PREDICTING FIRST YEAR ACADEMIC SUCCESS OF THE STUDENT-ATHLETE POPULATION AT THE UNIVERSITY OF MISSOURI

A Dissertation presented to
the Faculty of the Graduate School
at the University of Missouri-Columbia

Submitted in Partial Fulfillment of the
Requirements for the Degree

DOCTOR OF PHILOSOPHY

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by

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MAY 2007

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ACKNOWLEDGEMENTS

First and foremost, I would like to thank my loving wife, Amanda, who has been everything to me during this time. She is all that you can ask for in a supportive and understanding partner. There is absolutely no way that I could have completed this program while working a full time job without her encouragement. I hope that one day I can repay her for what she has given up during this long pursuit.

Undoubtedly, each member of my committee provided the support and direction that was needed throughout this process. The mere mention of acknowledgement does not provide the amount of gratitude that I have for each of my committee members. Knowing the quality of people that they are, it is not surprising that they gave up their already minimal free time to be on this committee. This selflessness is a testament to who they are. I could not have completed this journey without their contributions.

To Dr. Waigandt, my advisor throughout this process, who was willing to take a chance on me and give me the opportunity to pursue this dream. His support to undertake a doctoral candidate with the time demands that my profession requires showed a tremendous amount of respect and belief. The understanding and encouragement that he provided was immeasurable.

To Dr. Parcell, who spent nights and weekends providing direction for this project. His knowledge of the statistical procedures used in this research was

invaluable. It was a personal conversation with Dr. Parcell that led me to this dissertation topic. His guidance and expertise can never be repaid.

To Dr. McGuire, who provided a perspective that made me want to a better person. I am fortunate to have someone as distinguished as Dr. McGuire on my team.

To Dr. Holliday, who counseled me through this process. He was always available and willing to lend a hand.

To Sarah Reesman and Rex Sharp, who supplied a wealth of knowledge and expertise in the field of athletics. Their willingness to serve on this committee proved their outstanding character.

To my two classmates, colleagues, and friends, Bryan Maggard and Randy Kennedy, who took virtually every class with me. The comfort in knowing that you have friends willing to go through the process with you was reassuring. This progression would have been increasingly difficult if I did not have them to lean on.

Last, but not least, I would like to thank my parents and family. Their love and support has provided me with the confidence and faith to follow my dreams. I hope that I can provide the same support one day.

ABSTRACT

There have been long discussions on the role of athletics in higher education. The lack of academic success in the past by student-athletes has led the National Collegiate Athletic Association (NCAA) to mandate upgraded academic requirements for this particular student population. The two main components of this academic reform package are progress towards degree (eligibility) and retention. The NCAA's main goal is to increase student athlete graduation rates and the committee's research concluded that these two components will lead to this increase.

Past research shows that certain academic variables, such as high school grade point average (GPA) and American College Test (ACT) scores are accurate predictors of first year academic success (DeBerard, 2004). Past research also shows a high relationship between first year academic success and retention (Segner, 1978). These two components, academic success and retention, make up the largest percentage of the new NCAA academic reform package. Higher first year GPA and retention is thought to increase the probability of student athlete graduation, thus fulfilling the NCAA's main goal.

This study compared the Office of University Admission's predicted first year grade point average to actual first year performance for the student athlete population at the University of Missouri. The Office of University Admissions uses high school GPA, high school class rank, and ACT composite to predict first year academic performance for all students entering the University. The 2002-

2006 incoming freshman class was used in this project. The outcome is used to evaluate first year academic performance within a context of incoming academic ability. Much of the related research compares the academic performance of student athletes to the general student body without taking incoming ability into account. The generally accepted prediction for all students at the University of Missouri will provide a basis for comparison.

This study found that in almost every category, a majority of student athletes outperformed the campus predicted GPA. Overall, student athletes performed .201 grade points better than the campus formula predicted. In addition, approximately 70% of students performed above the campus predicted GPA while 30% performed below.

It was suggested that the prediction model used by the Office of University Admissions was inaccurate for this population. The student athlete population has interesting dynamics which prevent the admissions office equation from accurately predicting first year GPA for the student athlete population. This study used a stepwise regression analysis to predict first year GPA for all incoming freshman student athletes at the University of Missouri. An increased number of variables were identified in an attempt to provide a more accurate model.

The research identified an alternative model that accounts for 50% of the variance in first year GPA. High school GPA (42%), ACT composite (5%), and aid status (2.5%) were significant predictors of first year academic performance for student athletes at the University of Missouri. The hope is that an accurate model could assist the campus administration and academic support staff to

provide adequate programming in an effort to help this population academically succeed during their time at the University of Missouri.

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CHAPTER I

INTRODUCTION

For many years, there has been a negative stereotype surrounding the academic success of student athletes. For instance, Engstrom and Sedlacek (1991) reported that students and faculty alike tend to have negative stereotypes of student athlete academic performance. This stereotype was well deserved for some time as overall, student athlete classroom performance left much to be desired. The relative lack of standout athlete interest toward gaining an education and the acceptance of that attitude from faculty and staff led to the culturally approved naming of the 'dumb jock', regardless of the student's individual academic abilities (Shulman & Bowen 2001). Just like most stereotypes, student athletes have had a difficult time shaking this label.

Due to the overwhelming concern regarding the academic progress of student athletes, the NCAA has implemented an inclusive academic reform package that holds institutions accountable for the academic performance of the student. The NCAA believes that each institution should be committed to educating the students that are recruited and admitted. Included in the NCAA's mission statement is the interest in maintaining the value and integrity of intercollegiate athletics as an integral part of the academic mission (NCAA, 2006). In 2004, the NCAA developed a metric that rates the academic success of each sport program and each educational institution. This metric, called

Academic Progress Rate (APR), awards one point each term to every scholarship student athlete who meets pre-set progress towards degree requirements as well as one point if the student returns to the institution (Shontz, 2005). Each team has an APR score that is calculated by taking the total points earned and dividing by the total points possible. Two sets of penalties have been put in place for teams that fail to reach the minimum score. A cutoff score of 925 (or 92.5%) has been set as the minimum cut point to avoid contemporaneous penalties and a score of 900 (or 90.0%) has been set as the minimum cut point to avoid historical penalties (Brown, 2005). Contemporaneous penalties are handed out on a yearly basis and include the amount of financial aid offered to any player that failed to earn both of the two points available during the previous year, up to a 10% maximum scholarship loss. Historical penalties are for teams that habitually fail to meet the minimum cutoff score. Some historical penalties include recruiting restrictions, postseason restrictions and restricted membership status (Brown, 2005). The NCAA leadership's goal is that institutions will commit to the education of the student and emphasize the retention and graduation of these students.

