AN EXAMINATION OF THE RELATIONSHIP BETWEEN ATHLETIC FUNDING AND THE ACADEMIC SUCCESS OF STUDENT ATHLETES AT NCAA DIVISION I AND II INSTITUTIONS

by

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DEDICATION

I dedicate this thesis to my parents, Glenn and Victoria Richardson, for their endless love and support in making this happen. Thank you both for always believing in me and encouraging me to strive for my dreams.

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Firstly, I would like to express my sincere gratitude to my advisor Dr. McDowell for the continuous support of my thesis study and research, for her patience, motivation, and immense knowledge. Her guidance helped me in all the time of research and writing of this thesis. I could not have imagined having a better advisor and mentor.

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LIST OF ABBREVIATIONS

Academic Progress Rate ..... APR

Academic Success Rate ..... ASR

Federal Graduation Rate..... FGR

Graduate Success Rate ..... GSR

National Collegiate Athletic Association ..... NCAA

ABSTRACT

AN EXAMINATION OF THE RELATIONSHIP BETWEEN ATHLETIC FUNDING AND THE ACADEMIC SUCCESS OF STUDENT ATHLETES AT NCAA DIVISION I AND II INSTITUTIONS

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The purpose of this retrospective study was to examine the relationship between athletic spending, athletically related student aid and the academic success of student-athletes at public and private NCAA Division I and II Institutions (with football teams). Institutional characteristics included type of institution as well as athletic spending and athletically related student aid for each athletic department. Academic success was measured for Division I institutions by APR, a metric used to track yearly academic performance of Division I athletic teams, and the Graduate Success Rate (GSR).The Division II ASR metric was used to measure graduation outcomes for Division II athletic teams. A total of 398 institutions (122 Division I-A, 116 Division I-AA and 160 Division II with football programs) were analyzed in this study. Data was analyzed through a series of bivariate correlations, paired sample t-tests and moderated regression analysis. Increased athletic spending was found to lead to greater academic success in student-athletes.

CHAPTER ONE: INTRODUCTION

The graduation rate of college student-athletes is a topic that has ignited the interest of researchers for many years. In 2006, freshman student-athletes entering Division I institutions had an eighty-two percent chance of graduating, while freshman student-athletes entering Division II institutions had a sixty-nine percent chance of graduating (NCAA, 2014b). The most recent study conducted by the National Collegiate Athletic Association (NCAA) found that Division I graduation rates have actually gone up to eighty-four percent with Division II graduation rates now at seventy-two percent (NCAA, 2014b). Hosick (2014) believes the increase in graduation rates of Division I and II student-athletes over the years may be a result of different academic reforms created by the NCAA (e.g., increased academic standards, increased eligibility standards, progress-toward-degree standards and the new methods for tracking student-athlete academic success). These reforms, advanced by the NCAA, provide institutions with quantitative standards for their student-athletes, but only suggest academic outcomes—not means to achieve these standards. Hence it is important to have an understanding of individual and institutional factors that positively or negatively attribute to a student-athletes' chance to succeed in the classroom and meet NCAA standards.

Researchers have conducted an array of studies that have analyzed the influence of both individual and institutional factors on the academic performance of college student-athletes (see Table 1). Individual factors, such as sex, race, and physical and emotional well-being, have been found to play a large role in academic success (Eckard, 2010; Harrison & Lawrence, 2004; Kelly & Dixon, 2014; Meyer, 1990; Rubin &

Rooseer, 2014; The Annie E. Casey Foundation, 2011; Upthegrove, Roscigno, & Charles, 1999). While a vast amount of research has predominantly focused on the influence of individual factors on academic achievement and graduation rates, other studies have analyzed the influence of institutional factors on academic performance. These particular studies have predominantly focused on the different pressures placed on student-athletes to perform well both athletically and academically (Bowen & Levin, 2003; Eitzen, 2009; Harrison, Comeaux & Plecha, 2006; Maloney & McCormick, 1993; Meggyesy, 2000; Pope & Pope, 2009; Upthegrove, 1999; Upthegrove, Roscigno, & Charles, 1999).

Table 1.0

Individual & Institutional Factors Found to Influence Academic Success

Individual Factors	Institutional Factors
Sex (Female/Male)	Scholarships
Race	Commercialization of College Athletics
Physical Well-Being	Revenue Generating Sports
Emotional Well-Being	Pressure from Coaches
	Faculty Interactions
	Academic Support Services

Individual Factors

Past research has revealed differences in academic performance between male and female athletes. Female athletes have been found to academically outperform their male counterparts (Eckard, 2010; Harrison & Lawrence, 2004). For example, female student-athletes' graduation rates on average are about six percentage points more than male student-athlete graduation rates (Eckard, 2010). Rubin and Rooseer (2014) believe this may be due to female student-athletes being more intrinsically motivated to academically succeed than male student-athletes. Meyer (1990) argued that the lack of recognition for women sports may have contributed to female student-athletes being able to better balance academics with athletics. With a limited amount of professional athlete positions available for females after graduation, more female athletes may choose to place a greater emphasis on their academics during their college years (Harrison & Lawrence, 2004).

Race is another factor that has been found to influence academic success. According to the NCAA, African American football players enrolled at Division I institutions graduate at a twenty-two percent lower rate than their Caucasian football peers (NCAA, 2013). Upthegrove, Roscigno and Charles (1999) believe that many African American football players have had lower academic scores coming into institutions and have only been accepted due to their athletic scholarships. Researchers surmised family background can have a strong influence on the racial gap in academic achievement between Caucasian and African American male student-athletes (Kelly & Dixon, 2014; The Annie E. Casey Foundation, 2011). For instance, the Annie E. Casey Foundation (2011) reported that one out of every two African American children will live

in a household without securely employed parents and less than 15% of these African American children have a parent with at least a Bachelor's degree. Research has even shown that African American student-athletes, especially males, are the less prepared for college when compared with other student-athletes (Kelly & Dixon, 2014). Jenkins (2006) believes this may be due to the fact that many African American boys were born into highly disadvantaged situations that could have prevented or impacted their ability to receive a quality education.

In addition to gender and race, physical and emotional strains are other individual factors that have been found to greatly influence academic success. The physical demand and high emotions associated with being an athlete on a college athletic team can affect different aspects of a student-athletes' athletic, academic, and social life. The fear of being cut from the team or not being able to play because of an injury can stress student-athletes to the point where they are continually exhausted all the time (Fletcher et al., 2003). This level of exhaustion can then lead to student-athletes failing to complete class assignments on time, falling asleep in classes or even missing classes (Thomas, 2008). Some student-athletes may even start to experience burn out, a psychological syndrome which can be characterized by both emotional and physical exhaustion, as well as a decreased sense of accomplishment and motivation (Raedeke, 1997). This psychological syndrome can be brought on by chronic stress, as a result of perceived or actual differences between what athletes feel is expected of them physically, psychologically and socially (Gould &Whitley, 2009).

Institutional Factors

In addition to individual factors, institutional factors have been found to play a significant role in student-athlete academic performance. The commercialization of college athletics has led to the increased pressure being placed on student-athletes to focus more and more of their time and energy on athletics, rather than on their academic responsibilities (Eitzen, 2009). In an attempt to draw in more money and support for their athletic departments, college athletic programs have started to place more and more pressure particularly on the shoulders of their scholarship athletes (Meggyesy, 2000). The athletic success of collegiate student-athletes can help to shape an institution's reputation as well as help increase future students' interests to attend (Pope & Pope, 2009).

Pressure to increase an institution's reputation and attract future students has been found to have an even more significant effect on student-athletes in revenue generating sports, such as football and basketball, compared to student-athletes in nonrevenue generating sports (Maloney & McCormick, 1993; Upthegrove, Roscigno, & Charles, 1999). For example, Maloney and McCormick (1993) found that football and basketball peers did one tenth of a grade point worse than other athletes during each academic semester. Male and female student-athletes in non-revenue sports are believed to be more academically motivated to pursue a career outside of the athletic arena, due to the belief that student-athletes in non-revenue sports know that their athletic careers will over following graduation (Atwater, 2010). Moreover, students in revenue generating sports are constantly being faced with more competing academic and athletic pressures

then student-athletes in non-revenue sports; and as a result, many athletes in revenue generating sports have had to repeat classes or be put on academic probation (Upthegrove, Roscigno, & Charles, 1999).

Pressure from coaches is another institutional factor that has been found to affect a student-athlete's athletic and academic success. Collegiate coaches, especially those who coach revenue generating sports, are expected to create successful sports teams that can help increase the universities' reputation and bring in revenue (McCormick, 2010). Coaches who do not perform up to their university's standards can easily be fired and replaced, resulting with increased pressure on student-athletes to excel athletically. The pressure coaches' place on student-athletes can greatly affect their overall athletic performance as well as their academic success in the classroom (Gould & Whitley, 2009; McCormick, 2010; Upthegrove, Roscigno & Charles, 1999).

Upthegrove and colleagues (1999) argued that coaches can actually place athletes in contradictory situations where decisions regarding their academic and athletic commitments are constantly being put at odds. Scholarships have also been found to have a negative effect on student motivation; and student-athletes on scholarship were found to feel more pressure to focus on athletics over academics (Bowen & Levin, 2003; Kingston, Horrocks, & Hanton, 2006).

Faculty and academic staff interaction has also been found to be very important when predicting the academic success of college student-athletes (Comeaux & Harrison, 2007). While coaches help student-athletes stay challenged in their sports, good faculty interaction can allow student-athletes to stay driven and challenged within their

academics. Harrison, Comeaux, and Plecha (2006) emphasized how faculty members can make strong impacts on the academic success of their student-athletes when they help them achieve professional goals. Student-Athletes who have been strongly encouraged by faculty members to attend graduate school reported higher grade point averages. Comeaux and Harrison (2007) similarly emphasized how the academic success of both African American and White student-athletes in revenue generating sports were found by some extent dependent on the nature of their interactions with their faculty members.

In addition to faculty support, the availability of academic support and career development services for student-athletes can be very beneficial for increasing academic success (Dudley, Johnson, & Johnson, 1997; Ko et al., 2008; NCAA, 2005). The NCAA requires that in addition to providing student-athletes with the tools and resources to develop their athletic skills, university athletic departments must also provide student-athletes with access to both academic and career/life resources (NCAA, 2005). Academic resources may include: tutoring services, degree completion monitoring, writing tutorials, computer labs, academic advising, access to study hall facilities and peer mentoring. Resources under the career and life category may include: career resource centers, job-seeking training, workshops, leadership development and community outreach programs (Ko et al., 2008). One study conducted by an athletic department at a Midwestern University found freshman student-athletes to greatly benefit from participating in study hall hours and evening study group sessions. The student-athletes liked being provided with a learning environment where they could receive academic support from staff, work closely with other student-athletes, as well as have access to tutoring services and

computer facilities (Dudley, Johnson, & Johnson, 1997). A similar study found student-athletes at a Division I institution to have very positive perceptions regarding the quality of academic and career services provided to them by their university's athletic department (Ko et al., 2008). Student-athletes at this institution believed the academic support and career services available to them helped to provide them with the opportunity to: become better students, improve their grades, made degree progress, maintain academic eligibility, and improve chances of gaining career employment as well as help to better manage finances.

