic department traditionally has over 250 scholarship and non-scholarship student-athletes. Federal graduation rates (graduation within six years of initial enrollment) for the cohorts studied were: 26% (1998); 56% (1999); 46% (2000); 43% (2001). As reported on the NCAA Federal Graduation Reports (2005, 2006a, 2007 & 2008a), at the Division I level, national graduation rates for the cohort years studied were 62% (1998); 63% (1999); 63% (2000); and 64% (2001).

Student-athletes at UTEP are provided academic support through the Miner Athlete Academic Center (MAAC) which was created in 2002. The MAAC staff is responsible for ensuring student-athletes are meeting the NCAA initial and continuing eligibility standards. Student-athletes are advised by MAAC staff. Student-athletes also have the opportunity to request tutors through the MAAC services and have access to computers and study rooms. All freshman and transfer students must complete 8 hours of study hall each week during their first year of enrollment. Students who have below a 2.5 cumulative grade point average are also required to complete a certain number of study hall each week in addition to attending mentor meetings (MAAC, 2008).

### *Sampling Methods*

The sample collected was from an accessible population, as defined by Gall, Gall & Borg (2003). The sample consisted of scholarship and non-scholarship (walk on) student-athletes who participated in a FBS intercollegiate program at the University of Texas at El Paso, a public, four-year, Hispanic Serving Institution located in the southwest. Only first-time freshman who entered the university in 1998, 1999, 2000, and 2001 were examined, as the institution had six-

year graduation data on these selected cohorts. Additionally, the NCAA initial academic eligibility standards were consistent for these four cohorts. Although the NCAA does not measure the academic success of walk-on student-athletes on any of its popular mandated reports, including graduation rate report, graduation success rate report, or the academic progress rate report, the researcher felt it was important to compare the scholarship student-athletes to the walk-on student-athletes, therefore, this population was included in the study.

Student-athletes from the following sports were studied:

1. football
2. men's basketball
3. men's cross country and track combined
4. men's golf
5. men's tennis
6. women's basketball
7. women's soccer
8. women's volleyball
9. women's cross country and track combined
10. women's golf
11. women's rifle
12. women's tennis

Although a sample size of 30 is considered desirable (Gall et al., 2003), a larger sample size was used to improve the generalizability of this study. Multiple cohorts of entering scholarship student-athletes were examined which yielded a sample size 333 participants. The researcher compared men's basketball (N=10) and football (N=144) to the other sports being studied, which also created the need to use multiple cohorts so that the subgroup sample was not too small. Although the sample is reasonably homogeneous, the subgroup analysis assisted in differentiating among high-profile and low-profile sports.

The researcher is familiar with the University of Texas at El Paso (UTEP) and athletics program which was studied; therefore, a convenience sampling method was used (Gall et al., 2003). Convenience sampling is considered a non-probability sampling method. Non-probability

sampling is conducted for almost all social science research studies (Gall et al.); therefore, this is considered an acceptable sampling method to be used for this particular educational study.

#### *Data Collection Procedures*

An Institutional Review Board (IRB) application was submitted and approved by the University of Texas at El Paso Office of the Vice President for Research and Sponsored Projects (see Appendix A).

The researcher requested pre-college and college student-athlete information from the University of Texas at El Paso Center for Institutional Evaluation, Research, and Planning (CIERP), the Miner Athlete Academic Center, and the UTEP Athletics Compliance Department. These three entities provided the researcher with the student-athlete information listed below for the 1998, 1999, 2000, and 2001 student-athlete cohorts. The lists of student-athletes in each cohort were taken from the NCAA/Federal Graduation Rate report prepared by the Miner Athletic Academic Center and CIERP. Information for the following variables were collected:

1. Student-athlete entry term
2. First semester grade point average
3. Second long semester term grade point average
4. First year grade point average
5. High school grade point average
6. Sport played
7. Gender
8. Ethnicity
9. Scholarship Status
10. Retained after first year
11. Graduation Term
12. ACT/SAT scores
13. Educational Level of Parents
14. Income Level of Parents
15. High school percentile
16. Eligibility status
17. Core high school grade point average

## Research Methods

Quantitative research is often used in educational studies, as it is an objective method of evaluating a social reality (Gall et al., 2003), which in this study is student-athlete success. The foundation of quantitative research is the conjecture that the reality of a social environment is autonomous (Gall et al.). Because this study examined the social phenomena of student-athlete academic achievement, over time, and was based on defined theories and models of student success, a quantitative approach was utilized.

More specifically, the purpose of this prediction study was to determine what variables predict student-athlete success; therefore, a correlation research design was conducted as this type of design is used to determine interactions among multiple variables (Gall et al.).

Correlational research enables the researcher to compare the various variables, analyze, and measure the degree of their relationships (Gall et al.). By using this type of research method, not only was the extent of certain variables that predict student-athlete success measured, but the negative or positive direction of the variables on student-athlete retention and graduation were able to be presented. Many variables were examined, which is another reason a correlational design was effective. Correlational designs are used when many variables will be analyzed (Gall et al.). Furthermore, by employing a prediction study, variables that predict student-athlete success were identified.

### *Independent Variables*

Based on the current research, various variables were identified that may affect student success. For the purpose of the current study, predictor variables, which were considered the independent variables, were categorized as follows: pre-college cognitive, demographic, and college. The following independent variables were used:

#### Pre-college cognitive variables

1. high school core course grade point average (as defined by NCAA)
2. SAT score
3. high school class rank

#### Demographic variables

1. ethnicity
2. gender
3. income level of parents

#### College cognitive and non cognitive variables

1. First semester grade point average
2. First year grade point average
3. eligibility (as defined by the NCAA)
4. Sport played
5. Scholarship status

#### *Dependent Variables*

One of the most important elements of a prediction study is to adequately define the criterion to be used (Gall et al., 2003). As stated before, the criterion measured was student-athlete success, measured by graduation and retention rates. Graduation as a measurement of success for this study was defined as completion of all degree requirements by the end of the sixth year from the time a student-athlete enrolled at an institution of higher education for the first-time as a full-time student. Graduation is a binary variable which was scored as a 1 if the student-athlete received his or her degree and a 0 if not.

Retention was defined as whether a student returned to the institution after his or her first-year of enrollment. Retention was also a binary variable which was scored as a 1 if the student-athlete was retained after the first year of enrollment or 0 if not.

#### *Data Analysis*

The intent of this study was to be able to provide practical and useful information to practitioners who work with student-athletes. According to Gall et al. (2003), multiple regression is the main method used for prediction studies. Furthermore, because multiple variables will be

used to measure the degree of their predictability, multivariate correlational statistics were used, specifically multiple regression analysis. Multiple regression has been widely used in educational studies because of its usefulness and ability to measure many types of data (Gall et al.).

The first step of the study was to correlate each predictor variable through a bi-variate analysis. This allowed the researcher to analyze each variable individually with the two outcomes, graduation and retention. This step established the foundation to conduct the logistic regression analysis, among each group (i.e. pre-college, demographic, and college). The initial logistic regression analysis enabled the researcher to determine which of the variables could be combined to best predict graduation and retention.

The next step of the study was to conduct the final logistic regression using the variables that reached statistical significance in either the bi-variate or within group logistic regression.

During the analysis, the researcher identified which variables are likely to measure the same variance, such as overall high school grade point average and high school core course grade point average by conducting correlations.

## CHAPTER FOUR

### Research Results

The purpose of this study was to determine what selected pre-college academic, demographic, and college variables are highly related to six-year graduation and first-year retention among scholarship and non-scholarship student-athletes at the University of Texas at El Paso.

The results of the study are reported in this chapter. This chapter describes the sample population and data analysis.

#### Participants

The initial sample consisted of 338 former scholarship and non scholarship student-athletes enrolled at the University of Texas at El Paso. The cohorts studied were first-time, full-time freshman who entered the university in 1998, 1999, 2000, and 2001. UTEP Center for Institutional Evaluation, Research, and Planning (CIERP) provided the initial list of student-athletes, which was taken from the cohort lists used to complete the Federal Graduation Rates reports. Although the Federal Graduation Report does not include non scholarship student-athletes, data on these students were available from the initial cohort lists. After further analysis of the initial list of student-athletes, it was determined two students were listed multiple times and variable data were not available for one student, therefore, the final sample size consisted of 333 student-athletes.

#### *Gender, Ethnicity and Scholarship Status*

The final sample consisted of 125 females (37.5%) and 208 males (62.5%), with 33% of these being White (n = 110), 27.9% Hispanic (n = 93), 24.3% Black (n = 81), and 14.7% Other (n = 49). It is important to note that of the total sample, 12.6% of the Other category consisted of

international students-athletes ( $n = 42$ ). Of the 333 participants, 46.2% participated in the high profile sports of football and men's basketball ( $n = 154$ ) while 53.8% participated in the low-profile sports ( $n = 179$ ) which included men's golf, men's track & field/cross country; men's tennis, women's basketball, women's golf, women's rifle, women's soccer, women's track & field/cross country, women's tennis, and women's volleyball. Although UTEP does not currently sponsor men's tennis, the sample did include one men's tennis player, as the sport was sponsored during the years studied. Furthermore, one female student-athlete's sport was unknown, however, the researcher included the student in the sample because all female sports were included in the low-profile category. Of the 333 student-athletes, at least during their first year at the university, 60.1% received an athletic scholarship ( $n = 200$ ) while 39.9% did not receive an athletic scholarship ( $n = 133$ ). See Tables B-1 through B-2, in Appendix B, for complete descriptive statistics.