Most institutions have minimum standards in place when determining admission. These standards typically include high school grades and standardized test scores. Some believe that these standards are not adequate variables when deciding if a student should be able to attend college. To combat this debate, some institutions identify other areas that will affect the admissions decision. One development that has provided opportunities for many who may

not have been able to attend college is the creation of the special admit (Ting, 1997). For some time now, institutions of higher education have relaxed the admission standards for students who bring characteristics to the institution outside the traditional sense. Due to the affect that athletics has on an institution, a number of student athletes fall into this category and have been admitted to the institution on probationary status (White, 1986). These students tend to be academically under prepared when entering the university setting, further crippling the likelihood of academic success. Coupled with the negative stereotype that has typically followed these students, athletes are at an increased risk of falling into the generally accepted norm that student athletes do not care about classroom performance. Increased academic support is a must for specially admitted students. Currently, the academic support staff has little information to go off of when predicting the academic preparedness of incoming student athletes. The hope is that this study can provide the University of Missouri with the information needed to provide the appropriate services to student athletes.

The generally accepted belief is that student athletes do not perform as well academically as the general student body. There has been one glaring problem in the research surrounding the academic performance of student athletes. Most previous studies that compare athletes to non-athletes compare the two populations as equals (Shulman & Bowen 2001). Researchers compared the graduation rates, grade point averages and progress towards a degree without taking into account the academic preparedness of each student.

Comparing the two groups as equals is like comparing the same groups in a fitness test and making the wide generalization that the institution has an obese, unhealthy population without taking into account the difference between groups. This overgeneralization may not be the fault of the University or even the researcher. Many institutions lack the number of non-student athletes who were admitted with similar academic credentials as these student athletes, thus leaving them with a lack of equally prepared students to compare. Unfortunately, this has only aided in the continuation of the stereotype that student athletes do not perform adequately in the classroom.

One way that an institution can evaluate each student individually is to provide an academic expectation of each student and see if the student is meeting the University's standards. At the University of Missouri-Columbia (From here on called the University of Missouri), the Office of University Admissions has created a way to do this. A regression equation using high school GPA, high school class rank, and ACT composite is used to predict first year GPA for each incoming student. Evaluating first year performance based on this predicted GPA would allow the institution to compare students with varying degrees of preparation. The researcher has hypothesized that the equation prepared for the general student body is not valid for the student athlete population due to the unique characteristics of this population, the academic support offered to student athletes, and the services that are provided by the athletic academic support staff.

Purpose of the Study

The purpose of this study is to (1) analyze the predictive validity of the Office of University Admission's model to predict first year GPA for student athletes and (2) investigate the ability of selected predictor variables to accurately predict first year academic performance of student athletes at the University of Missouri.

Initially, the difference between campus' predicted first year GPA and actual first year GPA of the student athlete population will be analyzed. If it is determined that the regression model used by the Office of University Admissions is inaccurate, an attempt will be made to identify a more accurate model. Variables will be identified that explain a significant amount of the variance in first year GPA among student-athletes.

An accurate formula such as this will benefit the institution two-fold. First, this research will allow the institution to use identified predictor variables to determine if a recruited student athlete can be academically successful at the University of Missouri, thus continuing the efforts to admit students who can successfully graduate from the University. Along with the University's administration, this research would prove beneficial to the athletic administration at the University. If a sport program is in danger of falling below the NCAA APR cutoff for penalties, the coaches have an option to use this equation to determine if it is necessary to continue recruiting a potentially academically at risk student. Second, the research will provide the athletic academic support staff additional

information to use when counseling and deciding on potential programming for incoming student athletes.

Hypothesis/Questions

1. How do student athletes perform compared to the respective predicted first year GPA provided by the Office of University Admissions at the University of Missouri?
2. If the descriptive data suggests that the above null hypothesis is rejected, can a more accurate model be developed to accurately predict the variance in first year GPA for student athletes at the University of Missouri?
3. The variables relevant for this study are as follows:
    a. High School GPA
    b. ACT Composite Score
    c. ACT English Score
    d. ACT Math Score
    e. High School Class Rank
    f. Gender
    g. Race
    h. Sport Code (Revenue vs. Non-Revenue)
    i. Aid Status (Scholarship vs. Non-Scholarship)
    j. Admit Status (Special Admit vs. Regular Admit)

Definition of Terms

The following terms are defined as they will be used in the study:

First Year GPA:	The cumulative grade point average at the end of the first academic year as provided from the Office of the University Registrar. This is equal to the total quality points earned divided by total number of graded hours attempted during the first academic year. The University of Missouri uses a 4.0 scale.
APR:	Academic Progress Rate as defined by the NCAA.
Academic Eligibility:	The ability to compete in intercollegiate competition based on grade point average and progress toward degree requirements.
Retention:	Whether the student returned to the University in the subsequent term.
High School GPA:	High School GPA according to the Office of the University Registrar.
ACT Composite Score:	A student's composite score on the American College Test according to the Office of the University Registrar.
ACT English Score:	A student's English score on the American College Test according to the Office of the University Registrar.

ACT Math Score:	A student's math score on the American College Test according to the Office of the University Registrar.
HS Class Rank:	A student's high school rank in class upon graduation according to the Office of the University Registrar.
Race:	Students are broken into ethnic categories of Caucasian, African American, Hispanic, American Indian, and Asian.
Sport Code:	Type of sport that each student participates in (Revenue and Non Revenue).
Revenue Sport:	Sports that generate money for the athletic program. These sports are identified as Football, Men's Basketball and Women's Basketball.
Non-Revenue Sport:	Sports that do not generate money for the athletic program. These are identified as all sports other than Football, Men's Basketball and Women's Basketball.
Aid Status:	Identifies the student as a Scholarship or Non-Scholarship athlete.
Scholarship:	Students who receive athletic financial aid.
Non-Scholarship:	Students who do not receive athletic financial aid.
Admit Status:	Whether the student was accepted as a regular or special admit.
Regular Admit:	Students who meet the minimum admission requirements for the University.

Special Admit:	Students who do not meet the minimum admission requirements for the University and are admitted on academic probation.
Student Athlete:	Any student who was listed on the athletic participation report according to the Office of the University Registrar.

Significance of the Study

The current study has important implications for institutions nationwide. The University of Missouri has special interest in this research due to the students being used. If this study is successful in identifying a prediction equation for student athletes, then the University will be able to implement the equation into their recruiting and evaluation process.