Statement of Problem

As noted in the previous sections, extant research has compared graduation rates and academic outcomes by student athletes' sex, race, in season versus out of season, scholarship versus non-scholarship athletes and student-athletes in revenue versus non-revenue generating sports (Forster, 2012; Gould & Whitley, 2009; Maloney & McCormick, 1993; Rubin et al., 2014; Scott, Paskus, Miranda, Petr, & McArdle, 2008; Upthegrove, Roscigno & Charles, 1999). Individual characteristics have a very influential effect on academic outcomes, but from a practical standpoint once an athlete is recruited, it is difficult and impractical to try to change or control the influence of personal characteristics (e.g., race and sex) on student-athlete academic success. Institutional characteristics, once identified, can be more easily controlled or changed; but to date, little research has been done to empirically test the effect of institutional factors on academic outcomes.

The amount of money an athletic department places toward athletic spending could potentially affect or influence the academic success of their student-athletes. The past few years the NCAA has released many reports that have analyzed athletic spending (which includes all athletic operating expenses averaged on a per athlete basis) and revenue trends for Division I and II intercollegiate athletic programs (Fulks, 2012a; Fulks, 2012b). These reports, however, have not discussed how athletic spending could affect student-athlete success. Academic spending (the total spending for instruction, student services, and shared overhead costs for academic, institutional, and operations support averaged per full-time student-athlete) has also not been included or analyzed in these reports (Desrochers, 2013).

Moreover, little research has been done to determine whether there are differences in academic success of student-athletes between athletic divisions (Forster, 2012; Fulks, 2012a; Fulks, 2012b; NCAA, 2014b). Past research has focused predominantly on the academic performance of student-athletes in Division I institutions. These studies have not seemed to focus individually on the academic success of student-athletes at Division II institutions or compared the academic success of student-athletes between divisions (I, II and III). This comparison is important because NCAA Division I, II and III athletic programs are operated very differently (Forster, 2012; Fulks, 2012a; Fulks, 2012b; NCAA, 2014b). Division I institutions are considered to be the big league of college athletics (driven by money). The athletic departments at these institutions are heavily funded; provide the most scholarships for student-athletes (especially to those in revenue generating sports) as well as tend to cater more toward the athlete aspect of the student-

athlete (NCAA, 2014b). Division II institutions on the other hand, are not as heavily funded as Division I institutions and scholarships are not as abundant. Division II institutions tend to focus more on balancing both the athlete and student aspect of being a college student-athlete (NCAA, 2014a). Division III institutions focus primarily on the student aspect of being a student-athlete. Division III schools do not offer any athletic scholarships and their athletic departments are staffed and funded like any other department on the campus (NCAA, 2014a).

Purpose

The purpose of this retrospective study was to examine the relationship between athletic spending, athletically related student aid and the academic success of student-athletes at Division I (I-A and I-AA) and Division II Institutions with football programs. Institutional characteristics included Division I and II public and private institutions, as well as athletic spending and athletically related student aid trends for each athletic department. Academic success was measured by the Division I Academic Progress Rate (APR) and Graduation Success Rate (GSR) as well as Division II Academic Success Rate (ASR) and Federal Graduation Rate (FGR) data found on the NCAA website. APR is a metric used to track yearly academic performance of Division I athletic teams; whereas, ASR, GSR and FGR are all metrics used to measure graduation outcomes for Division I and II athletic teams.

Research Question and Hypotheses

Using Astin's (1999) resource theory of pedagogy, this research study's goal is to increase knowledge of how institutional factors can directly affect the academic success

of student-athletes. Specifically, the proposed study seeks to address the following hypotheses:

Hypothesis 1: Student-Athlete FGR will be higher than Non-Student Athlete FGR.

Hypothesis 2: There will be a positive relationship between athletic spending, financial aid and athlete FGR for NCAA Division I and II institutions.

Hypothesis 3: There will be a positive relationship between athletic spending, financial aid and institutional APR for NCAA Division I institutions.

Hypothesis 4: There will be a positive relationship between athletic spending, financial aid and institutional GSR for NCAA Division I institutions.

Hypothesis 5: There will be a positive relationship between athletic spending, financial aid and institutional ASR for NCAA Division II institutions.

Hypothesis 6: The relationship between athletic spending trends and athlete federal graduation rate will be moderated by (a) NCAA Division, (b) type of institution (private/public), and (c) type of sport (revenue/non-revenue).

Study Significance

The current study seeks to broaden our understanding of the influence of institutional factors on the academic achievement and graduation rates of Division I and II student-athletes. Gaining further knowledge of this subject could help collegiate athletic departments to better understand what particular factors or variables could either help or hinder the academic success of student-athletes within each division. The lack of

information on the relationship between athletic spending and athletically related student aid trends and student-athlete success is regrettable because it is the sort of knowledge that athletic administrators need in order to fully understand the different institutional factors that prevent student-athletes from academically succeeding within their institutions.

Delimitations

The study will be delimited in its findings in the following ways

1. Division III institutions (NCAA, 2014a) will not be included in this study as they are not required to report student-athlete graduation rates since student-athletes at Division III institutions tend to not receive athletic based scholarships.

Outline of Proposal

My main goal in Chapter 1 was to both review past literature that has analyzed the influence of individual and institutional factors on the academic performance of college student-athletes as well as to address how little research has been done to determine whether there are differences in academic success of student-athletes between athletic divisions. Moreover, the problem statement, purpose of the study, research questions, and significance of the study were included in this chapter.

Chapter 2 contains information about the theoretical framework that guides this research.

Chapter 3 goes into greater depth on how institutional factors directly affect the academic success of student-athletes, by discussing how type of institution (Division I, II and III), level of funding (amount of money spent on athletic spending and athletically

related student aid), type of sport (i.e., revenue and non-revenue), and sex (female and male) impact the amount of resources available to college student-athletes. More specifically, Chapter 3 addresses the link between funding and resources and how when combined can lead student-athletes to achieve greater academic success (more funding + more resources = higher academic success).

Chapter 4 provides detailed information on the research design, population and sample, independent and dependent variables that were measured as well as how data were collected and analyzed.

Chapter 5 discusses the methodologies that were used to achieve the desired analysis of the effect of institutional factors on the academic success of Division I and II student-athletes.

Chapter 6 summarizes each hypothesis, discusses the findings and conclusions that can be established from these findings, as well as discusses further research opportunities on the subject.

CHAPTER TWO: THEORETICAL FRAMEWORK

In formulation of a theoretical perspective for studying the influence of institutional factors on the academic performance of college student-athletes, pedagogical theory provides a useful model. Pedagogy can be defined as the science and art of teaching (Cochran, 1993). While there are a variety of different types and variations of pedagogical theories, the primary goal of any pedagogical theory is to promote and develop student learning (which can lead to positive student development outcomes). Having a general understanding of pedagogical theories can help coaches, administrators and teachers learn how to best serve and accommodate the academic needs of their student-athletes. The three main pedagogical theories of student learning and development include: subject matter, individualized and resource theory.

Subject Matter Theory

Subject matter theory of pedagogy focuses on how different subjects have different practices for how they are best taught (Astin, 1999). Under this theory, a student's learning and development depends primarily on their level of exposure to the right subject matter (Astin, 1999). With this theory, coaches, administrators and teachers use specific methods or practices to teach certain subjects. A disadvantage of this theory can be that there is always a fixed set of requirements on how to teach a particular subject. Teaching methods or practices will never be altered to fit the individual needs of each student-athlete. Students are forced to focus their attention on the strict requirements of assessments (memorizing ideas and facts), rather than developing their problem solving or analytic skills (Ramsden, 1997).

Cochran (1993), state that many inexperienced teachers have a tendency to stick with unmodified subject matter knowledge, and teach their courses directly from curriculum materials or text. These novice teachers also seem to make broad teaching decisions (without thinking about student ability level, prior knowledge or learning abilities) as well as struggle with how to present course content in a way that makes sense to the specific group of students they are teaching (Carpenter, 1988). Byrne (1983) stresses that while it may be important for teachers to have subject matter knowledge, they can actually have a stronger effect on their student's learning when they combine the knowledge they have in the subject they teach, with relevant pedagogical strategies for how to teach a specific group of students.

Individualized Theory

The individualized theory of pedagogy has a far different approach from subject matter theory. This theory states that there is no single approach to teaching a subject (Astin, 1999). The theory focuses on the idea that because all students do not learn the same way, different teaching methods should be used in order to properly address the needs of each individual student. While this theory may sound highly appealing, it can be very difficult to put into place. Due to the variety of different teaching approaches that can be used to teach a particular subject, it can be hard to determine the exact effectiveness of individualized theory (Astin, 1999).

In an attempt to utilize this individualized learning model, many colleges and universities have extended their "traditional four-year bachelor's degree programs to include both education and coursework combined with clinical experiences (Darling-

Hammond, 2008). Dewey (1929) believes these programs have provided teachers the opportunity to gain a greater understanding of how to better deal with complex situations rather than trying to control them with generic cookie-cutter routines.

Students with learning disabilities are one population of college students who can greatly benefit from a more individualized method/form of learning. The N4A Committee on Learning Disabilities (1998) found that student-athletes with learning disabilities made up 2.7% of the total population of college student-athletes. Learning disabilities can range from being mild with little impact on a student's life to severe and providing greater challenges for completing normal everyday life tasks. Learning disabilities tend to not fit easily under a fixed design (Gerber & Reiff, 1991). Many students with disabilities may need to be taught in a more individualized way in order to allow them the opportunity to use their abilities to compensate for their weaknesses. (Learning Disabilities Association of California, 2015)

Racial and ethnic minority students can also greatly benefit from more differentiated instructional practice because it allows them the opportunity to be taught in ways that are geared toward their readiness levels, interests and learning profiles (Moore, & Hansen, 2012). Teachers and educators must be willing to make small changes in their teaching styles in order to continually engage to a diverse population of students. Having strict requirements for how to teach a class may cause teachers to neglect to include multicultural perspectives into their class assignments and discussions (Harper & Quaye, 2007). Teachers who continually incorporate new approaches to cross-cultural learning in their classrooms can increase overall student engagement as well as provide their

students with the opportunity to interact and learn from their own diverse peers (Harper & Antonio, 2008).

Resource Theory

The resource theory of pedagogy addresses student learning and development from a different angle then both subject matter and individual theory of pedagogy. Subject matter and individual theory addressed student learning and development from different teaching approaches (such as fixed or individual ways of teaching). Resource theory on the other hand, addresses the variety of resources that are available for students to help them increase their overall learning and development (Astin, 1999).

Student engagement can be very important for student success. Institutions can enhance student learning and development when they provide settings that allow students to have easy access to academic, personal and social support resources (Kuh, 2005). The availability of academic support resources such as: academic advising, tutoring, writing centers, study groups and other academic support centers (e.g., computer lab, math lab, library reference desk) can play a large role in determining whether or not some students will be able to return to an institution in the following semester (Kuh, 2005; Tinto, 2005). Personal and social support services such as; financial services, career service centers, counseling, mentoring and ethnic student centers can all provide needed support for many individual students (e.g., freshman, transfers, minority students) (Kuh, 2005; Tinto, 2005).