#### *Academic Profile*

The academic profile of the student-athletes included in the study shows the overall mean high school core grade point average was 3.14 ( $n = 242$ ,  $SD = .527$ ). Female student-athletes had a higher mean high school core grade point average ( $n = 80$ ;  $M = 3.29$ ,  $SD = .51$ ) than males ( $n = 162$ ;  $M = 3.07$ ,  $SD = .52$ ). There is a difference in mean core high school grade point average for those participating in low-profile sports ( $n = 114$ ;  $M = 3.22$ ,  $SD = .52$ ) and those participating in high profile sports ( $n = 128$ ;  $M = 3.07$ ,  $SD = .53$ ) as well. Scholarship student-athletes ( $n = 151$ ) enter the university with a slightly lower core high school grade point average ( $M = 3.13$ ,  $SD = .045$ ) than non scholarship student-athletes ( $n = 91$ ;  $M = 3.16$ ,  $SD = .052$ ). Complete results are shown in Table B-3, in Appendix B.

White student-athletes ( $n = 92$ ) entered the university with the highest mean high school core grade point average ( $M = 3.37$ ,  $SD = .053$ ) while Others ( $n = 12$ ) had a 2.89 mean high school core grade point average. Black student-athletes ( $n = 73$ ) had the second lowest grade point average ( $M = 2.91$ ,  $SD = .059$ ) while Hispanics ( $n = 65$ ) had a mean grade point average of 3.13 ( $SD = .056$ ). See Table B-4 for complete mean scores of the sample.

The study shows the mean combined SAT score for the total population ( $n = 328$ ) was 934 ( $SD = 149.51$ ). Female student-athletes ( $n = 121$ ) entering the university had a mean combined SAT score of 944 ( $SD = 147.77$ ) while males ( $n = 207$ ) entered with a mean score of 928 ( $SD = 150.54$ ). Student-athletes participating in low-profile sports ( $n = 175$ ) entered the institution with a higher mean SAT score ( $M = 946$ ,  $SD = 141.03$ ) than those student-athletes who participated in high-profile sports ( $n = 153$ ;  $M = 920$ ,  $SD = 157.99$ ). Student athletes on scholarship ( $n = 197$ ;  $M = 935$ ,  $SD = 11$ ) had a better mean SAT score than those who did not receive a scholarship ( $n = 131$ ;  $M = 932$ ,  $SD = 12$ ). Table B-3 shows complete mean scores of the sample.

Of the ethnicities examined, Whites ( $n = 109$ ) had the highest combined SAT ( $M = 984$ ,  $SD = 14$ ), followed by Others ( $n = 46$ ;  $M = 940$ ,  $SD = 27$ ). Blacks ( $n = 80$ ) had the lowest combined SAT mean score ( $M = 868$ ,  $SD = 16$ ) while Hispanics ( $n = 98$ ) had a combined SAT mean score of 929 ( $SD = 12$ ). See Table B-4 for complete results.

The mean class percentile for the overall sample ( $n = 164$ ) was 64 ( $SD = 23.79$ ). Female student-athletes entering the institution ( $n = 59$ ) ranked higher ( $M = 73$ ,  $SD = 18.49$ ) than the males ( $n = 134$ ;  $M = 60$ ,  $SD = 24.75$ ). Furthermore, student-athletes who participated in high profile sports ( $n = 104$ ) ranked lower in their high school class ( $M = 59$ ,  $SD = 23.86$ ) than students who participated in low profile sports ( $n = 89$ ;  $M = 69$ ,  $SD = 22.59$ ). Scholarship

student-athletes ( $n = 100$ ) ranked slightly higher in their graduating class ( $M = 66$ ,  $SD = 2.23$ ) than non-scholarship student-athletes ( $n = 93$ ;  $M = 62$ ,  $SD = 2.62$ ), as presented in B-3.

White student-athletes ( $n = 71$ ) had the best class percentile ( $M = 68.83$ ,  $SD = 2.62$ ) while Blacks ( $n = 52$ ) had the lowest mean class percentile ( $M = 58$ ,  $SD = 3.21$ ). Table B-4 shows complete mean scores of the sample by ethnicity.

The mean first-semester grade point average for the total sample ( $n = 332$ ) was 2.55 ( $SD = .907$ ). Females ( $n = 125$ ) earned a higher mean first-semester grade point average ( $M = 2.73$ ,  $SD = .915$ ) than males ( $n = 207$ ;  $M = 2.44$ ,  $SD = .886$ ). Students who participate in the low profile sports ( $n = 179$ ) earned a higher first semester grade point average ( $M = 2.72$ ,  $SD = .870$ ) than those who participated in high profile sports ( $n = 153$ ;  $M = 2.34$ ,  $SD = .829$ ). There is virtually no difference in mean first semester grade point average between scholarship and non-scholarship student-athletes, as they both earn close to a 2.55 grade point average, as presented in B-4.

Students categorized in the ethnicity group Other ( $n = 48$ ) earned the highest first semester grade point average ( $M = 2.86$ ,  $SD = 2.86$ ) while Whites ( $n = 110$ ) earned the next highest first semester grades ( $M = 2.7$ ,  $SD = .084$ ). Blacks ( $n = 81$ ) had the lowest first-semester grade point average ( $M = 2.13$ ,  $SD = .092$ ) while Hispanics ( $n = 93$ ) earned a mean first semester grade point average of 2.58 ( $SD = .099$ ). Table B-4 shows complete mean scores of the sample.

Of the total student-athletes studied, 43.5% graduated after six years of initial enrollment. Females ( $n = 54$ ) graduated at a rate of 43% while males ( $n = 91$ ) graduated at a rate of 43.8%. The scholarship student-athletes ( $n = 95$ ) graduated at a rate of 47.5% while the non-scholarship student-athletes ( $n = 50$ ) graduated at a rate of 37.6%. Hispanics and Others had the highest graduation rates at 49.5% and 44.9% respectively.

The overall first-year retention rate was 80.2%. Of the scholarship student-athletes, 87% were retained after their first year of enrollment while 69.9% of the non-scholarship student-athletes were retained. All ethnicity groups were retained at a rate above 75%. Others and Blacks were retained at the highest rates, 87.8% and 85.2% respectively. See Table B-5 for complete descriptive statistics.

### Analysis

The SPSS (version 16.0) statistical program was used to analyze the data. The first step of the analysis was to demonstrate the relationship between the independent variables and the dependent variables using a bi-variate analysis through t-test and Pearson Chi-Square test. Next, all the variables used in the bi-variate analysis were analyzed further. Specifically, within each category (i.e. pre-college, demographics, college), the predictor variables were combined and analyzed using multiple regression. This further validated which variables would be used in the final logistic regression model. Finally, the variables that individually or within group, were significant factors in predicting the criterion variable were used in the final logistic regression to determine which variables were the strongest in predicting six-year graduation and first-year retention among the student-athletes studied. Only variables that achieved significance of  $p < .05$  were used in the final analysis, with the exception of scholarship status in one regression model.

#### *Six-Year Graduation Analysis*

##### *Pre-College Academic Variables*

###### *High School Core Grade Point Average.*

High school core grade point average data were collected from the UTEP Athletic Compliance Department, specifically from the student-athlete's final eligibility certification report (commonly known as form 48C).

High school core grade point average information was available for 242 student-athletes. Student-athletes who graduated from UTEP within six year of initial enrollment had a significantly higher high school core grade point average ( $M = 3.25$ ,  $SD = .51$ ) than those student-athletes who did not graduate in six years ( $M = 3.06$ ,  $SD = .53$ ) as demonstrated in Table 4-1.

*Combined SAT.*

SAT and ACT data were initially provided by CIERP. For those participants whose data were missing, if available, the researcher used data from the student-athlete's final eligibility report collected by the UTEP Athletic Compliance Department. After collecting all SAT and ACT scores available, it became apparent a significant number of ACT scores were missing. Therefore, the ACT scores were converted to SAT scores using the ACT-SAT Concordance Table.

Combined SAT data were available for 328 student-athletes. Results of the analysis (Table 4-1) show student-athletes with higher combined SAT scores ( $M = 954$ ,  $SD = 166$ ) graduate, within six-years, at a significantly higher rate than student-athletes whose combined SAT scores are lower ( $M = 919$ ;  $SD = 123$ ).

*HS Class Percentile.*

High school class percentile information was available for 193 student-athletes. The results demonstrate student-athletes who rank higher in their high school class ( $M = 70$ ,  $SD = 20$ ) graduated at a significantly higher rate than those student-athletes who did not rank as high ( $M = 58$ ,  $SD = 25$ ) as presented in Table 4-1.

Class rank, individually, has a p value (.006) equal to that for high school core grade point average, but a more significant p value than that for combined SAT ( $p = .037$ ). However,

because there were 140 missing cases for class percentile and because high school core grade point average is highly correlated with class rank ( $r = .614$ ), high school class percentile was eliminated as a variable in the final model.