Much of the misinterpretation surrounding intercollegiate athletics stems from the lack of knowledge from those outside of the department. This research should provide University administrators with data driven facts to discuss with campus faculty and staff rather than opinion or subjective interpretation. Further education for individuals outside of the department of athletics only helps the understanding of the campus community. In addition, this study will provide information about how student athletes are performing academically based on their campus expectation, rather than generally comparing them to the student body that is by and large better prepared for academic success. This data can

also be used in justifying decisions made by the athletic staff when questioned by the University's administrators, faculty members, staff and the general public about the quality of student that is brought to the University and the respective academic performance of those students.

Upon implementation of the new academic reform package by the NCAA, institutions must continuously be aware of their standing when studying the academic progress rate of their sport programs. Although the repercussions of poor performance only directly affects the athletic department, due to the media coverage and national spotlight on college athletics, institutions across the nation are being judged and compared based on each athletic program's academic progress rate performance. One understandable goal of the NCAA was to change the recruiting philosophy in college athletics (NCAA, 2006). Athletic programs are doing an injustice to the student and the institution by recruiting and admitting students who cannot be academically successful at the respective institution. The new academic reform program developed by the NCAAA aims to reestablish the importance of recruiting capable students. This research can provide that link between the fantasy and reality of recruiting academically competent student athletes. As this philosophy changes, coaches and athletic administration can use this research to determine what is best for the institution. If a sport program is dangerously close to falling below the APR penalty cutoff, this research could provide the staff with the information necessary to make an informed decision that could potentially affect the athletic department and institution. The goal is for this research to accurately predict academic

performance, thus allowing the staff to make an accurate assessment the student's ability and if the student can be retained and ultimately graduate from the university. If the current research shows minimal chance of academic success, the staff will be able to better assess the risk of recruiting or offering financial support to a marginal student.

In this new era, athletic academic support staffs are strategically assessing new tools to improve the services provided for student athletes. This research will also aid the athletic academic support staff in preparing for each incoming student athlete for academic success. Any information that can provide insight into the academic capabilities of a student is extremely helpful. Along with the ability to identify potentially "at risk" students, retention and progress towards degree requirements can be improved by providing specialized services for students who are predicted to struggle in the new academic setting that college creates.

Although the exact equation produced by this research will be institution specific, other institutions of similar academic rigor can use the model as a guide to create a similar predictor equation. Typically, collegiate athletics is viewed in a competitive light. However, every academic institution has the same obligation to provide a quality education for the student athletes that are admitted. Every athletic academic support staff strives for the same goal, to provide valuable educational experiences for the student athlete while striving for academic excellence. Even though institutions compete on the playing field, all are on the same team when it comes to educating society's future leaders. With this

understanding, many programs around the nation share effective practices in the eventual hope that academic success can be attained by all.

Last and definitely not least, this research will benefit every entering student to the institution. Strategies can be put in place to aid each student based on the student's unique characteristics. Those students who may have been unsuccessful in the past will be able to accomplish goals that they never thought possible. This will continue to change the attitude of the average student from completing what is necessary to remain eligible to conquering roadblocks on the way to earning a college degree. The research will provide each student with a sense of hope rather than another hurdle to jump. Existing predictors are not accurately showcasing the ability of student athletes and the support programs in place. This tends to feed the self-fulfilling prophecy that student athletes are below average students and there is no reason to strive for excellence. If the first thing a student hears when entering an institution is that there is no chance of academic accomplishment, why would that student strive for anything more.

Limitations of the Study

Since the data in this study are coming directly from student athletes at the University of Missouri, results may not be generalized to the student athlete population at other institutions.

In addition, student athletic data are embedded in the MU predicted GPA forecast, so some care should be taken in comparing the MU forecast and the outcomes created from the model in this study.

Students with incomplete academic predictor variables were removed from the study, thus decreasing the number of students available for this study.

Delimitations of the Study

For the purpose of this study, only data for domestic student athletes from the University of Missouri between 2002 and 2006 is used.

CHAPTER II

REVIEW OF LITERATURE

The review of related literature for this study will focus on five primary areas of concern. The first area presents the framework of the study and will address the evolution of the student athlete and will discuss the past research on the academic progress of student athletes. The second area will address the latest NCAA academic reform. This area is the bases of much of the reasoning behind this research and must be taken into consideration when looking at the academic performance of the student athlete. The third area will address the research surrounding variables that have been successful in predicting first year GPA. Much of the structure of this study will be based on the theoretical ideas presented by past research in this area. The fourth and fifth areas discuss the research behind first year GPA as a predictor of retention and graduation. Considering the details surrounding the NCAA's academic reform, these two areas are highly significant topics to discuss. Together, these areas will provide a solid basis of knowledge of previous research in leading to this study.

This chapter reviews the literature as categorized above and will be presented in the following format: (1) Evolution of the Student Athlete, (2) NCAA Academic Reform, (3) Predictors of First Year Success, (4) First Year Success Predicting Retention, (5) First Year Success Predicting Graduation and (6) Summary.

Evolution of the Student Athlete

The progression of intercollegiate athletics started over 150 years ago. In 1852, a crew match between Harvard and Yale on New Hampshire's Lake Winnepesaukee proved to be the first official contest in the history of college athletics (Miller, 2003). The intrigue of intercollegiate athletics has lead to its massive presence in today's society.

In 1906, the NCAA was founded in an effort to bring structure to the growing field of intercollegiate athletics. However, the academic requirements put on student athletes did not come until much later. Early in the history of the NCAA, individual institutions had the freedom to enforce their own eligibility standards that would best fit the demands and culture of their own communities (Sojka, 2003). There were obvious concerns as conflicts tend to arise when institutions self regulate. Unfortunately, for some time, the association did nothing to curb the out of control nature of academic eligibility. This may be due to the fact that athletic scholarships were not adopted by the NCAA until 1953 (Miller, 2003). Up to 1953, student athletes were paying their own way through college. This led many to believe that academic eligibility standards were not needed. If the student was paying for their own education, it was their responsibility to profit from the opportunity. However, upon implementation of athletic department funded financial assistance, conferences and institutions felt the need for a nationwide standard.

Institutions now had the ability to not only compete in the athletic arena, but in the recruiting game as well. Football's popularity was becoming more and more profound. It allowed the campus community to rally around a positive social experience and lead to the ability to attract alumni and fans from the general public. For the first time, the media was paying particular attention to the University. University trademarks, mascots, and colors became a sense of pride for those invested in the University. It captured the entire campus community in a way that the classroom never could (Rudolph, 1990). Athletics now allowed the University to appeal to a larger portion of the pubic than previously tapped with just the academic accomplishments of the institution. However, not all of this growth and popularity was accepted. The increased popularity infuriated some faculty which felt that athletic endeavors were encroaching on the University mission.