The theory of pedagogy can be used to promote and develop student learning. The three theories of pedagogy discussed above each address different approaches that can be

implemented to create positive student development outcomes. While subject matter and individual theory address student learning and development from fixed or individual ways of teaching, resource theory focuses more on addressing the variety of different resources that are available to students to help them increase their overall learning and development. The current study will use the resource theory of pedagogy in order to gain a better understanding of how institutional factors can directly affect the academic success of college student-athletes.

Student-Athlete Resources.

While college student-athletes have access to all the resources available to normal college students, they also have access to certain resources that are not available to their college peers. Some of these resources may include: physical facilities (student athlete study hall, libraries), human resources (trained athletic department employees, councilors, tutors, psychologists), and fiscal resources (financial aid, scholarships). Some universities also provide student-athletes access to their own separate academic, career and personal development resources. Academic resources may include: tutoring services, degree completion monitoring, writing tutorials, computer labs, academic advising, access to study hall facilities and peer mentoring. Career and personal development resources may include: career resource centers, job-seeking training, workshops, leadership development and community outreach programs). Many researchers believe that the availability of these academic support and career development resources for college student-athletes can lead to increased academic success (Dudley, Johnson, & Johnson, 1997; Ko et al., 2008; NCAA, 2005).

In addition to providing student-athletes with academic support and career development resources, the NCAA Life Skills program (a student athlete development program), was created by the National Collegiate Athletic Association (and the help of 1,200 member institutions) with the goal of preparing all collegiate student athletes with the "life skills" needed to succeed both during college and after graduation (NCAA, 2014b). The initiative aims at helping student athletes achieve a balanced life between academic achievement, athletic success and personal well-being (the three core values of the program) by providing them with both the added support and resources they need to better succeed (NCAA, 2014b).

The effectiveness of all learning and development resources (Clark & Parette, 2002) available to student-athletes has primarily been evaluated through student satisfaction with services and student outcomes (GPA, progress reports, graduation rates). Freshman student athletes from a Midwestern university found their athletic department's study hall facility to be most helpful and beneficial to their college education because it provided them with a place to complete school work, access to both tutoring services and computer facilities as well as access to staff members who provided them with both academic and personal support (Dudley & Johnson, 1997). Research shows that when a enough of these resources are brought together in one location, student learning and development occurs (Astin, 1999).

CHAPTER THREE: LITERATURE REVIEW

As noted in the previous section, when a variety of different institutional resources, such as academic, career, personal and social support, are both available and easily accessible to student-athletes, increased academic success can occur. While college student-athletes have access to resources available to non-athletes and to certain resources that are not available to their college peers, certain college student-athletes have more access to resources then other college student-athletes. The availability of resources for student-athletes is impacted by the following factors: the NCAA Division (I, II and III) and type of institution (i.e., public and private) the athlete competes in, level of funding to the athletic program, type of sport (i.e., revenue and non-revenue) the athlete participates in, as well as the athletes' sex. An illustrative summary of the predictions is presented in Figure 1. The following sections will present the hypotheses and go into more detail on how these factors impact the amount of resources available to college student-athletes.

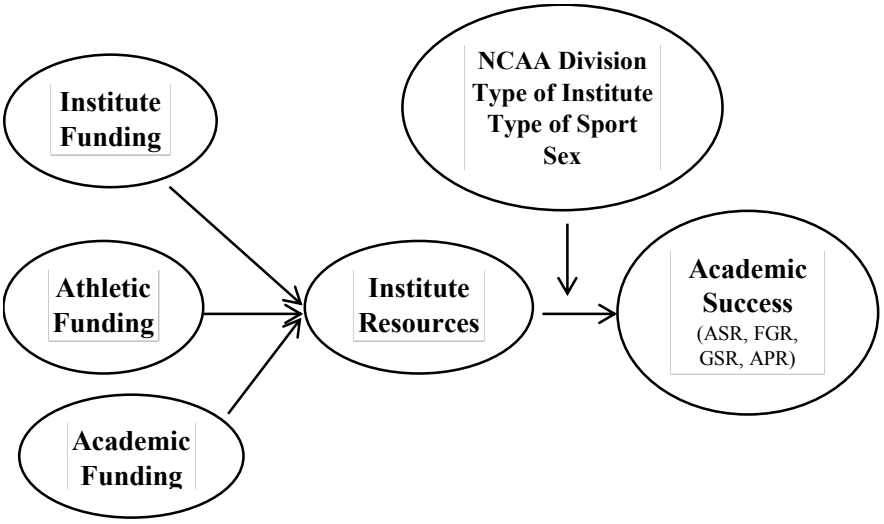

Figure 1. Illustrative summary of the hypotheses

NCAA and Divisional Differences

The National Collegiate Athletic Association (NCAA) regulates and enforces rules governing eligibility, sportsmanship and play for student athletes enrolled in Division I, II and III institutions (NCAA, 2014a). Together the three divisions make up a total of 1, 097 institutions (347 Division I, 300 Division II and 450 Division III). Out of the three NCAA divisions, Division I institutions have the largest student bodies and athletic budgets. More athletic scholarships tend to be available for student-athletes competing at the Division I level. Division II institutions tend to focus more on balancing academic and athletic success with campus and community involvement. A limited amount of financial resources are available for Division II athletic programs. Division III institutions make up the largest NCAA division with the most athletes and number of schools participating. While their student-athletes are given the opportunity to be compete competitively in an athletic environment, their primary focus is academics. Student athletes enrolled at Division III institutions tend to have reduced practice schedules in order to allow them to focus first on being *students* before *athletes* (NCAA, 2014a). While Division I and II institutions award athletic-based scholarships, Division III institutions tend to have small budgets that do not allow them the opportunity to award athletic-based scholarships (Draper, 1996).

Measures of Academic Excellence. While all three NCAA divisions have very different standards and rules for how they govern, all NCAA divisions emphasize academic excellence (NCAA, 2014b). The Academic Progress Rate (APR) is a metric that was created by the NCAA in 2003, with the hopes of improving the academic

success of Division I student-athletes. Specifically, the metric was implemented for the following three reasons: to increase Division I academic standards, to be a better measurement for academic success and to create consequences for poor performance based on the APR standards (NCAA, 2014a). Under the APR, all Division I institutions are accountable for the academic progress of their student-athletes through a team-based metric that accounts for the eligibility and retention of each student-athlete for each academic term. In order to create consistency across the measurements of all institutions, only student-athletes on athletically related financial aid are included in this metric.

Prior to 2015, teams had to earn a 930 four-year average APR or a 940 average over the most recent two years to participate in NCAA championships. In 2015-16 and beyond, teams must earn a four-year APR of 930 to compete in championships. Teams that continue to under-perform academically over time are subject to different levels of penalties (NCAA, 2014a). Penalties may include:

- With a level one penalty, a team is limited to 16 hours of practice per week over five days (as opposed to 20 over six days), with the remaining last four hours to be replaced with academic activities.
- A second level penalty adds additional practice and competition reductions (in the traditional or non-championship season), to the first-level penalties already given.
- The third level penalties include a variety of different possible penalties (coaching suspensions, financial aid reductions and restricted NCAA membership). A team would remain in this level until their rates are improved.

- Teams who fall below the benchmark for three consecutive years are then given addition penalties by the Division I Committee on Academics (which oversees Division I's academic Infrastructure).

In addition to APR, each academic year the NCAA also collects and reports graduation success rates for all three divisions (NCAA, 2014a). The Graduate Success Rate (GSR) is an academic performance metric that looks at the graduation success rates of all Division I athletic teams and student-athletes on scholarship. The GSR, was implemented at the request of many universities and institutions who believed the federal graduation rate was not an accurate measure for depicting college student-athlete graduation rates (NCAA, 2014a). The federal graduation rate only includes first-time, full time fall freshman. Under the federal graduation rate, the student-athlete graduation rate calculation only includes student-athletes who receive athletic related aid in their freshman year of college. The GSR, on the other hand, tracks graduation over six years and takes into account student-athletes who transfer in/out, enroll mid-year (which is not included in the Federal calculation) as well as includes non-scholarships athletes at Division I institutions that do not offer athletic scholarships (NCAA, 2014a).

GSR results are based on a six year cohort of scholarship student-athletes who graduated versus student-athletes on scholarship who did not graduate (NCAA, 2014a). The metric was designed to show the proportion of student athletes on an athletic team who graduated as well as the proportion of student athletes who graduated from all sports combined within a particular Division I institution (NCAA, 2008). The GSR calculation includes: transfer student athletes (in/out of institution), mid-year enrollees as well as

non-scholarship athletes at Division I institutions that do not offer athletic scholarships. Athletes who leave the university in poor academic standing are considered to be non-graduates while student-athletes who leave in good academic standing are passed from one schools cohort to another schools cohort (NCAA, 2014).

A similar academic performance metric, Academic Success Rate (ASR) is used to determine graduation success rates of student-athletes enrolled at Division II institutions. While, these results are also based on a six-year cohort, the primary difference between the Division I GSR and Division II ASR metrics are: (1.) All non-scholarship freshmen ("walk-ons") are included in the ASR metric; and (2.) Whether or not the school offers athletic related aid does not matter in the ASR metric (NCAA, 2014a). The ASR calculation includes: all student-athletes who enrolled full time for the first time during the requested academic year, including those on scholarship, non-scholarship, transfers as well as those who enrolled in January.

As aforementioned, some college student-athletes have more academic resources available to them then both non-student-athletes and other student-athletes. The size of an institution's budget can have a large impact on the amount of resources an institution is able to provide. During the 2014-2015 academic school year, the NCAA's allocation to Division I institutions totaled $512,031,000; whereas, the 2014-2015 Division II budget was $37.2 million. Out of these totals, the Division I budget allocates approximately 20 million more dollars for their Academic Enhancement Fund then the Division II budget, $26,920,000 and $5,900,000 respectively. The Academic Enhancement Fund is intended to be used to enhance the academic support programs and services available for student-

athletes. The fund can be used toward tutorial services, equipment (computers, lap tops), academic supplies as well as for other academic resources. Ultimately, the more funding an institution has (ie academic, athletic and institutional) the more academic resources they can offer their student-athletes to help them achieve greater academic success (ASR, GSR, APR). According, the following hypotheses are proposed:

Hypothesis 1: Student-Athlete FGR will be higher than Non-Student Athlete FGR.

Hypothesis 2: There will be a positive relationship between athletic spending, financial aid and athlete FGR for NCAA Division I and II institutions

Hypothesis 3: There will be a positive relationship between (a) athletic spending and (b) financial aid for NCAA Division I institutions and the institutional APR.

Student-Athlete Resources and Finances. Under the NCAA, Division I and II athletic programs are operated very differently. Division I institutions are considered to be the big league of college athletics and are highly driven by money (Fulks, 2012a). The athletic departments at most of these institutions are heavily funded; provide the most scholarships for student-athletes (especially to those in revenue generating sports) as well as tend to cater more toward the athlete aspect of the student-athlete (NCAA, 2014b). Division II institutions on the other hand, are not as heavily funded as Division I institutions and scholarships are not as abundant (Fulks, 2014b). Division II institutions tend to focus more on balancing both the athlete and student aspect of being a college

student-athlete (NCAA, 2014b). As shown in the table below, in 2011 the median expense per athlete at Division I institutions were significantly higher than the median expense per athlete at Division II institutions (Fulks, 2012a).