**Table 4- 1**  
Mean High School Grade Point Average, SAT, and High School Class Percentile by Graduation Status

	Graduation Status	n	M	SD	df	t	p
HSCGPA	No	137	3.061	.528	240	-2.758	.006
	Yes	105	3.247	.510			
SAT	No	186	918.98	122.89	326	-2.092	.037
	Yes	142	953.66	165.76			
HS Percentile	No	102	58.04	25.324	191	-2.758	.006
	Yes	91	70.27	20.197			

*Pre-college Academic Variables Combined.*

To further analyze the relationship among the pre-college variables, the researcher conducted a logistic regression analysis using combined SAT and high school core grade point average. Results of this analysis are presented in Table 4-2. As in the earlier analysis, high school core grade point average was a stronger predictor of six-year graduation than SAT. Furthermore, in this analysis, only high school core grade point average was significant ( $p = .015$ ). The goodness-of-fit analysis shows  $\chi^2(8)$  of 15.22 was insignificant ( $p > .05$ ), meaning the model was fit well to the data. Furthermore, Table 4-3 demonstrates the validity of the predicted probabilities.

**Table 4- 2**

Logistic Regression Analysis of Six-Year Graduation Rates for Student-Athletes by SAT and High School Core Grade Point Average Variables (n = 242)

Variable	$\beta$	SE $\beta$	Wald's $\chi^2$	df	p	$e^\beta$
Constant	-.276	.132	4.375	1	.036	.759
SAT	.111	.151	.540	1	.463	.117
HSCGPA	.338	.138	5.974	1	.015*	1.402

  

Test	$\chi^2$	Df	p
Goodness-of-fit test Hosmer & Lemeshow	15.215	8	.055

Note: \*p<.05.

**Table 4- 3**

Observed and Predicted Frequencies for Six-Year Graduation by SAT and High School Core Grade Point Average Variables (n = 242)

Observed		Predicted		% Correct
		Six-Year Graduation		
Six-Year Graduation	No	No	Yes	
	No	106	31	77.4
	Yes	73	32	30.5
	Overall % Correct			57.0

### *Demographic Variables*

#### *Ethnicity.*

Descriptive statistics show the relationship between ethnicity and six-year graduation is not significant. The Pearson chi-square test shows  $\chi^2(3, N = 333) = 2.41, p = .492$ . Hispanics (49.5%) had the highest graduation rates, followed by Others (44.9%). Black student-athletes graduated at a rate of 38.3% (See Table 4-4).

**Table 4 - 4**

Cross Tabulation of Ethnicity by Six-Year Graduation (n = 333)

			Six-Year-Graduation		
			No	Yes	Total
Ethnicity	Hispanic	N	47	46	93
		%	50.5%	49.5%	100.0%
	Black	N	50	31	81
		%	61.7%	38.3%	100.0%
	White	N	64	46	110
		%	58.2%	41.8%	100.0%
	Other	n	27	22	49
		%	55.1%	44.9%	100.0%
Total		n	188	145	333
		%	56.5%	43.5%	100.0%

*Gender*

A cross tabulation of gender and six-year graduation of student-athletes reveal there is no difference in six-year graduation rates for gender. Females and males graduated at a rate of 43.2% and 43.8%, respectively (presented in Table 4-5). Furthermore, a Pearson chi-square analysis revealed the insignificant relationship as  $\chi^2(1, N = 333) = .010, p = .922$ .

**Table 4 - 5****Cross Tabulation of Gender by Six Year Graduation (n = 333)**

		Six Year Graduation			
		No	Yes	Total	
Gender	Female	N	71	54	125
		%	56.8%	43.2%	100.0%
Male	N	117	91	208	
	%	56.2%	43.8%	100.0%	
Total	N	188	145	333	
	%	56.5%	43.5%	100.0%	

*Income Level of Parents.*

Income level of parents was only available for 140 student-athletes. The mean parent income level for student-athletes who graduated and of those who did not graduate was less than \$1,000. Although student-athletes who graduated, within six years, have a higher parent income level (M = 51,862, SD = 39,041) than those who did not graduate (M = 50,468, SD = 35,676), the t-test analysis revealed income level of parents was not significant,  $t(138) = -.220$ ,  $p = .826$ .

Refer to Tables 4-6.

**Table 4 - 6****Mean Combined SAT Scores by Graduation Status (n = 140)**

Parent Income Level	Graduation Status	N	M	SD	df	t	p
	No		70	\$50,469	\$35,676	138	-.220
Yes		70	\$51,862	\$39,042			

*Demographic Variables Combined*

Individually, none of the demographic variables had a significant effect on student-athlete six-year graduation. To further substantiate this finding, a logistic regression analysis was

performed. The results of the analysis are presented in Table 4-7 and 4-8. Because of the amount of parent income level information missing, another regression analysis which did not include parent income level was conducted, as presented in Table 4-9. The second analysis consisted of all 333 student-athletes. Again, none of the demographic variables were significant in predicting six-year graduation.

**Table 4 - 7**

Logistic Regression Analysis of Six-Year Graduation Rates for Student-Athletes by Demographic Variables (n = 140)

Variable	B	SE $\beta$	Wald's $X^2$	Df	p	$e^\beta$
Constant	.708	1.238	.327		.568	2.029
Parent Income Level	.048	.186	.066	1	.797	1.049
Gender (Female)	.062	.396	.024	1	.876	1.064
Hispanic	-.562	1.262	.198	1	.656	.570
Black	.946	1.269	.555	1	.456	.388
White	-.749	1.282	.342	1	.559	.473

  

Test	$X^2$	Df	p
Goodness-of-fit test Hosmer & Lemeshow	9.033	8	.340

Note: \*p<.05.

**Table 4 - 8**

Observed and Predicted Frequencies for Six-Year Graduation by Demographic Variables

Observed	Six-Year Graduation	Predicted		% Correct
		No	Yes	
Six-Year Graduation	No	36	34	51.4
	Yes	26	44	62.9
Overall % Correct				57.1

**Table 4 - 9**

Logistic Regression Analysis of Six-Year Graduation Rates for Student-Athletes by Demographic Variables (excluding parent income level) (n = 333)

Variable	$\beta$	SE $\beta$	Wald's $X^2$	Df	p	$e^\beta$
Constant	-.143	.333	.185	1	.667	.867
Gender (Female)	-.089	.244	.132	1	.716	.915
Hispanic	.154	.363	.180	1	.671	1.167
Black	-.322	.391	.678	1	.410	.725
White	-.151	.353	.182	1	.669	.860
Test			$X^2$	Df	P	
Goodness-of-fit test Hosmer & Lemeshow			1.147	5	.950	

**Table 4 - 10**

Observed and Predicted Frequencies for Six-Year Graduation by Demographic Variables (excluding parent income level)

Observed	Six-Year Graduation	Predicted Six-Year Graduation		% Correct
		No	Yes	
	No	159	29	84.6%
	Yes	115	30	20.7%
	Overall % Correct			56.8%

### *College Variables*

#### *First Semester Grade Point Average.*

First semester grade point average data was available for all but one student-athlete. The data analysis demonstrated student-athlete first semester grade point average and six-year graduation have a significant relationship. Student-athletes with a higher first semester grade point average (n = 145; M = 2.88, SD = .678) graduate at a higher rate than those with lower first semester grade point average (n = 187; M = 2.29, SD = .976). Refer to Table 4-11 for complete results.

*First Year Grade Point Average.*

The relationship between first-year grade point average and six-year graduation proved to be significant, as shown in Table 4-11. Student-athletes who earn a higher first-year grade point average (n = 145; M = 2.95, SD = .873) graduate at a higher rate than those student-athletes who do not have as high of a first year grade point average (n = 187; M = 2.31, SD = .505).

**Table 4 - 11**  
Mean First Semester and First Year College GPA by Graduation Status

	Graduation Status	n	M	SD	df	t	p
1 <sup>st</sup> Semester GPA	No	187	2.29	.873	330	-6.29	.000
	Yes	145	2.88	.505			
1 <sup>st</sup> Year GPA	No	187	2.31	.873		-7.772	.000
	Yes	145	2.95	.505			

It is important to note first-year grade point average includes grade point averages for those students who departed the institution after their first semester. Furthermore, a correlation between first semester grade point average and first year grade point average revealed that these two variables were highly correlated ( $r = .832$ ). Since better data was available for first semester grade point average, this variable was used in the final regression model.

*Eligibility After First Year of Enrollment.*

Eligibility status was defined by the National Collegiate Athletic Association standards, which included passing 24 hours and earning no less than a 1.70 cumulative grade point average after two full-time semesters. Students earned their eligibility status after the second full-time semester enrolled or after completion of the subsequent summer session. Students who met the eligibility standards by this time were coded as 1. Student-athletes who did not meet the

eligibility standards were coded as 0. There was no record of eligibility status for 81 students, mainly because the student-athlete left the institution prior to the completion of his or her second full-time semester. However, because the students did not meet the eligibility standards, these students were also coded 0.

A cross tabulation shows of the student-athletes who met the eligibility standards, 52.9% graduated within six-year of enrollment while 28.7% of those who did not meet eligibility standards graduated, as demonstrated in Table 4-12. The relationship between eligibility status and six-year graduation proved to be significant through a Pearson chi-square test,  $\chi^2(1, N = 333) = 18.92, p = .000$ .