In 1965, the NCAA implemented the first of many minimum academic requirements that students would have to meet to remain eligible to play (NCAA, 2006). Over time, these standards have progressively become more stringent. The changes were out of necessity, as the lack of academic progress by student athletes and the lack of emphasis on their education had created a monster. More and more research was being conducted on the academic progress and graduation rates of these student athletes. The numbers were not good. Compared to other students at their institutions, student athletes were not competing well academically. This gave athletics the proverbial black eye that

they battle to this day. This is where many of today's social stereotypes about college student athletes originated.

It was not until 1983 that the NCAA began emphasizing the educational component of college athletics. During this period, Proposition 48 was passed (NCAA, 2006). To this day, the proposal is still highly debated, but Proposition 48 attempted to answer the question of whether student athletes deserved the benefits that they were receiving. The NCAA believed that they could address the issue of academic progress by providing institutions with academically prepared students. To do this, Proposition 48 stated that a student entering any NCAA Division I institution would have to have earned a 2.00 grade point average in 11 core high school courses. These students would also have to score a minimum of 700 on the Scholastic Aptitude Test (SAT) or a comparable score on the American College Test (ACT) (Bryant, 1992).

Based on their academic record, students were put into one of three categories coming out of high school. They were classified as either a "full qualifier", a "partial qualifier", or a "non-qualifier". A full qualifier met all three of the standards and was able to participate with no restrictions upon entering the institution. A partial qualifier was a student who failed to meet any one of the three standards. These students were still able to receive athletic scholarships, but would be ineligible to compete during their freshman year. A non-qualifier was a student who failed to meet all three of the initial eligibility standards. These students were not allowed to receive any athletic financial assistance (Lederman, 1989).

Although many administrators were happy with the attempt to hold student athletes accountable for their educational experience, some questioned whether Proposition 48 was the proper way to do this. Plenty of research exists addressing the concern of standardized test scores being racially biased. Even those who applauded the NCAA's attempt engaged in debate over the use of these standardized scores. Many minority students would not have an opportunity to attend college without the assistance that athletics provided. Now, a potentially biased test would help determine if they were qualified to earn that essential assistance (Duvall, 1986).

An NCAA review of standardized test scores showed a noted discrepancy between the scores recorded by white test takers and African American test takers. In 1996, the average ACT score for all white students was a 21.2, while the average score for all African American students was 16.9 (NCAA, 2006). However, proponents of Proposition 48 point out that while there was an initial decrease in the number of minorities participating in college athletics upon its implementation, those numbers have continued to increase and have actually surpassed the numbers prior to implementation. Thus, pointing to the fact that even a higher number of minority students are gaining access to the pursuit of higher education (Reith, 1995).

Proposition 48 provided all Division I institutions with the same pool of available high school students. However, each university has institution specific entering academic standards. Many institutions have minimums much higher than that of Proposition 48. While the attempt was made to provide a group of

potential students for all institutions, some students were inadmissible due to institutional standards.

To address this situation, institutions chose to make exceptions for students who did not meet their minimum academic standards, but provided the institution with a benefit outside the traditional academic sense (Ting 1997). These cases were called special admits. Each year, a certain number of student athletes are admitted on this basis. Depending on the institution, the percentage varies. The benefits they bring the institution in the athletic arena are viewed as a strong benefit to the institution and is enough to consider their acceptance. The rational behind this has a research basis.

White and Sedlacek (1986) found that students that qualified as special admits were not traditional in many ways. Even the typical predictor variables for academic success were not consistent with predictors for the general student population. They concluded that this group of students should be looked at in a different light than that of traditional college entrants. Due to past research and their recommendations, this study will code students as regular admits and special admits to determine if a difference exists between the two groups. The fitted equation may be shifted slightly for the special admits variable. In addition, Ting (1997) found that academically at risk students as well as minority students have greater academic success when they feel that they are part of a community. Ting (1997) also shows that special programs emphasizing academic support systems provide minority and at risk students with the resources needed to excel academically. In addition to typical advising and tutoring programs set up for this

population, Ting found that encouraging students to build a social network created a sense of belonging that is essential to their success. Athletics, through team participation, tends to lend itself to these types of student interactions. This may prove why student athletes that would normally not be admitted to the institution can be academically successful.

Due to the continuing emphasis on the academic success of student athletes across the nation, the NCAA mandated academic counseling and tutorial services in 1991 for all Division I student athletes (NACADA, 2005). Programs such as the Total Person Program, started in 1986 at the University of Missouri, proved to be pioneers in the field of athletic academic services. The goal of this program was to provide all student athletes with a structured academic environment that emphasizes communication, respect, and responsibility. As institutions continued to develop these programs, the NCAA allowed more and more services to be provided. In 2001, the NCAA gave permission to each institution to expand their academic services to fit the need of their students (NACADA.ksu.edu). The structured programs that are set up for all student athletes tend to be especially effective for those who fall into the special admit or at risk group. Thus, if there is any situation that these students should be put into, these special programs will provide the best opportunity to be academically successful.

Proposition 48 made a significant impact on the academic climate of college athletics. Graduation rates rose at faster rates than that of their non-athlete counterparts, especially with African Americans (NCAA, 2006). While the

NCAA was pleased with the gains that were made, they believed there was still room to improve. In order to further their march towards academic excellence, the NCAA developed an academic reform package in 2003 that was named the Academic Performance Program.

NCAA Academic Reform

To address the continuing concerns regarding graduation rates of student athletes, the NCAA implemented a comprehensive program addressing both initial eligibility and continuing eligibility in 2003. The hope was to compete with, if not exceed, graduation rates attained by the student body.

The initial eligibility standards that were implemented in 2003 required student athletes to complete 14 high school core courses with a minimum grade point average in those courses being a 2.0 (NCAA, 2006). By addressing initial eligibility, the NCAA felt that institutions would be receiving a more academically prepared student than in the past. Along with this new legislation was the removal of the partial qualifier. The sliding scale created in 2003 used standardized test scores and core course GPA to determine initial eligibility (NCAA, 2006). With the new scale, a student either earned eligibility status or did not; no longer could a student earn partial qualifier status and be able to be on athletic scholarship. The sliding scale was initiated to address those concerns surrounding the use of standardized test scores. A student can now prove his or

her academic worth by earning a high core course GPA, even if the test did not accurately project his/her intelligence.

The second portion of the Academic Performance Program taxed athletic academic service departments because of the continuing eligibility component. Student athletes were now going to be held to a higher standard when determining acceptable progress towards their degree. To remain eligible to compete, student athletes would have to meet certain benchmarks toward graduation. At the end of a student's second semester or first academic year, he/she would have to make progress in 24 degree applicable hours of coursework with at least a 1.80 grade point average. At the end of their fourth semester or second academic year, a student athlete is responsible for completing at least 40% of their declared degree program with a minimum of a 1.90 grade point average. Continuing, at the conclusion of a student's sixth semester or third academic year, they have to complete 60% of their degree with a 2.00 grade point average. The final step would be to complete 80% of their degree program at the end of their eighth semester or fourth academic year with a 2.00 grade point average (NCAA, 2006). The goal of this initiative was to put every student athlete on track to graduate within five years. Since the NCAA only allows an institution to provide ten semesters of athletic aid, this was a logical step for the NCAA administrative body. This program alone was implemented with much debate. However, the NCAA did not stop in their attempt to emphasize academic excellence.