Table 2.0

2011 Division I and II Highlights

Division I Highlights	Division II Highlights
Average Number of Student-Athletes In FBS = 616 In FCS = 505	Average Number of Student-Athletes in Universities with Football = 409
Average Number of Student-Athletes in Universities with No Football = 356	Average Number of Student-Athletes in Universities with No Football = 251
Median Expense Per Student-Athlete In FBS = 97,000 In FCS = 37,000	Median Expense Per Student-Athlete in Universities with Football = 12,400
Median Expense Per Student-Athlete in Universities with No Football = 44,000	Median Expense Per Student-Athlete in Universities with No Football = 14,500

When comparing trends in academic success rates between Division I and II institutions, data from two separate 2003-2006 cohorts show Division I student-athletes graduate at a higher rate than their student-athlete peers at Division II institutions (NCAA, 2013; NCAA, 2014a). The average overall Division I graduation rate is 81% while the average overall graduation rate of student-athletes at Division II institutions is

71%. Female student-athletes at Division I institutions graduate on average at 88%, while female student-athletes at Division II student-athletes graduate at a rate of 82%. An even larger gap can be seen between Division I and II male student-athletes with Division II male student-athletes only graduating at a 63% rate, while Division II males graduate at a 75% rate (NCAA, 2013; NCAA, 2014a). The results above show that Division I institutions not only spend more money on their student-athletes, but that Division I student-athletes graduate at a higher rate than Division II student-athletes (Fulks, 2012a; NCAA, 2013; NCAA, 2014a). As a result of these findings, the following hypotheses are advanced:

Hypothesis 4: There will be a positive relationship between (a) athletic spending, and (b) financial aid for NCAA Division I institutions and the institutional GSR.

Hypothesis 5: There will be a positive relationship between (a) athletic spending and (b) financial aid for NCAA Division II institutions and the institutional ASR.

Effect of Sport Type on Academic Outcomes

Division I and II institutions have revenue (men's football and basketball) and non-revenue generating sports. Students on scholarship, particularly those in revenue generating sports, are constantly being faced with the pressure to succeed and bring in revenue for their universities (Upthegrove et al., 1999). Low grades and graduation rates seem to be most prevalent in these types of athletic programs (Upthegrove, 1999). As an example, when looking at data from 2003-2006 cohorts, Division I FBS programs were found to have a 70% GSR average, while Division II football programs were found to

have a 53% ASR average (NCAA, 2013; NCAA, 2014b). The GSR average for men's Division I basketball was 70%, while the ASR average for men's Division II basketball was 58%. While both Division I football and men's basketball graduation rates are higher than the graduation rates of Division II football and men's basketball programs, the graduation rates of student-athletes in non-revenue generating sports are still higher. For example, the GSR average for Division I track student-athletes is 76% for males and 85% for females, while the ASR average for Division II track student-athletes is 70% for males and 81% for females.

When assessing sex differences, the mean expense per athlete in male and female division I FBS programs was $67,000 in male programs and $30,000 in women's programs. Even though more money is placed toward men's Division I athletic programs, Division I female student-athletes still graduate at a higher rate than Division I male student-athletes in both revenue and non-revenue generating sports. The GSR average for Division I basketball was 70% for males and 85% for females. The average 4 year APR score for Division I basketball was 961 for males and 975 for females. The GSR average for Division I volleyball was 82% for males and 89% for females, while the average four year APR score for volleyball was 984 for males and 983 for females. These results show the following: (1.) division I institutions spend more money on their student-athletes then division II institution (2.) female student-athletes graduate at a higher rate than male student-athletes, (3.) division I student-athletes graduate at a higher rate than Division II student-athletes, and (4.) student-athletes in non-revenue generating sports graduate at a

higher rate than student-athletes in revenue-generating sports. Accordingly it is predicted that:

> Hypothesis 6: The relationship between athletic spending trends and athlete federal graduation rate will be moderated by (a) NCAA Division, (b) type of institution (private/public), and (c) type of sport (revenue/non-revenue).

Organization Seeking Academic Reform

The NCAA is not the only organization that has implemented programs to increase student-athlete success. The Knight Commission on Intercollegiate Athletics was founded in 1989 by the John S. and James L. Knight Foundation (Knight Commission, 2014). The founders of the organization believed the increasing rise of commercialization of intercollegiate athletics was starting to threaten the underlying goals of higher education. Since the year it was founded in 1989, the organization has worked to ensure all American collegiate athletic programs operate within the educational missions of their institutions (Knight Commission, 2014). While the organization has no connection to the NCAA, the commission's work has had great influence within college sports as a whole, and over the years the NCAA has adapted many of the commission's recommendations (relating to strengthening academic standards). Recently the Knight Commission (2013) released a free online athletic and academic spending database that allows users to compare athletic and academic spending trends for NCAA Division I institutions, conferences and divisions. The goal of the database is to improve the accountability of spending within Division I collegiate athletics programs. The database can be used to

compare trends in academic and athletic spending between multiple institutions. The three main variables that can be used as metrics of comparison in this database include: academic spending, athletic spending and football spending. Institutions selected for comparisons can be chosen by NCAA Division I subdivision, athletic conference, region or state, or Camegie classification.

CHAPTER FOUR: METHODS

Research Design Plan

A correlational research design was used to thoroughly examine relationships between academic success rate (academic performance and graduation rates) and institutional factors (divisions, athletically related student aid and athletic spending trends). Data was collected through the APR, ASR, GSR and FGR databases located on the NCAA website. In addition to using the databases located on the NCAA website, the Knight Commission on Intercollegiate Athletics and the Equity in Athletics Disclosure Act (EADA) databases were also used to analyze data. The Knight Commission database was used to compare athletic spending trends for NCAA Division I Public Institutions (NCAA I-A and NCAA I-AA). The EADA database was used to collect data on athletically related student aid (including: total financial aid, female team athletic student aid and male team athletic student aid). Athletic spending data on private and public Division II institutions as well as private Division I institutions were also collected from the EADA database.

Analyzing data from the NCAA, Knight Commission on Intercollegiate Athletics and EADA databases can help to provide a broader understanding of the influence of a variety of different institutional factors on the academic achievement and graduation rates of Division I and II student-athletes. The decision to analyze data from these databases was made because they can provide an unlimited amount of valid information that is readily available as well as free for all to obtain.

Population and Sample

The population studied was student-athletes from both Division I institutions (NCAA I-A and I-AA) and Division II institutions (with football programs). A total of 398 institutions (122 Division I-A, 116 Division I-AA and 160 Division II) were analyzed in this study.

Data Collection

The data collected for this study directly came from secondary data found on the official NCAA website, Knight Commission on Intercollegiate Athletics database and EADA database. Specifically, academic performance and graduation rate data for this study were collected through the NCAA's APR, ASR, GSR, FGR databases. The Knight Commission on Intercollegiate Athletics database was used to collect data on the athletic spending per athlete at Public Division I institutions. Athletic spending data on private and public Division II institutions and private Division I institutions were collected from the EADA database. The NCAA and Knights Commission on Intercollegiate Athletics and EADA are all well-known and respected organizations. These organization databases were chosen due to the convenience and abundance of free data available on web.

Measures

Academic Progress Rate. To calculate the APR each scholarship student-athlete earns one point for staying in school and one point for being academically eligible. A team's total points are divided by points possible and then multiplied by 1,000 to equal the team's Academic Progress Rate. To determine accountability, a team's rolling four-year APR is also used in addition to their current team APR (NCAA, 2014a). On the

NCAA website the most updated information on APR for some Division I institutions may be from 2006 (not all sports teams will have data from the same year).

Graduation Success Rate. To calculate graduation success rate, the number of first year participants and transfers who graduate are added together. Next, the total number of first year participants and transfer graduates and non-graduates are added together. Then the final GSR rate is calculated by dividing the number of total graduates by the total number of student-athletes. Student-athletes who depart a school while in good academic standing are passed from that school's cohort to another school's cohort (while the federal rate considers these student-athletes as non-graduates). Student-athletes who depart in poor academic standing (and are not on-track to graduate in 5 years or less) are considered non-graduates by both the Federal rate and the GSR (NCAA, 2014a). On the NCAA website the most updated information on GSR for some Division I institutions may be from 2006 (not all sports teams will have data from the same year).

Academic Success Rate. The Division II ASR is calculated as follows: Student-Athletes who graduated within six years of entering college receive 1 point (NCAA, 2014a). Student-Athletes who did not graduate within six years of entering but continued at the institution receive 0/1 points. Allowable exclusion for student-athletes is 0/0 points. Student-Athletes who separated from an institution before six years of entering and were not academically eligible if they returned receive 0/1 points. Student-Athletes who separated from an institution before six years of entering and remained academically eligible when they returned received 0/0 points. Student-Athletes who separated from an institution after exhausting eligibility to compete regardless of their

academic eligibility status received 0/1 points (NCAA, 2014). On the NCAA website the most updated information on ASR for some Division II institutions may be from 2006 (not all sports teams will have data from the same year).

Federal Graduation Rate. The Federal Graduate Rate (FGR) is a federally mandated calculation for all schools that offer athletic scholarships. To calculate federal graduation rate, the number of first year participants who graduate are added together. Next, the total number of first year participants and non-graduates are added together. Then the final FGR rate is calculated by dividing the number of total graduates by the total number of student-athletes. Unlike the GSR, the FGR counts all transfers as academic failures and measures the percentage of students who complete an undergraduate degree from their initial school within six years. On the NCAA website, the most updated information on FGR for some Division I and II institutions was from 2006 (not all institutions had data from the same year).

Athletic Spending per Athlete. The amount of money spent per athlete can be defined as the total athletic operating expenses, including; scholarship (athletically-related student aid, including tuition and fees, room and board, books, summer school, tuition discounts, waivers or aid given to student-athletes), costs per unduplicated athlete (all scholarship or non-scholarship students listed as a participant on a varsity team as of the first scheduled contest, with multi-sport athletes counted only once) (Desrochers, 2013). All athletic spending data represents spending on intercollegiate athletics and does not include data on intramural or club sports (Desrochers, 2013). Athletic Spending per Athlete can be calculated by using the following formula: Grand Total Operating

Expenses ÷ Total Number of Athletes = Athletic Spending per Athlete. On the Knight Commission on Intercollegiate Athletics website (2014), the most updated information for public Division I institutions is from 2013.

Athletically Related Student Aid. The amount of athletically related student aid can be defined as any scholarship, grant, or other form of financial assistance, offered by an institution, the terms of which require the recipient to participate in a program of intercollegiate athletics at the institution (EADA, 2015). On the EADA website, the most updated information on athletically related student aid for public and private Division I and II institutions is from 2013.