**Table 4 - 12**  
Cross Tabulation of Eligibility Status by Six-Year Graduation

			Six-Year Graduation		
			No	Yes	Total
Eligibility Status	No	N	92	37	129
		%	71.3%	28.7%	100.0%
	Yes	N	96	108	204
		%	47.1%	52.9%	100.0%
	Total	N	188	145	333
		%	56.5%	43.5%	100.0%

*Sport Played.*

Table 4-13 shows the relationship between sport played and six-year graduation is not significant,  $\chi^2(1, N = 333) = .055, p = .815$ . Participants in both low-profile and high-profile sports had a six-year graduation rate of over 40%.

**Table 4 - 13****Cross Tabulation of Sport Played by Six-Year Graduation**

		Six-Year Graduation		
		No	Yes	Total
Sport Played	Low- Profile	N 100 55.9%	N 79 44.1%	179 100.0%
	MFB, MBB	N 88 57.1%	N 66 42.9%	154 100.0%
Total		N 188 56.5%	N 145 43.5%	333 100.0%

*Scholarship Status.*

Although the relationship between scholarship status and six-year graduation was strong, it was not statistically significant,  $\chi^2(1, N = 333) = 3.19, p = .074$ . The cross tabulation reveals scholarship student-athletes graduate at a higher rate than their non-scholarship counterpart overall, regardless if the student-athlete participates in a high or low profile sport. This is illustrated in Tables 4-14 and 4-15. Because the scholarship status is the only non-cognitive variable that is marginally significant, it was used in the final model.

**Table 4 - 14****Cross Tabulation of Scholarship Status by Six-Year Graduation**

			Six-Year Graduation		
			No	Yes	Total
Scholarship	No	N	83	50	133
		%	62.4%	37.6%	100.0%
	Yes	N	105	95	200
		%	52.5%	47.5%	100.0%
	Total	N	188	145	333
		%	56.5%	43.5%	100.0%

**Table 4 - 15****Cross Tabulation of Sport Played by Six-Year Graduation**

			Six-Year Graduation			
			No	Yes	Total	
Scholarship	No	Low Profile	n	47	31	78
			%	60.3%	39.7%	100.0%
		FB/MBB	n	36	19	55
			%	65.5%	34.5%	100.0%
		Total	n	83	50	133
			%	62.4%	37.6%	100.0%
Yes	Low Profile	n	53	48	101	
		%	52.5%	47.5%	100.0%	
	FB/MBB	n	52	47	99	
		%	52.5%	47.5%	100.0%	
	Total	n	105	95	200	
		%	52.5%	47.5%	100.0%	

*College Variables Combined.*

The relationship among all the college variables and six-year graduation was further analyzed using a logistic regression. First year college grade point average was eliminated from the regression, as it is highly correlated with first semester grade point average, as noted earlier. Results of the analysis revealed first semester grade point average and eligibility status were significant variables in the model. These results were consistent with the bi-variate analysis. The results of the logistic regression analysis are presented in Table 4.16 and 4.17.

**Table 4 - 16**

Logistic Regression Analysis of Six-Year Graduation Rates for Student-Athletes by Scholarship Status, 1 <sup>st</sup> Semester GPA, Sport Played, and Eligibility Status (n = 333)						
Variable	$\beta$	SE $\beta$	Wald's $\chi^2$	Df	p	e <sup><math>\beta</math></sup>
Constant						
Scholarship (yes)	.243	.264	.847	1	.358	1.276
1 <sup>st</sup> Semester GPA	.771	.154	25.049	1	.000*	2.161
Sport Played	.193	.248	.607	1	.436	1.213
Eligibility (yes)	.604	.273	4.878	1	.027*	1.829
Test						
			$\chi^2$	Df	P	
Goodness-of-fit test						
Hosmer & Lemeshow			7.628	8	.471	

Note: \*p<.05.

**Table 4 - 17**

Observed and Predicted Frequencies for Six-Year Graduation by College Variables

Observed		Predicted		
		Six-Year Graduation		% Correct
		No	Yes	
Six-Year Graduation	No	140	47	74.9
	Yes	65	80	55.2
Overall % Correct				66.3

*Final Six-Year Graduation Model*

Two more regression analyses were conducted. The first includes five variables that were significant in either the bi-variate analysis or the logistic regression analysis. Included variables were core high school grade point average, combined SAT, first semester grade point average, eligibility status, and scholarship status. The analysis demonstrates first semester grade point average ( $r = .510$ ;  $p = .005$ ) and eligibility status ( $r = .771$ ;  $p = .017$ ) were the two strongest variables in predicting six-year graduation among student-athletes, as shown in Table 4-18 and 4-19. Furthermore, these two variables were the only two variables that were statistically significant.

In the final logistic regression analysis, scholarship status and combined SAT were removed from the final model. Scholarship status was removed because it was not shown to be significant in either of the combined models. Combined SAT was removed, as it was only significant in the bi-variate analysis. The final logistic regression analysis showed that first semester grade point average ( $r = .482$ ;  $p = .006$ ) and eligibility status ( $r = .818$ ;  $p = .008$ ) have the strongest and statistically significant relationship with six-year graduation. Results are shown in Table 4-20 and 4-21.

**Table 4- 18**

Logistic Regression Analysis of Six-Year Graduation Rates for Student-Athletes by HSCGPA, SAT, 1<sup>st</sup> Semester GPA, Eligibility Status, and Scholarship Status (n = 241)

Variable	$\beta$	SE $\beta$	Wald's $\chi^2$	Df	P	$e^\beta$
Constant	-.733	.309	5.633	1	.018	.481
HSCGPA	.171	.151	1.274	1	.259	1.186
SAT	-.058	.163	.125	1	.724	.944
First Semester GPA	.510	.181	7.956	1	.005*	1.666
Eligibility	.771	.324	5.682	1	.017*	2.162
Scholarship (yes)	.180	.304	.350	1	.554	1.198
Test			$X^2$	Df	P	
Goodness-of-fit test Hosmer & Lemeshow			12.917	8	.115	

Note: \*p<.05.

**Table 4 - 19**

Observed and Predicted Frequencies for Six-Year Graduation by Selected Pre-College and College Variables

Observed		Predicted		% Correct
		No	Yes	
Six-Year Graduation	No	101	35	74.3%
	Yes	45	60	57.1%
Overall % Correct				66.8%

**Table 4 - 20**

Logistic Regression Analysis of Six-Year Graduation Rates for Student-Athletes by HSCGPA, 1<sup>st</sup> Semester GPA, Eligibility Status (n = 241)

Variable	B	SE $\beta$	Wald's $\chi^2$	Df	P	e <sup><math>\beta</math></sup>
Constant	-.829	.253	10.705	1	.001	.436
HSCGPA	.161	.149	1.158	1	.282	1.174
First Semester GPA	.482	.175	7.643	1	.006*	1.620
Eligibility (yes)	.818	.306	7.134	1	.008*	2.267
Test			$\chi^2$	Df	P	
Goodness-of-fit test Hosmer & Lemeshow			7.80	8	.453	

Note: \*p<.05.

**Table 4 - 21**

Observed and Predicted Frequencies for Six-Year Graduation by Pre-College Variables

Observed		Predicted		% Correct
		No	Yes	
Six-Year Graduation	No	105	31	77.2
	Yes	47	58	55.2
Overall % Correct				67.6

### *First-Year Retention Analysis*

#### *Pre-College Academic Variables*

##### *High School Core Grade Point Average.*

Student-athletes who enter the institution with a higher core high school grade point average (M = 3.16, SD = .52) were retained at a higher rate than those who entered the

university with a lower high school core grade point average ( $M = 3.06$ ,  $SD = .53$ ). However, this variable is not statistically significant as shown in Table 4-22..

**Table 4- 22**  
Mean High School Grade Point Average, SAT, and High School Class Percentile by Retention Status

	Graduation Status	n	M	SD	df	T	p
HSCGPA	No	47	3.064	.529	240	-1.140	.256
	Yes	195	3.161	.526			
SAT	No	64	924.06	214.977	326	-.592	.554
	Yes	264	936.40	129.193			
HS Percentile	No	38	53.21	25.494	191	-3.134	.002
	Yes	155	66.41	22.696			

*Combined SAT.*

Combined SAT and first-year retention do not have a significant relationship, even though student-athletes ( $n = 264$ ) with a higher combined SAT ( $M = 936$ ,  $SD = 129.19$ ) are retained at a higher rate than those student-athletes ( $n = 64$ ) who earn a lower SAT ( $M = 924$ ,  $SD = 214.98$ ). Results are shown in Table 4-22.

*HS Class Percentile.*

Retention rates improve when high school percentile increases. Furthermore, the relationship between first-year retention and high school percentile is significant,  $t(191) = -3.134$ ,  $p = .002$ . Student-athletes ( $n = 155$ ) with a mean class percentile of 66 ( $SD = 22.70$ ) are retained at a higher rate than those student-athletes ( $n = 38$ ) with a mean of 53 ( $SD = 25.50$ ), as presented in Table 4-22.

*Pre-college Academic Variables Combined.*

To confirm high school percentile was the most significant pre-college variable impacting first-year retention, a logistic regression analysis was performed which include all pre-college variables. The results confirmed high school percentile ( $r = .022$ ,  $p = .047$ ) was the only statistically significant variable, as presented in Table 4-23. Furthermore, the goodness of fit test revealed that  $p = .381$ , therefore, the model was fit to the data. See Table 4-24 for the validity of the predicted probabilities.