The portion of the program that caught the attention of most coaches and administrators was the connection that the academic progress of their students would have with each individual program. The NCAA applied a penalty structure to a portion of the reform called Academic Progress Rate. This new equation, called APR for short, is considered to be a real time snapshot of each sport programs academic performance (Brown, 2005).

The APR equation provides each student athlete on athletic aid an opportunity to earn the respective sport program two points per semester. Each student earns a point for earning academic eligibility for the following semester and an additional point for returning to the institution for the next term (Marot, 2005). Eligibility and retention were chosen because these two variables are proven to be the best indicators of graduation (Brown, 2005). Thus, a sport team with 10 students on athletic scholarship could earn up to 40 points per year.

The equation is calculated by taking the total points earned and dividing by the total points possible for that sport team. A 925 APR score, approximately equal to a 50% graduation rate, is what teams must surpass in order to avoid the first of two penalty structures. The contemporaneous penalty structure is a term by term calculation and was meant to make an immediate impact on schools not meeting minimum academic standards. If a sport program was below the 925 cutoff, the sport team would have to review their records and identify any student who earned zero of the two possible points, now called “0 for 2”. For each “0 for 2”, the sport team is not allowed to award the scholarship that the “0 for 2” earned for the next academic year. For instance, the sport of football has 85

available scholarships. If this team's APR score fell below 925, they would lose one scholarship for each student who did not remain eligible and did not return to the institution, each "0 for 2". If they had 4 students that fell into this category out of 85, they would only be allowed to award 81 scholarships for the next academic year. According to University of Hartford President, and chair of the committee that developed the APR structure, Walter Harrison, contemporaneous penalties will serve to create change over the years where performance is below acceptable levels (Brown, 2005).

The second set of penalties implemented by the NCAA is called historical penalties. While contemporaneous penalties served as immediate warnings to schools who were struggling, historical penalties would be the most severe penalties a team could incur (Pope, 2006). These penalties are based on four years of APR data. Any team with an APR score below 900 over a rolling four-year period would be reviewed to determine whether penalties would be given (Pope, 2006). The NCAA recently approved a set of penalties for teams that fall below 900 for the historical portion of penalties. Some of these include postseason bans, recruiting restrictions, and loss of NCAA membership (NCAA, 2006).

While there is still much debate over the new academic reform that has been put into place, there are equal proponents and adversaries to the structure. Due to the relatively new data and research that is coming out on the topic, many are still forming opinions of its effects. However, the fact that the research

supports the suggestion of retention and progress towards a degree predicting graduation, the rise in graduation rates will almost certainly be realized.

Predictors of First Year Success

The search for research on predicting academic success of first year students provided a vast number of studies searching for the best set of variables that accurately predict the variance in first year GPA. However, the ability to agree on a set of variables that can be generalized to all types of institutions and students has yet to be identified.

In an article by Mouw and Khanna (1993), a review of the related literature found that an overwhelming number of studies had the traditional predictors including high school performance and standardized test scores. Of the 39 studies that were reviewed, 13 used both high school performance and test scores to predict college success. Sixteen used only high school performance and 22 used only test scores as a predictor variable (Mouw & Khanna, 1993). While there are multiple college entrance exams, the most popular tests used to predict college success are the American College Test (ACT) and the Scholastic Aptitude Test (SAT). The variance explained by using these two predictors alone range from .16 to .46 (Mouw & Khanna, 1993). In an effort to better predict first year grade point average, this study will use additional variables that have been suggested to predict first year success in all students and the student athlete population.

Many other studies have chosen to take the research to another level by identifying variables such as high school class rank as a predictor of academic success. Young and Barrett (1992) found that high school class rank added to the predictive ability of first year grade point average. In addition, a study by Miller, Rivell & Walker (1991) indicated that the number of colleges and universities that use high school class rank in admissions decisions has increased from 33 percent in 1979 to as high as 70 percent in 1989. Continuing, Podhajsky (1997) indicated that high school class rank may be the single best predictor of success and retention.

An additional area of interest is that of minority student academic performance. Some believe that different variables must be identified to predict college success. Flaxman (1983) indicated that grade point average and high school class rank should be considered as more important than standardized test scores to predict academic performance for the minority population. This research was supported in 1986 when Allen (1986) found high school GPA to be a significant predictor of college success for minority students. In fact, many academic performance studies (Lawlor et. al, 1997; Schwartz & Washington, 2002) proved that standardized test scores were not significant predictors and questioned the validity of these scores as well as the use of these scores to admit minority students. This suggestion lines up with the concern that standardized test scores are racially and socially biased and may not truly represent the academic preparedness of minority students.

As stated earlier, special admit students provide different challenges than those of regularly admitted students. Research shows that many of the same variables used to predict first year grade point average in regularly admitted students holds true for specially admitted students (White & Sedlacek, 1986; Houston, 1980). However, there tends to be a dynamic that affects these two prediction techniques.

Although there is an abundance of research on this topic for the general student population, there is less research available on student athletes. This may be due to the fact that student athletes provide such a diverse population and that the research would be very difficult to generalize to other campuses. Another challenge is the low numbers provided by these samples. While there tends to be approximately 500 student athletes at a Division I institution, this is a very small percentage of the overall undergraduate student population, which many times enrollment tops 20,000. However, there were some studies that provided insight into the predictive ability for student athletes. Young and Sowa (1992) found a positive relationship with both high school grades and class rank and higher college GPA.

Young and Sowa also found a similar result for the affect of high school grades and class rank on credit hours earned. Sedlacek and Adams-Gaston (1992) found that SAT scores were not valid predictors of academic success. However, race was not identified as a variable to be considered in this study. That may have had a significant affect on the results considering the number of minorities participating in intercollegiate athletics.

A topic that is almost certainly attached to the ability to predict academic performance is retention. Without the ability to perform adequately in the classroom, a student does not have a chance to remain at the institution. Attrition is as important a topic on college campuses as classroom performance.

First Year Success Predicting Retention

The issue of retention has been a major area of attention for institutions in recent years. Research has shown that 75% of students who do not return to an institution will depart during the first two years of college (Tinto, 1987). This shows the major problem that is endured by institutions nationwide. Without the ability to predict which students will remain at the University, graduation rates will continue to suffer.