Revenue and Non-Revenue Generating Sports are two other measures that were used in this study. Revenue generating sports included: men's football and men's basketball. Non-revenue generating sports included: women's basketball, men and women's track teams and women's volleyball. While the vast majority of women's programs do not generate revenue, some women's basketball programs generate revenue at a few institutions. For the purpose of this investigation, women's basketball was considered a non-revenue generating sport regardless of institution. For each academic measure (APR, ASR, GSR and FGR) analyzed in this study, the overall scores for women at an institution were calculated by all women team scores (basketball, track and volleyball) added together divided by the total number of women's teams at the institution (example: Basketball APR + Track APR + Volleyball APR ÷ 3 = Average Women APR). Overall scores for men at an institution were calculated by all men team scores (basketball, football, track) added together divided by the total number of men's

teams at the institution. Overall average scores for academic measures at an institution were calculated by all men and women team scores added together divided by total number of men and women teams combined. Average revenue or non-revenue scores for an academic measure were calculated by all revenue (men's basketball, football) or non-revenue (women's basketball, women's volleyball, women's track and men's track) scores added together divided by the total number of revenue or non-revenue teams at the institution.

Data Analysis

The computer software SPSS was used to perform data entry and analysis as well as to create tables. The continuous variables analyzed in this study included: athletic spending and athletically related student aid trends and scores (APR, ASR, GSR and FGR). The categorical variables in this study included: divisions (Division I and II), type of institution (private and public) and type of sport (revenue and non-revenue sports). For hypothesis 1, a paired sample t-test was conducted to determine whether the mean FGR for student- athletes was significantly different from the mean FGR for non-athletes. A paired sample t-test can be used when a study has matched pairs of participants (i.e. each person is matched with another on specific criteria). In this study, athletes and non-athletes would be matched based on institution. One of the pair would be exposed to Intervention 1, while the other pair would be exposed to Intervention 2. Scores on a continuous measure would then be compared for each pair (Pallant, 2000). After conducting a paired sample t-test, three separate bivariate correlations were then conducted to determine if there were positive relationships between: (a) athletic spending,

financial aid and institutional APR for NCAA Division I institutions; (b) athletic spending, financial aid and institutional GSR for NCAA Division I institutions; (c) athletic spending, financial aid and institutional ASR for NCAA Division II institutions and (d) athletic spending, financial aid and athlete FGR for NCAA Division I and II institutions (hypothesis 2, 3, 4 and 5). Lastly, a moderating regression test was conducted in order to analyze whether relationships could be found between athletic spending trends and athlete federal graduation rate when moderated by (a) NCAA Division, (b) type of institution (private/public), and (c) type of sport (revenue/non-revenue) (hypotheses 6).

CHAPTER FIVE: DATA FINDINGS

This chapter will discuss the results obtained from the secondary data analysis of a very unique database created from the NCAA, Knight Commission on Intercollegiate Athletics, and the EADA databases. The 238 institutions that were used for analysis in this study were listed with each sports academic measure score, non-revenue sport average academic score, average women academic measure score, average men academic measure score, revenue sport average academic score, non-revenue average academic score, overall institutional academic measure score and average athletic spending per athlete and athletic financial aid. Multicollinearity tests were conducted between the independent variables: athletic spending and financial aid. As noted in Table 4.1, athletic spending was strongly correlated, with total financial aid per athlete *(Tolerance = .090; VIF = 11.145)*. A tolerance level is considered to be high when the tolerance value is very small (less than .10). VIF values above 10 indicate concern for multicollinearity (Pallant, 2000). Hence, a decision was made to drop the financial aid variable from this study.

Table 4.1

Collinearity Statistics for Athletic Student Aid

	Tolerance	VIF
Women's Athletic Student Aid	.090	11.145
Men's Athletic Student Aid	.090	11.145

Note. Dependent Variable: Athletic Spending per Athlete

Hypothesis 1: Student-Athlete FGR will be higher than Non-Student Athlete FGR.

A paired sample t-test was conducted to evaluate the difference in college student-athlete and non-athlete FGR for private and public institutions. There was a significant difference between FGR scores for student-athletes (*M = 63.59* and *SD = 7.244)* and non-student-athletes (*M* = 61.94 and *SD* = 15.305); t (101) = 1.405, p = .000, two tailed) at public Division I-A institutions. The mean difference in FGR scores between student-athlete FGR and non-student athlete FGR was 1.647 with a 95% confidence interval ranging from -.678 to 3.972. The eta squared statistic (.019) indicated a small effect size (Pallant, 2000).

There was a significant difference between FGR scores for student-athletes (*M* = 55.79 and *SD = 12.163)* and non-student-athletes (*M* = 47.49 and *SD* = 15.571); t (72) = 5.976, p = .000, two tailed) at public Division I-AA institutions. The mean difference in FGR scores between student-athlete FGR and non-student athlete FGR was 8.301 with a 95% confidence interval ranging from 5.532 to 11.071.The eta squared statistic (.018) indicated a small effect size (Pallant, 2014).

There was a statistical difference between FGR scores for student-athletes (*M* = 51.09 and SD = 12.761) and non-student-athletes (*M* = 42.19 and SD = 12.229); t (100) = 1.031, p = .000, two tailed) at public Division II institutions. The mean difference in FGR scores between student-athlete FGR and non-student athlete FGR was 8.901 with a 95% confidence interval ranging from 7.255 to 10.547. The eta squared statistic (.02) indicated a small effect size (Pallant, 2014).

There was a statistical difference between FGR scores for student-athletes (M = 71.900 and SD = 14.797) and non-student-athletes (*M* = 81.00 and *SD* = 12.612); t (19) = -4.920, *p* = .000, two tailed) at private Division I-A institutions. The mean difference in FGR scores between student-athlete FGR and non-student athlete FGR was -9.100 with a 95% confidence interval ranging from -12.971 to -5.229. The eta squared statistic (.35) indicated a large effect size (Pallant, 2014).

There was a statistical difference between FGR scores for student-athletes (M = 55.79 and SD = 12.163) and non-student-athletes (*M* = 71.91 and *SD* =16.356); t (32) = 1.005, p = .322, two tailed) at private Division I-AA institutions. The mean difference in FGR scores between student-athlete FGR and non-student athlete FGR was 1.303 with a 95% confidence interval ranging from -1.338 to 3.944. The eta squared statistic (.03) indicated a small effect size (Pallant, 2014).

There was no statistical difference between FGR scores for student-athletes (*M = 51.09* and *SD = 15.151)* and non-student-athletes (M = 49.33 and SD = 14.806); t (57) = 2.270, p = .027, two tailed) at private Division II institutions. The mean difference in FGR scores between student-athlete FGR and non-student athlete FGR was 4.690 with a 95% confidence interval ranging from .553 to 8.826. The eta squared statistic (.07) indicated a moderate effect size (Pallant, 2014). Table 4.2 and 4.3 show non-athlete FGR and athlete FGR means for both public and private institutions.

Summary of Findings: Hypotheses 1

Significant differences were found between student-athlete FGR and non-student-athlete FGR scores at both public and private Division I (I-A and I-AA) and II

institutions. Athlete FGR scores were found to be higher than non-student-athlete FGR scores at public Division I-A, Division I-AA and Division II institutions. Athlete FGR scores were also found to be higher than non-student-athlete FGR scores at private Division I-AA and Division II institutions. Non-athlete FGR scores, were found to be higher than student-athlete FGR scores at private Division I-A institutions.

Table 4.2

Non-Athlete FGR and Athlete FGR Means for Public Institutions

Public		Mean	SD	t	df	Sig (2-tailed)
Division I-A	Non-Athlete FGR	61.94	15.305	40.875	101	.000
	Athlete FGR	63.59	7.244	88.648	101	.000
Division I-AA	Non-Athlete FGR	47.49	15.571	26.191	73	.000
	Athlete FGR	55.79	12.163	39.193	72	.000
Division II	Non-Athlete FGR	42.19	12.229	34.670	100	.000
	Athlete FGR	51.09	12.761	40.235	100	.000

Table 4.3

Non-Athlete FGR and Athlete FGR Means for Private Institutions

Private		Mean	SD	t	df	Sig (2-tailed)
Division I-A	Non-Athlete FGR	81.000	12.612	28.368	19	.000
	Athlete FGR	71.900	14.797	21.429	19	.000
Division I-AA	Non-Athlete FGR	71.91	16.356	27.886	41	.000
	Athlete FGR	73.21	11.453	36.220	32	.000
Division II	Non-Athlete FGR	49.33	14.806	25.310	58	.000
	Athlete FGR	54.02	15.151	26.649	57	.000

Hypothesis 2: There will be a positive relationship between athletic spending and athlete FGR for NCAA Division I and II institutions, as measured for institution, sex of team and type of sport (i.e. revenue or non-revenue).

While GSR and ASR are two academic measures used to calculate college student-athlete graduation rates, the Federal Graduation Rate (FGR) is a federally mandated graduation calculation that measures both athlete and non-athlete graduation rates. There was a positive correlation between Division I-AA public athletic spending and average athlete FGR *(r = .348, n = 72 and p < .001).* There was also a positive correlation between Division II public athletic spending and average athlete FGR *(r = .211, n = 101 and p < .05).* No significant correlation was found between Division I-A public athletic spending and average athlete FGR *(r =.094, n = 102 and p = .345),* Division I-A private athletic spending and average athlete FGR (*r = .088, n = 20 and p = .713)*, Division I-AA private athletic spending and average athlete FGR *(r = .176, n =*

33 and p = .326) or between Division II private athletic spending and average athlete FGR *(r = .138, n = 58 and p = .302).*

Influence of Athletic Spending on Sex and Team FGR

There was a positive correlation between Division I-A public athletic spending and average Women FGR *(r = .253, n = 102 and p < .05).* There was also a positive correlation between Division I-AA public athletic spending and average Women FGR *(r = .328, n = 73 and p < .001).* No significant correlation was found between Division II public athletic spending and average Women FGR *(r = .128, n = 101 and p = .203),* Division I-A private athletic spending and average Women FGR *(r = .030, n = 20 and p = .900),* Division I-AA private athletic spending and average women FGR *(r = .241, n = 34 and p = .170)* or between Division II private athletic spending and average women FGR *(r = .199, n = 58 and p = .135).*

There was a positive correlation between Division I-AA public athletic spending and average Men FGR *(r = .318, n = 73 and p < .001)*. No significant correlation was found between Division I-A public athletic spending and average Men FGR *(r = .140, n = 102 and p = .160)*, Division II public athletic spending and average Men FGR *(r = .084, n = 101 and p = .404),* Division I-A private athletic spending and average Men FGR (r = -.176, n = 20 and p = .458), Division I-AA private athletic spending and average men FGR *(r = .210, n = 34 and p = .232)* or between Division II private athletic spending and average men FGR *(r = .094, n = 58 and p = .481).*

Influence of Athletic Spending on Type of Sport and APR

There was a positive correlation between Division I-A public athletic spending and average non-revenue FGR *(r =.281, n = 102 and p < .001).* There was also a positive correlation between Division I-AA public athletic spending and average non-revenue FGR *(r = .365, n = 73 and p < .001).* No significant correlation was found between Division II public athletic spending and average non-revenue FGR *(r = .212, n = 101 and p = .125)*, Division II public athletic spending and average revenue FGR *(r = .082, n = 101 and p = .415),* Division I-A private athletic spending and average non-revenue FGR *(r = .007, n = 20 and p = .976),* Division I-AA private athletic spending and average non-revenue *FGR (r = .236, n = 34 and p= .178)* or between Division II private athletic spending and average non-revenue FGR *(r = .129, n = 58 and p = .334).*

No significant correlation was found between Division I-A public athletic spending and average revenue FGR *(r = .008, n = 102 and p = .936),* Division I-AA public athletic spending and average revenue FGR *(r = .183, n = 73 and p = .183),* Division II public athletic spending and average revenue FGR *(r = .082, n = 101 and p = .415),* Division I-A private athletic spending and average revenue FGR *(r = -.214 , n = 20 and p = .364),* Division I-AA private athletic spending and average revenue FGR *(r = .191, n = 34 and p = .280)* or between Division II private athletic spending and revenue FGR *(r = .140, n = 58 and p =.296)*. Table 4.4 and 4.5 shows the different correlations between public and private athletic spending and athlete FGR.