**Table 4 – 23**

Logistic Regression Analysis of First Year Retention for Student-Athletes by SAT, High School Percentile, and HSCGPA (n = 156)

Variable	$\beta$	SE $\beta$	Wald's $X^2$	Df	p	$e^\beta$
Constant	.143	.698	.042	1	.838	1.154
SAT	-.058	.239	.058	1	.810	.944
HS Percentile	.022	.011	3.954	1	.047	1.023
HSCGPA	-.254	.266	.911	1	.340	.776
Test			$\chi^2$	Df	p	
Goodness-of-fit test Hosmer & Lemeshow			8.558	8	.381	

Note: \* $p < .05$ .

**Table 4 - 24**

Observed and Predicted Frequencies for First Year Retention by Pre-college Variables

Observed	First-Year Retention	Predicted		% Correct
		No	Yes	
First-Year Retention	No	0	28	.0
	Yes	0	128	100.0
Overall % Correct				82.1

*Demographic Variables*

*Ethnicity.*

The relationship between ethnicity and first-year retention rate was not significant as demonstrated in Table 4-25,  $\chi^2(3, N = 333) = 5.038, p = .169$ . All ethnicity groups were retained at above 70%.

**Table 4 - 25**  
Cross Tabulation of Ethnicity by First-Year Retention

			FY Retention		
			No	Yes	Total
Ethnicity	Hispanic	N	21	72	93
		%	22.6%	77.4%	100.0%
	Black	N	12	69	81
		%	14.8%	85.2%	100.0%
	White	N	27	83	110
		%	24.5%	75.5%	100.0%
	Other	N	6	43	49
		%	12.2%	87.8%	100.0%
Total		N	66	267	333
		%	19.8%	80.2%	100.0%

*Gender*

Males (n = 170) were retained at a higher rate (81.7%) than females (n = 97; M = 77.6). Through a Pearson chi-square test, gender does not have a significant relationship with first-year retention,  $X^2(1, N = 333) = .838, p = .360$ . Refer to Table 4-26.

**Table 4 - 26**

Cross Tabulation of Gender by First Year Retention (n = 333)

			Retained		
			No	Yes	Total
Gender	F	N	28	97	125
		%	22.4%	77.6%	100.0%
	M	N	38	170	208
		%	18.3%	81.7%	100.0%
Total		N	66	267	333
		%	19.8%	80.2%	100.0%

*Income Level of Parents.*

Student-athletes with a lower parent income level (n = 113, M = 50,504, SD = 39,099) were retained at a significantly higher rate than those with a higher parent income level (n = 27; M = 53,936, SD = 28,829),  $t(138) = .0429$ ,  $p = .669$  as shown in Table 4-27.

**Table 4 - 27**

Mean Parent Income Level by First-Year Retention

	Retention		Mean	SD	df	t	p
	Status	N					
Parent Income Level					138	.429	.669
	No	27	53935.56	28828.869			
	Yes	113	50503.68	39096.946			

*Demographic Variables Combined*

Individually, no demographic variable had a significant relationship with first-year retention. To further analyze this relationship, the researcher conducted a logistic regression analysis. Results of this analysis are presented in Table 4-28 and Table 4-29. The results confirm no demographic variable was statistically significant.

**Table 4 - 28**

Logistic Regression Analysis of First-Year Retention for Student-Athletes by Parent Income, Gender, and Ethnicity (n = 140)

	B	S.E.	Wald	df	Sig.	Exp(B)
Parent Income	.025	.235	.011	1	.915	1.025
Hispanic	- 19.676	23148.933	.000	1	.999	.000
Black	- 19.531	23148.933	.000	1	.999	.000
White	- 20.223	23148.933	.000	1	.999	.000
Gender(Female)	-.362	.484	.559	1	.455	.696
Constant	21.352	23148.933	.000	1	.999	1.875E9
Test			$\chi^2$	Df	P	
Goodness-of-fit test			2.741	8	.950	
Hosmer & Lemeshow						

**Table 4 - 29**

Observed and Predicted Frequencies for First-Year Retention by Demographic Variables

Observed		Predicted		% Correct
		No	Yes	
First-Year Retention	No	0	27	.0
	Yes	0	113	100
	Overall % Correct			80.7

### *College Variables*

#### *First Semester Grade Point Average.*

Results of the bi-variate analysis show there is a significant positive relationship between first-semester grades and first-year retention. Specifically, students who earn a mean first semester grade point average of 2.71 (SD = .759) are retained at a higher rate than those who earn a 1.87 grade point average (SD = 1.13). Refer to Table 4-30 for complete results.

**Table 4 – 30**

Mean First Semester and First Year College GPA by Retention Status							
	Graduation Status	n	M	SD	df	t	p
First Semester GPA	No	65	1.87	1.131	330	-7.249	.000
	Yes	267	2.71	.759			
1 <sup>st</sup> Year GPA	No	65	1.81	1.136	330	-9.951	.000
	Yes	267	2.78	.547			

*First Year Grade Point Average.*

Based on the logistic regression analysis, first year grade point average and first-year retention also have a significant relationship. Students with higher first year grade point averages are retained at a higher rate than those with lower first year grade point averages,  $t(330) = -9.951$ ,  $p = .000$ . As presented in Table 4-30, students who earn a 2.78 mean first year grade point average graduate at a higher rate than those students who earn a 1.81 mean first year grade point average.

Because first-semester grade point average and first-year grade point average are highly correlated, as presented earlier, only first-semester grade point average was used in the final analysis as more data were available for this variable.

*Eligibility After First Year of Enrollment.*

The relationship between eligibility status and first-year retention is significant,  $\chi^2(1, N = 333) = 73.75$ ,  $p = .000$ . As presented in Table 4-31. Of the 333 student-athletes analyzed, 95% of the student-athletes who were eligible were also retained. Of those who were not eligible, a little over half were retained.

**Table 4 - 31****Cross Tabulation of Eligibility Status by First-Year Retention**

			Retained After 1 Year		
			No	Yes	Total
Eligibility Status	No	N	56	73	129
		%	43.4%	56.6%	100.0%
	Yes	N	10	194	204
		%	4.9%	95.1%	100.0%
Total	N		66	267	333
	%		19.8%	80.2%	100.0%

*Sport Played.*

Student-athletes who participated in low and high profile sports had similar first-year retention rates, as presented in Table 4.32. The relationship between these two variables was not significant,  $X^2(1, N = 333) = .467, p = .495$ .

**Table 4 - 32****Cross Tabulation of Sport Played by First Year Retention**

			Retention Status		
			No	Yes	Total
Sport Played	Low Profile	N	33	146	179
		%	18.4%	81.6%	100.0%
	MBB & FB	N	33	121	154
		%	21.4%	78.6%	100.0%
Total	N		66	267	333
	%		19.8%	80.2%	100.0%

*Scholarship Status.*

Student-athletes who received an athletic scholarship ( $n = 174$ ) were retained at a higher rate (87%) than those who did not received an athletic scholarship ( $n = 93$ ; 70%), as presented in

Table 4.33. The relationship between these two variables was significant,  $X^2(1, N = 333) = 14.66, p = .000$ .

**Table 4 - 33**  
Cross Tabulation of Scholarship Status by First Year Retention

			Retention Status		
			No	Yes	Total
Scholarship Status	No	n	40	93	133
		%	30.1%	69.9%	100.0%
	Yes	n	26	174	200
		%	13.0%	87.0%	100.0%
	Total	n	66	267	333
		%	19.8%	80.2%	100.0%

*College Variables Combined.*

Further analysis of the college variables, through a logistic regression, confirmed first-semester grade point average ( $p = .000$ ) and eligibility status ( $p = .000$ ) both had a significant relationship with first-year retention, as presented in Table 4-34. Scholarship status was not significant ( $r = -.417, p = .234$ ).

**Table 4 - 34**

Logistic Regression Analysis of First-Year Retention for Student-Athletes by 1<sup>st</sup> Semester GPA, Eligibility Status, Sport Played, and Scholarship Status (n = 332)

Variable	$\beta$	SE $\beta$	Wald's $\chi^2$	df	P	$e^\beta$
Constant	.872	.334	6.806	1	.009	2.392
First Semester GPA	.650	.166	15.390	1	.000*	1.915
Eligibility Status (yes)	2.232	.407	30.125	1	.000*	9.316
Sport Played	-.141	.342	.170	1	.680	.869
Scholarship Status (yes)	.417	.350	1.415	1	.234	1.517
Test			$\chi^2$	Df	P	
Goodness-of-fit test						
Hosmer & Lemeshow			15.215	8	.055	

Note: \*p<.05.

**Table 4 - 35**

Observed and Predicted Frequencies for First-Year Retention by College Variables

Observed		Predicted		% Correct
		No	Yes	
First-Year Retention	No	30	35	46.2%
	Yes	11	256	98.9%
Overall % Correct				86.1%

### *Final First-Year Retention Model*

The final analysis of first-year retention included variables that were significant in the bi-variate and preliminary logistic analysis. The variables included were high school class percentile, first semester grade point average, eligibility status, and scholarship status. Although scholarship status was not significant in the logistic regression which included all college variables, because it was significant in the bi-variate analysis, it was included in the final model.