McGrath and Braunstein (1997) indicated that first semester grade point average was a significant predictor of retention in individual students. In addition, a study by Murtaugh, Burns & Schuster (1999) confirmed Ting's findings that first semester grade point average was a significant predictor of retention. In a similar study, Debard et. Al. (2004) found that retention was highly correlated with cumulative GPA. This study found that the mean GPA of students who were retained was higher than those of students who were not retained. The finding makes sense considering the fact that students who have a positive academic experience tend to remain at an institution longer than those who have negative academic experiences (DeBerard, et al, 2004). If students have an opportunity

to experience success as a freshman, that success will lead to more confidence in academic ability and increase the interest in continuing their progression through college.

Although attrition rates and reasons for leaving differ at each institution, the basic research suggests that each individual institution should conduct University specific research in this area. This should allow the administration to address any potential problems that they have on their campus. Another study conducted by Ting (1997) found that variables such as high school class rank and ACT scores proved to be accurate predictors of student retention. Earlier research showed that these variables are used as accurate predictors of first year grade point average. Thus, researchers should be able to use those predictors of first year success to identify students who will remain at the institution.

With the emphasis put on retention during the NCAA's last academic reform initiative, research predicting academic success has become a major interest for those working with student athletes. The hope of this study is to use identified variables to predict first year GPA in a hope to identify students that can be academically successful and in turn remain at the institution long enough to graduate. Evelyn (2000) stated her feelings this way, "It doesn't do any good to students, financial aid lenders or even society if we bring students to campuses and then just let them sink or swim on their own." Research suggests that students are more likely to stay in school when they feel like they have a support network and are part of an accepted community (Astin, 1993; Tinto,

1993). The team structure of athletics tends to build that network and support system for incoming student athletes. However, a myriad of other issues including playing time, coaching changes, and athletic scholarship come into play when discussing the retention of student athletes. Regardless, institutions can only control those issues that they have a chance to control. Thus, if first year grade point average is a predictor of retention, and retention leads to graduation, then institutions should be able to recruit and admit students that can be academically successful and have a better opportunity to graduate.

First Year Success Predicting Graduation

The support for this area of the current study comes by simply connecting the research in different areas of academic success. As stated earlier in this study, first year grade point average is an accurate predictor of student retention (Tinto, 1987; McGrath, 1997; Murtaugh, 1999). Research has also stated that retention is highly correlated to the grade point average of the student, showing higher retention rates for students with higher grade point averages (Debard, 2004). This is a logical progression as students that have positive experiences will be more interested in continuing the pursuit of a degree.

Theoretically, if one can predict first year grade point average and admit a student that has a better chance of being both academically successful and retained at the university, the institution will have a better chance at identifying those students who can ultimately graduate from the university.

Summary

The main goal of the researcher is to identify those variables that can accurately predict success as defined by the NCAA and prepare our institution to graduate a higher percentage of student athletes. The review of related literature allowed the researcher to discuss the past research that supports the current theories. This study will be beneficial to a number of parties involved. First, the student athlete will be the most important person that will benefit from this research. The definitive goal of the institution, the athletic department and the coaches that bring the student to campus is to provide a quality education to the students that are recruited. If the institution can identify ways to increase the graduation rates of student athletes, then the institution owes it to the student to pursue those opportunities.

The second group that benefits from this research will be the institution itself. Graduation rates and academic success of student athletes are becoming more and more available to the media and the public. Institutions are being judged and compared based on the numbers presented. Once again, any way that those in the athletic profession can enhance the public perception of the University by increasing graduation rates and publicly available APR numbers needs to be identified and promoted.

The third area that will be benefit from this study will be the department of intercollegiate athletics. Too often, the negative highlights of the student athletes are publicly discussed. This research will give the department a way to justify to

administration the students that they are bringing to campus. This research will also allow the department to provide the institution a bragging point rather than a situation that is continuously criticized. This research should also allow the department to identify those students who need additional academic support. If these students are identified early and given the chance to experience academic success, the probability of their eventual graduation greatly increases.

This research is needed to fill the void left with the implementation of the new NCAA academic reform. The findings will provide a model for other institutions of similar academic rigor to duplicate. As stated earlier, even though institutions compete on the playing field or court for pride and bragging rights, nobody wins when a student athlete does not have the chance to succeed in the classroom and eventually leaves the institution without a college degree.

CHAPTER III

METHODOLOGY

The purpose of this study is to (1) determine if the predicted grade point average provided by the Office of University Admissions is a valid predictor of first year academic success for student athletes at the University of Missouri and (2) identify selected predictor variables that significantly account for the variance in first year grade point average of student athletes at the University of Missouri. The institution, the population used in the study, the data collection procedures, the profile of subjects and the methods of analysis are discussed in this chapter.

University of Missouri-Columbia

The University of Missouri-Columbia is a land grant institution and is the flagship institution of higher education in the state of Missouri. The Columbia campus offers 286 degree programs in 20 different colleges to approximately 28,000 students. The average ACT score of incoming freshman is 25.4 with nearly one third of incoming students coming from the top 10 percent of their graduating class (www.admissions.missouri.edu). As a major Research I institution, the University of Missouri is committed to challenging its students to achieve the highest levels of intellectual and personal development (www.missouri.edu).

Admissions requirements consider criteria such as high school coursework and performance, and SAT or ACT scores. In addition, special talents or membership in groups underrepresented on campus are considered during the admissions process. Typically, students are admitted to the University by meeting regular admissions standards. However, some students are allowed to be admitted under special admissions if the student's previous academic performance is lower than university standards. Students in this situation are thought to provide the institution with a benefit that is outside the traditional sense such as musical or athletic ability (www.missouri.edu).

The University of Missouri is a National Collegiate Athletic Association (NCAA) Division I member, offering 9 men's sports and 11 women's sports. Missouri's athletic teams consistently compete with the top programs in the nation. In 2005-2006, the University of Missouri finished 48th in the Directors Cup Standings (www.mutigers.com). These standings compare institutions across all sports, with teams earning points for competing in postseason competition.

The University of Missouri's student athlete support service department is termed the Total Person Program. This program was implemented in 1986, and proved to be a trendsetter in the field of academic support services. Prior to the NCAA's requirement to provide support services, this program took traditional academic advising to another level. The Total Person Program decided to develop the student athlete as a whole, identifying programming to address personal, professional and career issues in addition to the academic services already provided. Today, the Total Person Program has 10 staff members and

over 100 tutors that any student athlete has an opportunity to benefit from. The academic support staff acts as a liaison between the campus community and the athletic department. The staff provides support in the areas of course scheduling, major selection, communication with faculty, and study skills. Programming is offered in personal, professional, and career development as well as numerous community service activities. The priority of this program is to emphasize the structure and support offered in order to teach students how to be an independent successful learner that ultimately leads to graduation. The emphasis on graduation overcomes the idea of completing coursework to remain eligible.