Table 4.4

Pearson's Product Moment Correlations for NCAA Division I and II Institutions with Public Athletic Spending and Institutional FGR

			Athlete FGR	Men FGR	Women FGR	Non-Revenue FGR	Revenue FGR
Public	Division I-A	Athletic Spending	.094	.702**	.665**	.719**	.582**
	Division I-AA	Athletic Spending	.348**	.318**	.328**	.365**	.183
	Division II	Athletic Spending	.211*	.084	.128	.125	.082

Note. **. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2 tailed).

Table 4.5

Pearson's Product Moment Correlations for NCAA Division I and II Institutions with Private Athletic Spending and Institutional FGR

			Athlete FGR	Men FGR	Women FGR	Non-Revenue FGR	Revenue FGR
Private	Division I-A	Athletic Spending	.088	-.176	.030	.007	-.214
	Division I-AA	Athletic Spending	.176	.210	.241	.236	.191
	Division II	Athletic Spending	.138	.094	.199	.129	.140

Note. **. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2 tailed).

Table 4.6

FGR Means for Public Division I & II Institutions

		Mean	Std. Deviation
Division I-A	Division I-A Athlete FGR	63.59	7.244
	Division I-A Revenue FGR	48.61	11.951
	Division I-A Non-Revenue FGR	67.29	9.450
	Division I-A Women FGR	68.47	10.093
	Division I-A Men FGR	53.17	9.730
Division I-AA	Division I-AA Athlete FGR	55.79	12.163
	Division I-AA Revenue FGR	46.80	12.213
	Division I-AA Non-Revenue FGR	61.09	12.711
	Division I-AA Women FGR	63.08	12.281
	Division I-AA Men FGR	49.58	10.952
Division II	Division II Athlete FGR	51.09	12.761
	Division II Revenue FGR	41.55	16.831
	Division II Non-Revenue FGR	59.64	12.223
	Division II Women FGR	62.45	11.282
	Division II Average Men FGR	43.46	14.971

Table 4.7

FGR Means for Private Division I & II Institutions

		Mean	Std. Deviation
Division I-A	Division I-A Athlete FGR	71.90	14.797
	Division I-A Revenue FGR	65.63	13.327
	Division I-A Non-Revenue FGR	76.38	10.411
	Division I-A Women FGR	75.27	11.571
	Division I-A Men FGR	69.64	12.733
Division I-AA	Division I-AA Athlete FGR	73.21	11.453
	Division I-AA Revenue FGR	64.35	15.050
	Division I-AA Non-Revenue FGR	75.25	12.051
	Division I-AA Women FGR	76.41	11.791
	Division I-AA Men FGR	67.13	14.025
Division II	Division II Athlete FGR	54.02	15.151
	Division II Revenue FGR	44.87	16.727
	Division II Non-Revenue FGR	64.24	12.850
	Division II Women FGR	65.45	12.945
	Division II Men FGR	49.58	14.967

Summary of Findings: Hypothesis 2

For Division I-A institutions, a positive relationship was found between public athletic spending and both women and non-revenue FGR scores. For Division I-AA institutions, a positive relationship was found between public athletic spending and average overall athlete, women, men and non-revenue FGR scores. For Division II institutions, a positive relationship was found between public athletic spending and average overall athlete FGR score. No positive relationships were found between private athletic spending and Division I and II institutional FGR scores.

Hypothesis 3: There will be a positive relationship between athletic spending and APR for NCAA Division I institutions, as measured for institution, sex of team and type of sport (i.e. revenue or non-revenue).

As discussed thoroughly in Chapter 2 of this study, the Academic Progress Rate is a measure that was created by the NCAA with the hopes of improving the academic success of Division I student-athletes. The academic progress rate calculation takes into account an athletic team's eligibility, graduation rates, retention and progress toward degree completion (NCAA, 2014). There was a positive correlation between the two variables, public Division I-A athletic spending per athlete and overall APR, *($r = .46$, $n = 80$, $p < .001$),* with higher levels of athletic spending associated with higher overall average APR scores. No significant correlation was found between athletic spending per athlete and overall average APR for private Division I-A institutions *($r = -.183$, $n = 14$, $p = .53$).* No significant correlation was found between athletic spending and overall APR

for public Division I-AA institutions *(r = .15, n = 60, p = .25)* or between athletic spending and overall APR for private Division I-AA institutions *(r = .001, n = 33, p = .995).*

Influence of Athletic Spending on Sex and Team APR

There was a positive correlation between public Division I-A athletic spending per athlete and average women APR, *(r = .29, n = 10, p < .05)* with high levels of athletic spending associated with high overall average women APR scores. No significant correlation was found between athletic spending per athlete and overall average women APR for private Division I-A institutions *(r = -.098, n = 20, p = .681).* No significant correlation was found between athletic spending and average overall women APR for public Division I-AA institutions *(r = .12, n = 73, p < 296)* or between athletic spending and average overall women APR for private Division I-AA institutions *(r = .009, n = 42, p = .954).*

There was a positive correlation between public Division I-A athletic spending per athlete and average male APR, *(r = .351, n = 102, p < .01)* with high levels of athletic spending associated with high overall average male APR scores. No significant correlation was found between athletic spending per athlete and overall average male APR for private Division I-A institutions *(r = -.039, n = 20, p = .872).* No significant correlation was found between athletic spending and average overall male APR for public Division I-AA institutions *(r = .147, n = 73, p = .215)* or between athletic spending and average overall male APR for private Division I-AA institutions *(r = .073, n = 42, p = .644).*

Influence of Athletic Spending on Type of Sport and APR

There was a positive correlation between the two variables; public Division I-A athletic spending per athlete and average revenue APR, *(r = .352, n = 102, p < .001)* with high levels of athletic spending associated with high average revenue APR. No significant correlation was found between athletic spending and average revenue APR for private Division I-A institutions *(r = .022, n = 20, p = .926).* No significant correlation was found between athletic spending and average revenue APR for public Division I-AA institutions *(r = .162, n = 73, p = .172)* or private Division I-AA institutions *(r = .097, n = 41, p = .545).*

There was a positive correlation between the two variables; public Division I-A athletic spending per athlete and average non-revenue APR *(r = .35, n = 102, p < .05),* with high levels of athletic spending associated with high non-revenue APR. No significant correlation was found between athletic spending per athlete and average non-revenue APR for private Division I-A institutions *(r = -.102, n = 20, p = .670).* No significant correlation was found between athletic spending and average revenue APR for public Division I-AA institutions *(r = .162, n = 73, p = .172)* or private Division I-AA institutions *(r = .056, n = 42, p = 727).* Table 4.8 and 4.9 show the different correlations between public and private athletic spending and Division I institutional APR scores.

Summary of Findings: Hypotheses 3

For Division I-A institutions, positive relationships were found between public athletic spending and all individual APR scores analyzed in this study (including overall APR, men and women, and revenue and non-revenue average APR scores). For Division

I-AA institutions, no positive relationships were found between public athletic spending and APR scores. No positive relationships were found between private athletic spending and Division I-A and I-AA institutional APR scores.

Table 4.8

Pearson's Product Moment Correlations for NCAA Division I Institutions with Public Athletic Spending and Institutional APR

		Overall APR	Male APR	Women APR	Non-Rev APR	Revenue APR
Public DI-A	Athletic Spending	.461**	.351**	.293**	.235*	.352**
Public D I-AA	Athletic Spending	.151	.147	.124	.130	.162

Note. **Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2 tailed).

Table 4.9

Pearson's Product Moment Correlations for NCAA Division I Institutions with Private Athletic Spending and Institutional APR

		Overall APR	Male APR	Women APR	Non-Rev APR	Revenue APR
Private D I-A	Athletic Spending	.- .183	-.039	-.098	-.102	.022
Private DI-AA	Athletic Spending	.001	.073	.009	.056	.097

Note. **. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2 tailed).

Table 4. 10

APR Means for Public Division I Institutions

		Mean	Std. Deviation
Division I-A	Division I-A Overall APR	969.56	10.471
	Division I-A Revenue APR	961.24	15.379
	Division I-A Non-Revenue APR	977.88	9.296
	Division I-A Women APR	979.66	9.867
	Division I-A Male APR	963.59	13.016
Division	Division I-AA Overall APR	953.06	54.734
I-AA	Division I-AA Revenue APR	940.94	57.330
	Division I-AA Non-Revenue APR	965.17	53.080
	Division I-AA Women APR	968.42	52.139
	Division I-AA Men APR	944.70	56.413

Table 4.11

APR Means for Private Division I Institutions

		Mean	Std. Deviation
Division I-A	Division I-A Overall APR	976.14	14.124
	Division I-A Revenue APR	968.05	16.392
	Division I-A Non-Revenue APR	984.23	13.339
	Division I-A Women APR	985.63	12.320
	Division I-A Men APR	971.31	16.555
Division I-AA	Division I-AA Overall APR	978.00	13.739
	Division I-AA Revenue APR	967.77	16.750
	Division I-AA Non-Revenue APR	987.50	12.782
	Division I-AA Women APR	988.91	11.341
	Division I-AA Men APR	972.20	17.47

Hypothesis 4: There will be a positive relationship between athletic spending and institutional GSR for NCAA Division I institutions, as measured for institution, sex of team and type of sport (i.e. revenue or non-revenue).