Eligibility status ( $r = 2.524$ ,  $p = .000$ ) and first semester grade point average ( $r = .652$ ,  $p = .003$ ) were the two most significant variables, as presented in Table 4-36.

**Table 4 - 36**

Logistic Regression Analysis of First-Year Retention for Student-Athletes by First Semester GPA, Eligibility Status, HS Percentile, Scholarship Status ( $n = 193$ )

Variable	B	SE $\beta$	Wald's $\chi^2$	df	p	$e^\beta$
Constant	.491	.699	.494	1	.482	1.634
First Semester GPA	.652	.222	8.588	1	.003*	1.919
Eligibility Status (yes)	2.524	.621	16.524	1	.000*	12.481
High School Percentile	.004	.009	.189	1	.663	1004
Scholarship Status (yes)	.106	.497	.045	1	.831	1.11
Test			$\chi^2$	Df	P	
Goodness-of-fit test						
Hosmer & Lemeshow			8.050	8	.429	

Note: \* $p < .05$ .

**Table 4 - 37**

Observed and Predicted Frequencies for First-Year Retention by Selected Variables

Observed		Predicted		% Correct
		Yes	No	
Six-Year Graduation	No	13	25	34.2%
	Yes	6	149	96.1%
	Overall % Correct			83.9%

## CHAPTER FIVE

### Discussion

Given the mission of higher education and of intercollegiate athletic programs, it is critical student-athletes receive a quality education which culminates in graduation. The purpose of the present study was to evaluate which variables have a significant influence on student-athlete six-year graduation and first-year retention rates. This chapter will present an overview of the significant findings of the study, limitations of the study, and recommendations for future research.

#### *Academic Profile*

Since the early 1900's, the National Collegiate Athletic Association (NCAA) has continually strengthened the academic requirements of student-athletes to ensure intercollegiate athletics is in line with the mission of higher education (Covell & Barr, 2001). Different minimum core high school grade point average and standardized test score thresholds have been established in order to be eligible to receive an athletic scholarship and to participate in intercollegiate athletics (NCAA 2004). For the 1998, 1999, 2000, and 2001 cohorts in this study, student-athletes were required to earn a minimum high school core grade point average of 2.0 with a combined SAT score of 1010 (NCAA 2004). Students earning a core high school grade point average above a 2.5 were required to earn a combined SAT score of 820. As a whole, student-athletes in this study earned well above the minimum core high school threshold, earning a mean 3.14 core high school grade point average. Regardless if a student-athlete was female or male, on scholarship or not, or participated in a high or low profile sport, these groups entered UTEP with above a 3.0 core high school grade point average. Furthermore, Hispanics and Whites entered the university with a core high school grade point average above a 3.0. Student-

athletes as a whole and within specific groups also earned above the required 820 combined SAT score.

The descriptive statistics illustrated the White, female, and low-profile sport groups had the strongest academic profiles while the Black, male and high profile sport groups had the weakest, which was also found in previous research by Aries, et al. (2004), Ervin, et al. (1985), Hood, et al. (1992), and Purdy et al. (1982). The White, female, and low-profile groups earned higher core high school grade point averages, combined SAT scores, and first-semester grades than the Black, male, and high profile sport groups. Because the majority of the participants in the low-profile group were female, their academic profiles are very similar, as is with the male and high profile groups. When analyzing the descriptive statistics, given that the Black group had the weakest academic profile of all the groups studied, it is logical this group had one of the lowest graduation rates despite being ranked second in retention. However, as illustrated by the findings, academic background and demographic variables were not the most significant factors in influencing graduation and retention.

To analyze which variables significantly influenced six-year graduation and first-year retention of student-athletes, bi-variate and logistic regression models were used. By analyzing each predictor variable individually using a bi-variate analysis, purer results were obtained than by using a step-wise regression analysis. The variables which were independently significant were used in the final models.

#### *Pre-college Variables*

As noted in previous research, this study found student-athletes who earned higher high school core grade point average and combined SAT scores (DesJardins et al., 1999), graduated at a higher rate than those students who did not earn as high of a grade point average or SAT score.

Students who graduated and those who did not, earned a mean high school core grade point average that was above a 3.0. Consistent with other studies (McArdle & Hamagami, 1994; NCAA, 2009), this study found combined SAT and high school core grade point average were independently significant predictors of college graduation, however, high school core grades were stronger predictors of graduation than combined SAT, as was found in research by Zwick & Sklar (2005). The observed and predicted frequencies show the model predicted 77.4% of the cases of students who did not graduate. In the final analysis, when compared to demographic and college variables, neither high school core grades nor combined SAT scores were significant. Although high school grade point average was determined to be the third strongest predictor, it did not reach statistical significance.

In regard to retention, the results of this study were inconsistent with previous research that found pre-college academic variables to be significant in predicting retention (Boudreaux, 2004). The current study found that among high school core grade point average, combined SAT, and class percentile, only class percentile was a significant influence in first-year retention among student-athletes. Although this finding is contradictory to the previous research, it can be explained. For example, the academic support services provided to student-athletes may be a stronger influence than a student-athlete's academic background. Furthermore, when combined with college and demographic variables, class percentile was no longer significant. This is consistent with DesJardins et al. (1999) findings.

The results of the pre-college academic variable analysis were somewhat consistent with the stated hypotheses. Hypothesis one stated high school core grade point average was a better predictor of student-athlete six-year graduation than combined SAT scores, which was confirmed in the study. Furthermore, although combined SAT score was independently significant,

hypothesis two was not confirmed as combined SAT was not significant in the final analysis of six-year graduation.

### *Demographic Variables*

Unexpectedly, none of the demographic variables (ethnicity, gender, parent income level) were statistically significant in predicting six-year graduation or first-year retention as shown in both regression models. Since parent income level data was missing for a large amount of the students, this variable was taken out of the second regression model. The fit the model improved from .340 to .950 when income level data was removed, however; this model still did not produce any statistically significant results. This finding was encouraging since it showed that variables out of the student-athlete's control did not affect retention and graduation. Rather, other variables have a stronger influence. These other variables could include the coach's influence, academic support resources, or motivation to play.

Consistent with Alexander et al. (1982) and McArdle & Hamagami (1994) and with the current study's hypotheses seven and eight, ethnicity alone did not significantly predict six-year graduation or first-year retention. Graduation rates among the ethnicity groups were within 11.2% of each other, ranging from 38.3% for Blacks to 49.5% for Hispanics. Furthermore, although Black student-athletes had the second highest first-year retention rate (85.2%), they had the lowest high school core grade point average, combined SAT, first-semester grade point average, and graduation rate (38.3%).

Surprisingly, gender was not a significant variable influencing six-year graduation or first-year retention, failing to support previous studies (Aries et al., 2004; McArdle & Hamagami, 1994).. Making this finding difficult to understand is the fact females entered UTEP with higher high school core grade point averages and SAT scores. Additionally, female student-

athletes, nationally, have historically graduated at a higher rate than males (NCAA, 2005; NCAA, 2006a; NCAA, 2007; NCAA, 2008a). Furthermore, females in this study earned higher first semester grade point averages than their male counterparts. Although males and females graduated at almost the same rate, males are retained at a higher rate than females, but again, this was not a significant variable. The results of this analysis were not consistent with the hypotheses nine and ten which stated gender alone would significantly predict student-athlete six-year graduation and first-year retention.

### *College Variables*

As demonstrated in previous research (NCAA, 2009; Thomas, 1981) and consistent with hypotheses three and four, college grade point averages were found to be the most significant variable in predicting student-athlete graduation and first-year retention. In this study, first-semester grades were not only an independently significant variable influencing college graduation, but when compared to other college variables (sport played, scholarship status, eligibility status), it was the most significant variable influencing student-athlete graduation. First semester grades were also the second most significant variable influencing first-year retention among student-athletes at UTEP, which is supported by research conducted by Allen et al. (2008) and DesJardins, et al. (1999).

Remaining eligible after a student-athlete's first academic year proved to be a significant variable for six-year graduation and first-year retention, as predicted by the researcher in hypotheses five and six. Although the researcher found only one reference (Brown, 2003) indicating eligibility is a significant variable in predicting student-athlete graduation, this variable was used as it is a significant factor of the Academic Progress Rate. Furthermore, eligibility status is based on the number of hours taken and grade point average earned and in

this study it was highly associated with first year grades. Further discussion regarding eligibility status is provided in the final model section.

There are opposing views regarding if sport played influences student-athlete success. Although in this study, student-athletes who participated in low-profile sports had an academic profile stronger than student-athletes who participated in high profile sports and graduated at a slightly higher rate than high profile sport participants, the differences were not statistically significant. Therefore, hypotheses eleven and twelve were not supported. Previous literature indicated sport played does significantly affect college graduation and retention (Pascarella et al., 1999; Hood et al., 1992; McArdle & Hamagami, 1994). Findings contrary to the results found in the study cite time demands and competitive culture (Adler & Adler, 1985) as the main reasons why sport played influences student-athlete success. When reviewing the UTEP football team's competitive records from 1998 to 2001, with the exception of the year 2000, the football team did not have a winning season. The total record in the four years studied was 18-28 (1998: 3-8; 1999: 5-7; 2000: 8-4; 2001: 2-9). Based on the football team's record, it appears the pressure which comes with a competitive culture may not have been present during the years studied. Furthermore, there was a coaching change in 1999 which may have influenced the student-athletes' behavior. In regard to men's basketball, the program had a coaching change in 1999 and the program's competitive record for the years studied was 62-58 (1998: 16-12; 1999: 13-15; 2000: 23-9; 2001: 10-22). Again, either one of these factors could have impacted the student-athletes' academic endeavors.