Study Sample

This study will examine a sample of scholarship and non-scholarship student athletes who entered the University of Missouri during the 2002, 2003, 2004, 2005, and 2006 academic year. The sample of student athletes was taken from the files of the Office of the University Registrar. Since the study will be trying to predict first year success, students who do not have complete data will be removed from the study.

Profile of Subjects

The sample represented a total of 666 student athletes. Ninety six students had incomplete data that was needed to conduct the study, bringing the number of student athletes in the study to 570.

Of this number, 216 (38%) students were female and 354 (62%) were male; 169 (30%) were participants of revenue sports and 401 (70%) were participants of non-revenue sports; 188 (33%) were non-scholarship students and 382 (67%) were recipients of an athletic scholarship; 151 (27%) of the students were special admits and 419 (73%) were regular admits; 420 were Caucasian (73%), 112 were African American (20%), 8 were Hispanic (1%), 4 were American Indian (1%), 6 were Asian (1%), and 20 (4%) did not identify their ethnicity.

Data Collection Procedures

Data for this study were obtained through the Office of the University Registrar. This office provided the following information: race, gender, sport code, admission status, aid status, high school core course grade point average, ACT composite score, ACT English score, ACT Math score, high school class rank, institutional predicted first year grade point average, and actual first year grade point average. Student numbers and names were not provided to ensure confidentiality.

Method of Analysis

This study first compared the institutional predicted first year grade point average to actual first year grade point average for all students in the 2002, 2003, 2004, 2005 and 2006 cohort to see how the student athletes performed compared to the expectation set by the institution. The next step identified a model that more accurately predicts first year grade point average for this population. In this type of study, there is a possibility that multiple variables might correlate with first year academic success. Thus, it was necessary to choose a statistical design that allowed several factors to co-vary. A stepwise multiple regression analysis will be used to identify variables that accurately predict the variance in first year grade point average.

CHAPTER IV

PRESENTATION OF FINDINGS

Overview

The purpose of this study was to evaluate student athlete academic performance in relation to their respective predicted performance as defined by the Office of University Admissions at the University of Missouri. Based on findings, a regression analysis was performed to create an accurate prediction model for this population.

Data was requested from the Office of the University Registrar. Campus predicted first year GPA was compared to actual first year GPA on various levels. The mean difference between predicted and actual GPA is provided for the following variables: gender, sport code, admit status, race, and aid status.

A regression analysis was then conducted to identify an accurate model to predict first year GPA for the student athlete population. The following tables and discussions describe the findings.

Descriptive Data

Continued breakdown of the data will be shared in this segment. The difference between campus predicted GPA and actual GPA is compared on all

levels of the variables provided. This information will allow the researcher to identify the profile of student that was most successful and least successful in their academic pursuits.

Table 1 shows the mean difference between predicted GPA and actual GPA for all student athletes. On average, all student athletes performed .201 GPA points better than the campus predicted GPA.

Table 1

Student Population	N	Mean Difference
Student Athletes	570	.201

Table 2 shows the mean difference between predicted GPA and actual GPA based on gender. Females and Males performed .233 and .182 points higher respectively than the campus predicted GPA.

Table 2

Gender	N	Mean Difference
Female	216	.233
Male	354	.182

Table 3 shows the mean difference between predicted GPA and actual GPA based on sport code. Students participating in revenue sports outperformed the campus predicted GPA by .217 grade points. Students participating in non-revenue sports outperformed the campus predicted GPA by .195 grade points.

Table 3

Sport Code	N	Mean Difference
Revenue Sport	169	.217
Non-Revenue Sport	401	.195

Table 4 shows the mean difference between predicted GPA and actual GPA based on admit status. Special admits outperformed the campus predicted GPA by .432 while regular admits outperformed the campus predicted GPA by .118.

Table 4

Admit Status	N	Mean Difference
Special Admit	151	.432
Regular Admit	419	.118

Table 5 shows the mean difference between predicted GPA and actual GPA based on aid status. Scholarship student athletes outperformed the campus predicted GPA by .280 grade points while the non-scholarship students outperformed the campus predicted GPA by .042 grade points.

Table 5

Aid Status	N	Mean Difference
Non-Scholarship	188	.042
Scholarship	382	.280

Table 6 shows the mean difference between predicted GPA and actual GPA based on ethnic origin.

Table 6

Ethnic Origin	N	Mean Difference
Caucasian	420	.167
African American	112	.303
Hispanic	8	.305
American Indian	4	.200
Asian	6	.175
Not Available	20	.324

Table 7 is the first of the two level analyses and shows the mean difference between predicted GPA and actual GPA based on gender and aid status. Most notable in this table is the fact that the first group of students that actually perform below the campus predicted GPA (Male Non-Scholarship).

Table 7

Gender	Aid Status	N	Mean Difference
Female	Non-Scholarship	58	.141
	Scholarship	158	.266
Male	Non-Scholarship	130	-.003
	Scholarship	224	.290

Table 8 shows the mean difference between predicted GPA and actual GPA based on gender and sport code. Although the small *n* may have an affect, female students that participate in revenue sports outperformed the campus predicted GPA by .439 grade points.

Table 8

Gender	Sport Code	N	Mean Difference
Female	Revenue Sport	18	.439
	Non-Revenue Sport	198	.214
Male	Revenue Sport	151	.191
	Non-Revenue Sport	203	.176

Table 9 shows the mean difference between predicted GPA and actual GPA based on gender and admit status. Of particular interest is the fact that male special admits outperformed the campus predicted GPA by .444 grade points, compared to the regular admit students who outperformed the campus predicted GPA by only .053 grade points.

Table 9

Gender	Admit Status	N	Mean Difference
Female	Special Admit	34	.391
	Regular Admit	182	.203
Male	Special Admit	117	.444
	Regular Admit	237	.053

Table 10 shows the mean difference between predicted GPA and actual GPA based on aid status and admit status. This table shows that scholarship special admits outperformed the campus predicted GPA by .463 grade points.

Table 10

Aid Status	Admit Status	N	Mean Difference
Non-Scholarship	Special Admit	20	.229
	Regular Admit	168	.019
Scholarship	Special Admit	131	.463
	Regular Admit	251	.184

Table 11 shows the mean difference between predicted GPA and actual GPA based on sport code and aid status. A large discrepancy is shown in this table as scholarship students in revenue sports outperform the campus predicted GPA by .426 grade points while the non-scholarship students under perform by .135 grade points.