The Graduate Success Rate (GSR) is an academic performance metric that looks at the graduation success rates of all Division I athletic teams and student-athletes on scholarship. The metric was designed to show the proportion of student athletes on an athletic team who graduated as well as the proportion of student athletes who graduated from all sports combined within a particular Division I institution (NCAA, 2008). There was a positive correlation between public Division I-A athletic spending and overall average GSR *($r = .347$, $n = 102$ and $p < .001$).* A positive correlation was also found between public Division I-AA athletic spending per athlete and overall GSR *($r = .249$, $n = 73$ and $p < .05$).* No significant correlation was found between athletic spending and overall GSR for Division I-A private institutions *($r = .010$, $n = 20$ and $p = .967$)* or between athletic spending and overall GSR for Division I-AA private institutions *($r = .092$, $n = 42$ and $p = .562$).*

Influence of Athletic Spending on Sex and Team GSR

There was a positive correlation between athletic spending and Division I-A public average women GSR *($r = .426$, $n= 102$ and $p < .05$)* with high levels of athletic spending associated with high average women GSR scores. There was also a positive correlation between athletic spending and Division I-AA public average women GSR *($r = .233$, $n = 73$ and $p < .001$)* with high levels of athletic spending associated with high average women GSR. No significant correlation was found between athletic spending

and average women GSR for Division I-A private institutions *(r = .335, n = 20 and p = .148)* or between athletic spending and average women GSR for Division I-AA private institutions *(r = .085, n = 42 and p = .592).*

There was a positive correlation between athletic spending and Division I-A public average men GSR *(r = .241, n = 102 and p < .05)* with high levels of athletic spending associated with high average men GSR. No significant correlation was found between athletic spending and average men GSR for Division I-A private institutions *(r = -.109, n = 20 and p = .648),* Division I-AA public institutions *(r = .202, n = 73 and p < .087)* or Division I-AA private institutions *(r = .096, n = 42 and p = .547).*

Influence of Athletic Spending on Type of Sport and Team GSR

No significant correlation was found between athletic spending and average revenue GSR for Division I-A public institutions *(r = .168, n = 102 and p = .092),* Division I-A private institutions *(r = -.181, n = 20 and p = .446)* or Division I-AA public institutions *(r = .102, n = 73 and p = .391)* and Division I-AA private institutions *(r = .119, n = 42 and p = .451).*

There was a positive correlation between athletic spending and Division I-A public average non-revenue GSR *(r = .410, n =102 and p < .001)* with high levels of athletic spending associated with high average non-revenue GSR. There was also a positive correlation between athletic spending and Division I-AA public average non-revenue GSR *(r = .302, n = 73 and p < .001).* No significant correlation was found between athletic spending and average non-revenue GSR for Division I-A private institutions *(r = .205, n = 20 and p = .385)* or Division I-AA private institutions *(r =*

.071, n = 42 and p = .655). Table 4.12 and 4.13 show the different correlations between public and private athletic spending and Division I institutional GSR scores.

Summary of Findings: Hypothesis 4

For Division I-A institutions, positive relationships were found between public athletic spending and overall average athlete, women, men and non-revenue GSR scores. For Division I-AA institutions, positive relationships were found between public athletic spending and overall average athlete, women and non-revenue GSR scores. No positive relationships were found between private athletic spending and Division I institutional GSR scores.

Table 4.12

Pearson's Product Moment Correlations for NCAA Division I Institutions with Public Athletic Spending and Institutional GSR

		Overall GSR	Male GSR	Women GSR	Non-Rev GSR	Revenue GSR
Public D I-A	Athletic Spending	.347**	.241*	.426**	.410**	.168
Public DI-AA	Athletic Spending	.249*	.202	.233*	.302**	.102

Note. **. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2 tailed).

Table 4.13

Pearson's Product Moment Correlations for NCAA Division I Institutions with Private Athletic Spending and Institutional GSR

		Overall GSR	Male GSR	Women GSR	Non-Rev GSR	Revenue GSR
Public D I-A	Athletic Spending	.101	- .109	.335	.205	-.181
Public DI-AA	Athletic Spending	.092	.096	.085	.071	.119

Note. **. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2 tailed).

Table 4.14

GSR Means for Public Division I Institutions

		Mean	Std. Deviation
Division I-A	Division I-A Revenue GSR	68.28	11.998
	Division I-A Non-Revenue GSR	85.04	6.835
	Division I-A Women GSR	87.41	6.825
	Division I-A Men GSR	70.90	10.135
	Division I-A Overall GSR	79.29	7.419
Division I-AA	Division I-AA Revenue GSR	63.75	13.724
	Division I-AA Non-Revenue GSR	78.11	11.235
	Division I-AA Women GSR	81.58	11.119
	Division I-AA Male GSR	64.60	12.361
	Division I-AA Overall GSR	73.20	10.608

Table 4.15

GSR Means for Private Division I Institutions

		Mean	Std. Deviation
Division I-A	Division I-A Revenue GSR	82.28	11.261
	Division I-A Non-Revenue GSR	92.57	5.983
	Division I-A Women GSR	92.92	5.339
	Division I-A Men GSR	84.61	10.774
	Division I-A Overall GSR	88.98	7.159
Division I-AA	Division I-AA Revenue GSR	85.54	12.825
	Division I-AA Non-Revenue GSR	92.30	8.717
	Division I-AA Women GSR	94.12	7.233
	Division I-AA Male GSR	85.98	12.487
	Division I-AA Overall GSR	90.01	9.616

Hypothesis 5: There will be a positive relationship between athletic spending, and institutional ASR for NCAA Division II institutions, as measured for institution, sex of team and type of sport (i.e. revenue or non-revenue).

The Academic Success Rate (ASR) is an academic performance metric used to determine graduation success rates of student athletes enrolled at Division II institutions. No significant correlation was found between athletic spending and overall ASR for Division II public institutions *(r = .118, n = 101 and p = .242)* or Division II private institutions *(r = .034, n = 59 and p = .799).*

Influence of Athletic Spending on Sex and Team ASR

No significant correlation was found between athletic spending and average women ASR for Division II public institutions *(r = .151, n = 101 and p = .132)* or

Division II private institutions *(r = - .024, n = 59 and p = .854).* No significant correlation was found between athletic spending and average men ASR for Division II public institutions *(r = .073, n = 101 and p = .465)* or Division II private institutions *(r = .074, n = 59 and p = .579).*

Influence of Athletic Spending on Type of Sport and Team ASR

No significant correlation was found between athletic spending and average revenue ASR for Division II public institutions *(r = .084, n = 101 and p = .405)* or Division II private institutions *(r = .044, n = 59 and p = .740).* No significant correlation was found between athletic spending and average non-revenue ASR for Division II public institutions *(r = .128, n = 101 and p = .203)* or Division II private institutions *(r = .019, n = 59 and p = .889).* Table 4.16 shows the different correlations between athletic spending and institutional ASR scores.

Summary of Findings: Hypotheses 5

For Division II institutions, no positive relationships were found between public or private athletic spending and Division II institutional ASR scores (overall, men, women, revenue or non-revenue).

Table 4.16

Pearson's Product Moment Correlations for NCAA Division II Institutions with Public and Private Athletic Spending and Institutional ASR

		Overall ASR	Male ASR	Women ASR	Revenue ASR	Non-Rev ASR
DII Public	Athletic Spending	.118	.073	.151	.084	.128
DII Private	Athletic Spending	.034	.074	-.024	.044	.019

*Note. **. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed)*

Table 4.17

ASR Means for Public and Private Division II Institutions

			Mean	Std. Deviation
Public	Division II	Revenue ASR	53.13	15.626
		Non-Revenue ASR	76.95	11.583
		Women ASR	79.51	12.041
		Male ASR	56.44	14.826
		Overall ASR	68.28	11.863
Private	Division II	Average Revenue ASR	63.08	15.819
		Average Non-Revenue ASR	83.31	10.569
		Average Women ASR	85.91	9.641
		Average Male ASR	66.58	14.670
		Average Overall ASR	76.40	11.117

Hypothesis 6: The relationship between athletic spending trends and athlete federal graduation rate will be moderated by (a) NCAA Division, (b) type of institution (private/public), and (c) type of sport (revenue/non-revenue).

Moderating regressions were performed to assess the impact of a number of different independent variables (NCAA Division, type of institution and type of sport) on the relationship between athletic spending and FGR. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity.

In the first moderating regression test, athletic spending per athlete and NCAA division classification were entered at Step 1 of the regression analysis (explaining 43% of the variance in athlete FGR). In the second step of the regression analysis, an interaction term (labeled Isaspendingclassname) was then made between NCAA Division classification (independent variable) and athletic spending per athlete (independent variable). After entry of Isaspendingclassname variable at Step 2, the total variance explained by the model as a whole was *19.1%, F (3,382) = 30.044, p < .000.* Results of the moderated regression showed that the first-order effects account for 3.2% of the variance in athlete FGR. After these effects were accounted for, the product term did account for the unique variance *(R squared change = .032, F change (1,382) = 14.944, p < .000).* Isaspendingclassname was statistically significant *(beta = .508, p < .00).*

In the second moderating regression test, athletic spending per athlete and type of institution (private and public) were entered at Step 1 of the regression analysis, (explaining 43.3% of the variance in athletic FGR). In the second step of the regression

analysis, an interaction term (labeled isaspendingpubprivate) was made between private institution and athletic spending per athlete. After entry of the isaspendingpubprivate at Step 2, the total variance explained by the model as a whole was *18.7%, F (3, 382) = 29.384, p = .000.* Results of the moderated regression showed that the first-order effects account for 6% of the variance in athlete FGR. After these effects were accounted for, the product term did account for the unique variance*(R square changed = .006, F change (1, 382) = 2.954, p = .392).*Isaspendingpubprivate was not statistically significant*, (beta = .115, p = .086).*

In the third moderating regression test, athletic spending per athlete, average non-revenue and revenue athlete FGR were entered at Step 1 (explaining 8% of the variance in athletic FGR). In the second step of the regression analysis, two interaction terms were made. The first interaction term was made between average revenue FGR and athletic spending per athlete (labeled Iathleticspendrevsport) and the second interaction term was made between average non-revenue FGR and athletic spending per athlete (labeled iathleticspendnonrevsport). After entry of the Iathleticspendrevsport and iathleticspendnonrevsport variables at Step 2, the total variance explained by the model as a whole was *71.3%, F (5, 379) = 188.05, p = .00* Results of the moderated regression showed that the first-order effects account for3% of the variance in athlete FGR *(R square changed = .03, F change (2, 379) = 1.984, p = .139).* In the final model, the two variables were not statistically significant, with the iathleticspendnonrevsport variable recording a higher beta value *(beta = -.173, p = .410)* than the Iathleticspendrevsport

variable *(beta = -.168, p = .186).* The results of the regression analyses are presented in Table 4.18, 4.19 and 4.20.

Summary of Findings: Hypotheses 6

The only variable that was found to be a good measure of predicting athlete FGR was NCAA division classification.

Table 4.18

Regression Analysis Predicting the Interacting Effects of NCAA Division Classification and Athletic Spending on Athlete FGR

Predictor	Std. Error	B	R Squared	Adjusted R Squared
Step 1			.339	.159
Athletic Spending	.000	1.901E-5		
NCAA Division Classification	1.283	-.341		
Step 2			.437	.191
Athletic Spending	.000	.000		
NCAA Division	1.374	-7.693		
Isaspendingclassname	.000	.000		

Table 4.19

Regression Analysis Predicting the Interacting Effects of Type of Institution and Athletic Spending on Athlete FGR

Predictor	Std. Error	B	R Squared	Adjusted R Squared
Step 1			.181	.177
Athletic Spending	.000	.000		
Type of Institution	1.433	7.805		
Step 2			.187	.181
Athletic Spending	.000	9.268E-5		
Type of Institution	2.018	5.356		
isaspendingpubprivate	.000	5.431E-5		

Table 4.20

Regression Analysis Predicting the Interacting Effects of Type of Sport on Athlete FGR

Predictor	Std. Error	*B*	R Squared	Adjusted R Squared
Step 1			.710	.707
Athletic Spending	.000	.148		
Non-Revenue FGR	.036	.462		
Revenue FGR	.028	.439		
Step 2			.713	.709
Athletic Spending	.000	.460		
Non-Revenue FGR	.050	.489		
Revenue FGR	.039	.479		
Iathleticspendrevsport	.000	-.168		
athleticspendnonrevsport	.000	-.173		

CHAPTER SIX: DISCUSSION

The purpose of this retrospective study was to examine the relationship between athletic spending, athletically related student aid and the academic success of student-athletes at different NCAA institutions. By utilizing six major hypotheses and an analysis of secondary data, this examination was conducted specifically on public and private NCAA institutions that were categorized as Division I-A, Division I-AA and Division II institutions with football teams. This chapter will start with a discussion on the theoretical framework of the study, go through each hypothesis, discuss the conclusions that can be drawn from the findings; address limitations of the study as well discuss the implications for college athletic departments.