### *Final Models*

Two final models were used to evaluate which variables were the most significant in influencing student-athlete six-year graduation and first-year retention of student-athletes.

Although the bi-variate analyses did shed light on individual variables that could be significant, when combined with other variables, only two variables, eligibility status and first-semester college grades, emerged as statistically significant in influencing six-year graduation and first-year retention.

One of the major findings of the study is eligibility is a statistically significant influence of six-year graduation, which is consistent with the NCAA's working group on academic performance (Brown, 2003) and first-year retention. In the six-year graduation model, the odds for student-athletes who were eligible after their initial year of enrollment at UTEP were more than twice as likely to graduate than those students who were not eligible when compared to high school grade point average and first semester grade point average. In the retention model, compared to the other college variables (first semester grade point average, sport played, and scholarship status), the odds for student-athletes who met eligibility requirements were nine times more likely of being retained than for those who did not meet eligibility requirements. When eligibility was compared to first semester grade point average, high school percentile, and scholarship status, the odds for student-athletes who met eligibility status were 12 times more likely to be retained than those who did not meet eligibility requirements. Most of the student-athletes who did not meet eligibility standards were non-scholarship students. Of the students who were not eligible, 41.9% participated in the low-profile sports while 35.1% participated in the high profile sports. Furthermore, Hispanics were the highest group who were not eligible after their initial year of enrollment and were the group who had the highest percentage of students who did not receive a scholarship (77.4%). Tables B-6, B-7, B-8, and B-9 in Appendix B show these descriptive results.

Scholarship status was significant in the retention bi-variate analysis, but was not statistically significant in either of the final regression models in this study. Regardless of these findings, it is important to analyze why so many non-scholarship student-athletes are not earning eligibility status as it is still a moral obligation to ensure their academic success. Non-scholarship student-athletes may not be as vested in their intercollegiate career, as they are not receiving any financial return. Furthermore, not having any financial contract with a non-scholarship student-athlete is an important reason why this group should not be included in the federal graduation rates and Academic Performance Rates. Institutions have little to no persuasion over non-scholarship student-athletes, particularly if participating in intercollegiate may not be their first priority.

For those students who are on scholarship, maintaining the eligibility standards may be a motivator because it dictates whether a student-athlete will be eligible to practice or compete on their athletic team. Additionally, scholarship student-athletes know if they do not achieve eligibility standards, they jeopardize the privilege of being awarded an athletic scholarship or from being on the team.

Not surprising, based on past research, the second major finding of the study was first-semester grades were only one of two significant variables influencing six-year graduation and first-year retention of student-athletes in this study. The mean first-semester grade point average between student-athletes who graduated and those that did not was over half a full-grade (.59). Compared to other college variables (eligibility, sport played, scholarship status), student-athletes earning a 2.88 first-semester grade point average or better were twice as likely to graduate in six-years than those who did not earn a comparable first-semester grade point

average. In the final graduation logistic regression model, first-semester grades were the most significant variable in predicting six-year graduation.

In regard to retention, there was a significant difference between the mean first-semester grade point averages of those student-athletes who were retained and those who were not. Student-athletes who were not retained earned a mean 1.87 first-semester grade point average. Additionally, in the final retention logistic regression analysis, 96.1% of the predicted cases of student-athletes who were retained were correct. In analyzing this finding, it can be concluded that by earning a 1.87 first semester grade point average, a student-athlete would be academically ineligible to participate in intercollegiate athletics. Therefore, there would be no reason for a student to continue their academic pursuits if they could not play their sport. Furthermore, coaches are not as likely to continue providing an athletic scholarship to those students who can not meet the academic eligibility standards.

College grades are highly related to eligibility, so student-athletes, particularly those on scholarship, have great motivation to obtain at least the minimum college grade point average needed to practice or compete. This is a possible reason why eligibility status and first-semester grades were both significant findings.

### Conclusions

The results of this study demonstrated doing well the first-semester at the institution and remaining eligible are key elements to earning a degree within six-years of enrollment for student-athletes. The results suggested these two variables are more important than other variables traditionally used to predict student-athlete success such as pre-college academic variables and demographic factors.

Although the NCAA places a high regard on pre-college cognitive variables, this study shows even though, individually, combined SAT and high school core grade point average are significant in predicting six-year graduation they were not individually significant in predicting first-year retention nor were they part of the final graduation or retention models. While the researcher acknowledges there must be an academic standard for having the privilege of participating in intercollegiate athletics, the results suggested the student-athletes' academic efforts during their first year of enrollment is more important and therefore should be closely monitored and studied further.

The first-year at the institution is critical, regardless of academic background, gender, ethnicity, or sport played. Furthermore, contrary to previous research that indicates high profile sport participants are at more risk of not graduating from college (Purdy et al., 1982), at least for the students in this research study, sport played was not significant. Although this finding may be contrary to anecdotal intuition, it is a finding that should be celebrated as it is often too easy to attribute student-success or lack of to biological, innate, and uncontrollable variables. Furthermore, student-athletes are often stereotyped based on their gender, ethnicity, or sport played, which in this study were not significant in regard to student success.

Lastly, this study suggests the major factors used in the calculation of the fairly new academic progress rate (APR) are appropriate variables to be used, particularly at UTEP.

#### Limitations of the Study

The present study only included student-athletes at the University of Texas at El Paso, therefore, the findings may not be generalizable. Another limitation of the current study is that only selected pre-college, college, and demographic variables were included. The study did not include any qualitative data. Lastly, the academic reform movement of the early 2000's has

incorporated higher academic eligibility requirements for both entering freshman and continuing student-athletes than the required standards for the cohorts used in this study. There is a new emphasis for intercollegiate programs to meet the academic progress rate thresholds. Many intercollegiate athletic programs have significantly improved their academic programs. UTEP has more than doubled the academic facility space and hired additional staff.

#### Recommendations for Further Research

Because student-athletes at UTEP have not been studied in great detail as in the present study, it was critical to develop baseline data to begin to understand who UTEP student-athletes are. By first understanding the academic and demographic profile of UTEP student-athletes, it enables further research to be conducted. Due to the limitations and findings of the study, further research should be conducted.

First, explaining why some of the hypotheses in the study were not confirmed or why traditional pre-college academic variables were not significant would involve investigating other variables such as institutional and structural factors. As noted in the research, there are non-cognitive factors which may influence student-athlete graduation and retention (Adler & Adler, 1985; Benson, 2000; Christie & Dinham, 1991). It may seem obvious that if student-athletes do not become eligible in their first year of competition or do not earn above a 2.0 first-semester grade point average, the likelihood of those students returning for their second year of college or graduating is diminished. But what is not obvious is the motivation students must have and support systems universities must have in place to ensure student-athletes are achieving the eligibility standards. Student-athlete success can be influenced, to different degrees, by factors other than those used in this study. Therefore, further research should look beyond the traditional variables used in this study. At UTEP in particular, the current investment made in the academic

resources provided to student-athletes, may be a significant factor affecting student-athlete success. Further research must include how institutional support has affected graduation and retention.

Second, now that it is concluded eligibility and first-semester grade point average are significant variables that affect student-athlete graduation and retention, it is important to investigate why student-athletes are not earning eligibility status or earning above a 1.87 first-semester grade point average. It is important to investigate which student-athletes are not meeting the NCAA eligibility standards or certain grade point average, particularly during their first year of enrollment. Furthermore, it is important to discover why eligibility and first-semester grades are so critical for student-athletes during the first year of enrollment.

Although, nationally, student-athletes graduate at a higher rate than the general student-population, the academic lives of student-athletes must continue to be examined. The new academic standards implemented by the NCAA in conjunction with the continual concern about the purpose of intercollegiate athletics give cause to continually examine how institutions can improve retention and graduation rates. Further research will assist athletic administrators in being more proactive in meeting academic standards as well as to learn more about how to impact the academic lives of student-athletes.

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## APPENDIX A

**THE UNIVERSITY OF TEXAS AT EL PASO**  
Office of the Vice President for Research and Sponsored Projects  
**Institutional Review Board**  
El Paso, Texas 79968-0587  
phone: 915 747-8841 fax: 915 747-5931

DATE: March 5, 2009

TO: Lisa Campos, MS

FROM: University of Texas at El Paso IRB

STUDY TITLE: [110634-1] - Student-Athlete Success

IRB REFERENCE #:

SUBMISSION TYPE: New Project

ACTION: APPROVED

APPROVAL DATE: March 5, 2009

EXPIRATION DATE:

REVIEW TYPE: Exempt Review

Thank you for your submission of New Project materials for this research study. University of Texas at El Paso IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This study has received Exempt Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

Please report all NON-COMPLIANCE issues or COMPLAINTS regarding this study to this office.

Please note that all research records must be retained for a minimum of three years after termination of the project.

Based on the risks, this project requires Continuing Review by this office on an annual basis. Please use the appropriate renewal forms for this procedure.

If you have any questions, please contact the Institutional Review Board at 915-747-8841 or [irb.orsp@utep.edu](mailto:irb.orsp@utep.edu). Please include your study title and reference number in all correspondence with this office.