To analyze the influence of institutional factors on the academic performance of college student-athletes, the Theory of Pedagogy was used as a theoretical perspective in this study. Pedagogy can be defined as the science and art of teaching (Cochran, 1993). While there are a variety of different types and variations of pedagogical theories, the primary goal of any pedagogical theory is to promote and develop student learning (which can lead to positive student development outcomes). Many researchers believe that the availability of academic support services (such as academic advising, access to study hall facilities, peer mentoring, tutoring services, degree completion monitoring, etc.) and career development resources (such as career resource centers, job seeking training workshops, etc.) for college student-athletes can help student-athletes achieve greater academic success (Dudley, Johnson, & Johnson, 1997; Ko et al., 2008; NCAA, 2005). The effectiveness of these resources (Clark & Parette, 2002) available to student-

athletes has primarily been evaluated through either student satisfaction with services or student outcome measures (GPA, progress reports and graduation rates). Using Astin's (1999) resource theory of pedagogy, the goal of this study was to increase knowledge of how athletic spending can directly affect the academic success of college student- athletes at public and private Division I and II institutions.

It was hypothesized that student-athlete FGR would be higher than non-student-athlete FGR (hypothesis 1). Study results actually revealed that there was a statistically significant difference between FGR scores for student-athletes and non-student-athletes at NCAA Division I and II public and private institutions. Athlete FGR scores were found to be higher than non-student-athlete FGR scores at both public Division I-A and I-AA institutions and Division II institutions. Athlete FGR scores were also found to be higher than non-student-athlete FGR scores at private Division I-AA and Division II institutions. These results were not surprising, because while college student-athletes have access to all the resources that are available to normal college students, they also have access to certain resources that are not available to their college peers. Non-athlete FGR scores were found, however, to be higher than student-athlete FGR scores at private Division I-A institutions. Private institutions have to rely more heavily on outside contributions, while public universities receive funds from state legislatures. With this being said, public division I institutions may have a greater opportunity to provide a variety of different academic resources to their student-athletes than private division I institutions.

While Hypothesis 1 was supported, Hypothesis 2: There will be a positive relationship between athletic spending and athlete FGR for NCAA Division I and II institutions, was found to be only partly supported. For public athletic spending, a positive relationship was found with Division I-AA public average athlete FGR, Division II public average athlete FGR, Division I-A public average Women FGR, Division I-AA public Women FGR, Division I-AA public average Men FGR, Division I-A public average non-revenue FGR and Division I-AA public non-revenue FGR. No positive relationships were found between private athletic spending and institutional FGR scores.

The major difference between public universities and private universities is how they are funded. As stated earlier while public universities receive funds from state legislatures, private universities have to rely more heavily on tuition and private outside contributions. With this being said, the size of an institution's budget can have a large impact on the amount of resources an institution is able to provide. The more funding an institution has, the more resources they are able to offer to their student-athletes to help them achieve greater academic success.

It was also hypothesized that there will be a positive relationship between athletic spending and institutional APR for NCAA Division I institutions. This third hypothesis was partially supported. A strong relationship was found between public Division I-A athletic spending per athlete and all individual APR measures that were analyzed in this study (overall APR, men and women and revenue and non-revenue average APR scores). No significant correlation was found between private Divisions I athletic spending and APR scores or public Division I-AA athletic spending and APR scores. Between the two

Division I divisions, Division I-A institutions are considered to be the, "Big Dogs," of collegiate athletics and have the largest budgets (Fulks, 2012a). Division I-A is the most competitive subdivision of Division I, and consists of the largest and most competitive schools in the NCAA. In 2011, the median expense per student-athlete in Division I-A was $97,000, while the median expense per student-athletes in Division I-AA was $37,000 (Fulks, 2012a). As stated earlier thorough out this study, the size of an institution's budget can have a large impact on the amount of resources an institution is able to provide to their student-athletes.

In this study, Hypothesis 4: There will be a positive relationship between athletic spending and institutional GSR for NCAA Division I institutions, was also partially supported. For public athletic spending a positive relationship was found with Division I-A and Division I-AA overall GSR, Women GSR and non-revenue GSR. A positive relationship was also found between public athletic spending and overall Division I-A men GSR scores. Student-athletes in revenue generating sports are constantly being faced with the pressure to succeed and bring in revenue for their universities (Upthegrove et al., 1999). The pressure to succeed athletically may lead many of these student-athletes in revenue generating sports to receive lower grades and graduation rates then non-revenue generating sports (Upthegrove, 1999). Division I football and men's basketball graduation rates are higher than the graduation rates of Division II football and men's basketball programs, the graduation rates of student-athletes in non-revenue generating sports are still higher. Student-athletes in non-revenue generating sports tend to be better with balancing athletics with academics, so when these athletes attend universities that

are heavily funded, they are able to take better advantage of the greater range of academic resources available to them. The majority of college female student-athletes also play non-revenue generating sports. While more money tends to be placed toward men's programs, Division I female student-athletes still graduate at a higher rate than Division I male student-athletes in both revenue and non-revenue generating sports. Results from this study showed that men's public Division I-AA GSR, men's Division I-A and I-AA private GSR and all revenue GSR scores (made up of all men's teams) did not have a positive relationship with athletic spending, while women GSR scores did.

Hypothesis 5: There will be a positive relationship between athletic spending, and institutional ASR for NCAA Division II institutions, was found to not be supported. No positive relationship was found between public or private Division II athletic spending per athlete and ASR measures (overall, men, women, revenue or non-revenue). Division II institutions are not as heavily funded as Division I institutions and scholarships are not as abundant (Fulks, 2014). A limited amount of financial resources are available for Division II athletic programs. During the 2014-2015 academic school year, the NCAA's allocation to Division I institutions totaled $512,031,000; whereas, the 2014-2015 Division II budget was $37.2 million. Out of these totals, the Division I budget allocates approximately 20 million more dollars for their Academic Enhancement Fund then the Division II budget, ($26,920,000 and $5,900,000 respectively).

Lastly, Hypothesis 6: The relationship between athletic spending trends and athlete federal graduation rate will be moderated by (a) NCAA Division, (b) type of

institution (private/public), and (c) type of sport (revenue/non-revenue) was only partially supported. Moderating regression tests were conducted to assess the impact of a number of different independent variables (NCAA Division, type of institution and type of sport) on the relationship between athletic spending and FGR. The only variable that was found to be a good measure of predicting athlete FGR was NCAA division. Division I and II athletic programs are operated very differently under the Division I institutions are athletic programs are operated very differently under the NCAA. Division I institutions are considered to be the big league of college athletics and are highly driven by money (Fulks, 2012a). The athletic departments at these institutions are heavily funded; provide the most scholarships for student-athletes (especially to those in revenue generating sports) as well as tend to cater more toward the athlete aspect of the student-athlete (NCAA, 2014b). Division II institutions on the other hand, are not as heavily funded as Division I institutions and scholarships are not as abundant (Fulks, 2014b). As discussed earlier in this study, athletic spending was found to have a positive relationship with Division I GSR, while athletic spending was not found to have a positive relationship with Division II ASR. This reiterates the fact that the size of an institution's budget can have a large impact on the amount of resources an institution is able to provide. Access to more academic resources can help lead student-athletes to achieve greater academic success. Surprisingly, revenue and non-revenue sports as well as type of institution (private and public) were found to not be reliable predictors of athlete FGR.

Overall, the results of this study showed that the strongest correlation between athletic spending and academic success was found at Division I-A institutions. These

results support previous research that has found that Division I institutions not only spend more money on their student-athletes, but that Division I student-athletes graduate at a higher rate than Division II student-athletes (Fulks, 2012a; NCAA, 2013; NCAA, 2014a). Division I-A is the highest level of intercollegiate athletics sanctioned by the NCAA. These institutions have larger athletic budgets then both Division I-AA and Division II institutions. This reiterates the fact that the size of an institution's budget can have a large impact on the amount of resources an institution is able to provide. Ultimately, the more funding an institution has (i.e. academic, athletic and institutional) the more academic resources they can offer their student-athletes to help them achieve greater academic success. Past research shows the availability of academic support and career development services for student-athletes can help lead student-athletes to achieve greater academic success (Dudley, Johnson, & Johnson, 1997; Ko et al., 2008; NCAA, 2005).

Conclusion

In conclusion, this research study provides insight into the different factors that could potentially affect the academic success of college student-athletes at NCAA Division I and II institutions. Individual characteristics have a very influential effect on academic outcomes, but from a practical standpoint once an athlete is recruited, it is difficult and impractical to try to change or control the influence of personal characteristics (e.g. race and sex) on student-athlete academic success. Institutional characteristics, once identified, can be more easily controlled or changed. This study examined the relationship between athletic spending and the academic success of student-athletes at public and private Division I and II NCAA institutions. While athletic

spending was found to have a positive relationship with many public Division I GSR scores, athletic spending was not found to have a positive relationship with public or private Division II ASR scores. Overall, athletic spending was found to have more positive relationships with the following variables: Division I institutions, public academic measures, women scores and non-revenue sport scores. These results reiterate the fact that both Division I institutions and public institutions are typically more heaving funded then both Division II and private institutions. The size of an institution's budget can have a large impact on the amount of resources an institution is able to provide. Access to more academic resources can help lead student-athletes to achieve greater academic success. The results from this study show that increased athletic spending and lead to greater academic success in student-athletes.

Collegiate athletic departments can use the information found in this article to gain a better understanding of the different institutional factors that can affect the academic success of their student-athletes. More specifically, college athletic departments can gain a better understanding of the different factors that could prevent student-athletes from succeeding within Division I versus Division II institutions.

While the results of this study are significant, there were a few limitations that need to be discussed. First, on the NCAA website, the most updated information taken on academic measures (APR, GSR, ASR and FGR) for some Division I and II institution and sports teams may not be from the same year. We cannot rule out that fact that information on institutions for the same year could provide us with the most accurate data. Secondly, while the results showed that increased funding and academic spending

for Division I institutions lead Division I student-athletes to achieve greater academic success then Division II student-athletes, we are unable to determine whether or not this would be true for Division III institutions. Division III institutions are not required to report student-athlete graduation rates due to the fact that the majority of student-athletes at Division III institutions tend to not receive athletic based scholarships. In order to more fully understand what factors can affect the academic success of student-athletes in different divisions, future research needs to further explore the graduation rates of student-athletes in Division III institutions.

Further research on student-athletes at Division III institutions will allow researchers to gain a better understanding of the different factors that could prevent Division III student-athletes from graduating as well as allow researchers the opportunity to compare the different factors that could prevent student-athletes from academically succeeding within the three separate divisions.

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