APPENDIX B

Descriptive Statistics

**B - 1**

Distribution of Student-Athlete Sample by Gender, Ethnicity, and Type of Sport Played (N = 333)

Variable	N	As % of Total Sample
Population	333	100%
Female	125	38%
Male	208	63%
Ethnicity		
Hispanic	93	28%
Black	81	24%
White	110	33%
Other	49	15%
Sport Played		
Low Profile	179	54%
High Profile	154	46%
Scholarship Status		
Yes	200	60%
No	133	40%

**B - 2**

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Distribution of Student-Athlete Sample by Specific Ethnicity and Type of Sport Played (N = 333)

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Variable	N	As % of Total Sample
Ethnicity		
American Indian/Alaskan Native	1	.3%
Asian American	3	.9%
Asian/Pacific Islander	1	.3%
Black	81	24%
Hispanic	93	28%
International	42	12.6%
Native American	1	.3%
White	111	33%
Sport Played		
Men's Basketball	10	3%
Football	144	43.2%
Men's Golf	12	3.6%
Men's Track & Field/Cross Country	42	12.6%
Men's Tennis	1	.3%
Women's Basketball	21	6.3%
Women's Golf	7	2.1%
Women's Rifle	10	3%
Women's Soccer	38	11.4%
Women's Track & Field/Cross	26	7.8%
Country		
Women's Tennis	7	2.1%
Women's Volleyball	14	4.2%
Unknown	1	.3%

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**B - 3****Mean High School Core GPA, SAT, and First Semester GPA for Gender, Sport Played, and Scholarship Status**

Variable	HSCGPA	S.D.	SAT	S.D.	Class Percentile	S.D.	First Semester GPA	S.D.
Population	3.14 (242)	.53	934 (328)	150	64 (193)	24	2.55 (332)	.91
Female	3.29 (80)	.51	944 (121)	148	73 (59)	18	2.73 (125)	.92
Male	3.07 (162)	.52	928 (207)	151	60 (134)	25	2.44 (207)	.89
Sport Played								
High Profile Sport	3.07 (128)	.53	920 (153)	158	59 (104)	24	2.34 (153)	.83
Low Profile Sport	3.22 (114)	.52	946 (175)	141	69 (89)	23	2.72 (179)	.87
Scholarship Status								
Yes	3.13 (151)	.045	935 (197)	11	66 (100)	2.23	2.55 (200)	.06
No	3.16 (91)	.052	932 (131)	12	62 (93)	2.62	2.54 (132)	.09

Note. n is in ( ); HSCGPA = High School Core Grade Point Average; SAT = Scholastic Aptitude Test.

**B - 4****Mean High School Core GPA, SAT, and First Semester GPA for Ethnicity**

Variable	HSCGPA	S.D.	SAT	S.D.	Class Percentile	S.D.	First Semester GPA	S.D.
Ethnicity								
Hispanic	3.13 (65)	.06	929 (98)	12	63 (65)	3	2.58 (93)	.10
Black	2.91 (73)	.06	868.12 (80)	16	58 (52)	3	2.13 (81)	.09
White	3.37 (92)	.05	984 (109)	14	69 (71)	3	2.70 (110)	.08
Other	2.89 (12)	.13	940 (46)	27	60 (5)	13	2.86 (48)	.11

Note. n is in ( ); HSCGPA = High School Core Grade Point Average; SAT = Scholastic Aptitude Test.

**B - 5****Six-Year Graduation and First-Year Retention by Gender and Scholarship Status**

	Graduation Status		Retention Status	
	Yes	No	Yes	No
<b>Population</b>				
Female	43.2% (54)	56.8% (71)	77.6% (97)	22.4% (28)
Male	43.8% (91)	56.2% (117)	81.7% (170)	18.3% (38)
Total	43.5% (145)	56.5% (188)	80.2% (267)	19.8% (66)
<b>Scholarship Status</b>				
Yes	47.5% (95)	52.5% (105)	87% (174)	13% (26)
No	37.6% (50)	62.4% (83)	69.9% (93)	30.1% (40)
<b>Ethnicity</b>				
Hispanic	49.5% (46)	50.5% (47)	77.4% (72)	22.6% (21)
Black	38.3% (31)	61.7% (50)	85.2% (69)	14.8% (12)
White	41.8% (46)	58.2% (64)	75.5% (83)	24.5% (27)
Other	44.9% (22)	55.1% (27)	87.8% (43)	12.2% (6)

**B - 6****Cross Tabulation of Eligibility Status by Ethnicity (n = 333)**

	Ethnicity				Total
	Hispanic	Black	White	Other	

Eligibility Status	No	n	55	32	30	12	129
		%	59.1%	39.5%	27.3%	24.5%	38.7%
	Yes	n	38	49	80	37	204
		%	40.9%	60.5%	72.7%	75.5%	61.3%
Total	n		93	81	110	49	333
	%		100.0%	100.0%	100.0%	100.0%	100.0%

**B - 7**

Cross Tabulation of Eligibility Status by Sport Played (n = 333)

			Sport Played		
			Low	High	Total
Eligibility	No	n	75	54	129
		%	41.9%	35.1%	38.7%
	Yes	n	104	100	204
		%	58.1%	64.9%	61.3%
Total	n		179	154	333
	%		100.0%	100.0%	100.0%

**B - 8**

Cross Tabulation of Scholarship Status by Ethnicity (n = 333)

			Ethnicity				
			Hispanic	Black	White	Other	Total
Scholarship	No	n	72	18	35	8	133
		%	77.4%	22.2%	31.8%	16.3%	39.9%
	Yes	n	21	63	75	41	200
		%	22.6%	77.8%	68.2%	83.7%	60.1%
Total	n		93	81	110	49	333
	%		100.0%	100.0%	100.0%	100.0%	100.0%

**B - 9****Cross Tabulation of Eligibility Status by Scholarship Status**

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			Scholarship Status		
			No	Yes	Total
Eligibility Status	No	n	80	49	129
		%	60.2%	24.5%	38.7%
	Yes	n	53	151	204
		%	39.8%	75.5%	61.3%
	Total	n	133	200	333
		%	100.0%	100.0%	100.0%

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## CURRICULUM VITA

Lisa Diana Campos is the daughter of Joe and Rosaura Campos of Las Animas, Colorado. She is married to Darren D'Attilio. She received her Bachelor of Science degree in Business Administration and her Masters of Science degree in Student Affairs in Higher Education from Colorado State University in 1995 and 2001, respectively.

Ms. Campos was named the Assistant Dean of Students at the University of Texas at El Paso in 2001. She coordinated and administered the university's student discipline system, interpreted the University of Texas System Regents' Rules and Regulations governing the student academic honesty and conduct code and provided information to the university community on the discipline policies, rules, regulations, and procedures. She served as a mentor to an undergraduate student participating in the NASPA Minority Undergraduate Fellows Program and served on a variety of campus committees including the UTEP President's Advisory Committee on Women, Student Affairs Staff Development Committee, Faculty Senate Student Conduct Committee, and the University Health Awareness Committee.

Ms. Campos was named Associate Athletic Director and Senior Woman Administrator at the University of Texas at El Paso in August of 2003. She was promoted to Senior Associate Athletic Director in August of 2006. She currently serves as the sport administrator for men's and women's cross country, women's soccer, women's volleyball, women's basketball, and men's and women's track and field. Ms. Campos also serves as the primary administrator for compliance, CHAMPS/Life Skills, strength and conditioning, sports medicine, and cheerleading. She is the advisor for the Student-Athlete Advisory Committee and serves as the liaison to the intercollegiate Athletic Council, Office of Student Life, Miner Village, and the UTEP Police Department. She manages the post eligibility program and exit interview process. Ms. Campos

assists the Director of Athletics with day-to-day and overall operations of the department, including developing a balanced budget, developing strategic plans, organizing head coaches' meetings, and hiring key personnel.

In her tenure at UTEP, she has also had oversight of women's golf, rifle, and softball, served as championship director for numerous conference championships, and co-hosted a weekly television show, Miner Sports Weekly. Ms. Campos has also assisted with athletic facility enhancements and co-directed the planning and design of the \$2.6 million Helen of Troy Softball Complex, which opened in September 2005. In 2006, Ms. Campos served as the NCAA liaison for the Self Study Report for NCAA Certification and continues to oversee all gender, minority equity, and student welfare strategic plans. She is responsible for Title IX staff education and staff diversity training. In 2005, she created the Athletics Diversity Graduate Assistantship Program and serves on the UTEP Women's Resource Advisory Board.

Ms. Campos has had the opportunity to serve on a number of NCAA Committees, including the NCAA Division I Championships/Competition Cabinet, the NCAA Rifle Committee, and the NCAA Women's Soccer Committee. In 2008, Ms. Campos was selected to participate in the NCAA Fellows Program. She is a member of the Conference USA Joint Group and serves on the Senior Woman Administrator administrative group. In 2005-2006, when UTEP joined Conference USA, she served on the Conference USA Strategic Planning Committee and assisted in the development of the realigned Conference USA's vision, core values, mission, and strategic objectives. She has also represented UTEP on conference committees, including the budget subcommittee, legislative committee, championships selection committee, and various sport committees.

In the community, Ms. Campos is a member of the Girl Scouts of the Rio Grande board and the Junior League of El Paso.