Table 11

Sport Code	Aid Status	N	Mean Difference
Revenue Sport	Non-Scholarship	63	-.135
	Scholarship	106	.426
Non-Revenue Sport	Non-Scholarship	125	.131
	Scholarship	276	.223

Table 12 shows the mean difference between predicted GPA and actual GPA based on sport code and admit status. This table shows that the special admit student outperforms the campus predicted GPA on a much higher level than the regular admit for both revenue and non-revenue sports. At the same time, it shows that regular admits in revenue sports under perform based on the campus predicted GPA.

Table 12

Sport Code	Admit Status	N	Mean Difference
Revenue Sport	Special Admit	84	.457
	Regular Admit	85	-.020
Non-Revenue Sport	Special Admit	67	.401
	Regular Admit	334	.153

Table 13 gives the first look at a data broken down by three variables. This table shows the mean difference between predicted GPA and actual GPA based on gender, sport code, and aid status. The data breaks down the lowest performing group, the non-scholarship students, further showing that the male revenue students perform the lowest (-.157).

Table 13

Gender	Sport Code	Aid Status	N	Mean Difference
Female	Revenue Sport	Non-Scholarship	4	.178
		Scholarship	14	.513
	Non-Revenue Sport	Non-Scholarship	54	.138
		Scholarship	144	.242
Male	Revenue Sport	Non-Scholarship	59	-.157
		Scholarship	92	.413
	Non-Revenue Sport	Non-Scholarship	71	.125
		Scholarship	132	.203

Table 14 shows the mean difference between predicted GPA and actual GPA based on gender, aid status, and admit status. The table continues to show the discrepancy between admit status and further breaks down the performance difference.

Table 14

Gender	Aid Status	Admit Status	N	Mean Difference
Female	Non-Scholarship	Special Admit	2	.093
		Regular Admit	56	.142
	Scholarship	Special Admit	32	.409
		Regular Admit	126	.230
Male	Non-Scholarship	Special Admit	18	.244
		Regular Admit	112	-.042
	Scholarship	Special Admit	99	.481
		Regular Admit	125	.137

Table 15 shows the mean difference between predicted GPA and actual GPA based on gender, sport code, and admit status. Again a small *n* shows the largest outcome overall. Female revenue sport special admits outperformed the campus predicted GPA by .571 grade points.

Table 15

Gender	Sport Code	Admit Status	N	Mean Difference
Female	Revenue Sport	Special Admit	7	.571
		Regular Admit	11	.355
	Non-Revenue Sport	Special Admit	27	.344
		Regular Admit	171	.193
Male	Revenue Sport	Special Admit	77	.447
		Regular Admit	74	-.076
	Non-Revenue Sport	Special Admit	40	.440
		Regular Admit	163	.111

Table 16 shows the mean difference between predicted GPA and actual GPA based on sport code, aid status, and admit status. This table continues the breakdown of the revenue scholarship students into admit status.

Table 16

Sport Code	Aid Status	Admit Status	N	Mean Diff.
Revenue Sport	Non-Scholarship	Special Admit	11	.160
		Regular Admit	52	-.198
	Scholarship	Special Admit	73	.502
		Regular Admit	33	.260
Non-Revenue Sport	Non-Scholarship	Special Admit	9	.312
		Regular Admit	116	.117
	Scholarship	Special Admit	58	.415
		Regular Admit	218	.172

Table 17 is the final GPA analysis table and completes the breakdown into four categories. This table shows the mean difference between predicted GPA and actual GPA based on sport code, aid status, admit status, and gender.

Table 17

Sport Code	Aid Status	Admit Status	Gender	N	Mean
Revenue Sport	Non-Scholarship	Special Admit	Male	11	.160
		Regular Admit	Female	4	.178
			Male	48	-.229
	Scholarship	Special Admit	Female	7	.571
			Male	66	.494
		Regular Admit	Female	7	.456
			Male	26	.207
Non-Revenue Sport	Non-Scholarship	Special Admit	Female	2	.093
			Male	7	.375
		Regular Admit	Female	52	.140
			Male	64	.098
	Scholarship	Special Admit	Female	25	.364
			Male	33	.454
		Regular Admit	Female	119	.217
			Male	99	.119

Tables 18, 19, and 20 show the stepwise regression analysis outcome. A stepwise multiple regression analysis was performed on first year GPA to identify variables that significantly predict first year performance. Five models were considered statistically significant. However, since Gender and Admit Status accounted for less than 1% of the variance in first year GPA, only three significant models were retained.

High school grade point average (HSGPA) explained a significant portion of first year performance, F (1,568) = 412.77, $p < .001$, $R^2 = .421$. Additionally, ACT Composite (ACTC) also explained a significant portion of additional variance in first year performance, F (1,567) = 54.35, $p < .001$, $R^2 = .051$. Finally, aid status (AID) added another significant explanation of first year performance, F (1,566) = 27.85, $p < .001$, $R^2 = .025$. Aid status was dummy coded as to identify non-scholarship students as 0 and scholarship students as 1. The significant regression equation that was accepted is shown below:

$$Y' = -.510+.608X_{HSGPA}+.052X_{ACTC}+.238X_{AID}$$

Table 18

Model	R	R Square	Std. Error of the Estimate	Change Statistics		
				R Square Change	F Change	Sig. F Change
1	.649(a)	.421	.52465	.421	412.768	.000
2	.687(b)	.472	.50162	.051	54.351	.000
3	.704(c)	.496	.49015	.025	27.854	.000

a Predictors: (Constant), HSGPA
b Predictors: (Constant), HSGPA, ACTC
c Predictors: (Constant), HSGPA, ACTC, AID

Table 19

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	113.618	1	113.618	412.768	.000(a)
	Residual	156.347	568	.275		
	Total	269.965	569			
2	Regression	127.294	2	63.647	252.944	.000(b)
	Residual	142.671	567	.252		
	Total	269.965	569			
3	Regression	133.986	3	44.662	185.901	.000(c)
	Residual	135.979	566	.240		
	Total	269.965	569			

a Predictors: (Constant), HSGPA
b Predictors: (Constant), HSGPA, ACTC
c Predictors: (Constant), HSGPA, ACTC, AID
f Dependent Variable: AGPA

Table 20

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.217	.130		1.665	.096
	HSGPA	.803	.040	.649	20.317	.000
2	(Constant)	-.198	.137		-1.450	.148
	HSGPA	.609	.046	.492	13.221	.000
	ACTC	.045	.006	.274	7.372	.000
3	(Constant)	-.510	.146		-3.490	.001
	HSGPA	.608	.045	.491	13.499	.000
	ACTC	.052	.006	.315	8.482	.000
	AID	.238	.045	.163	5.278	.000

a Dependent Variable: First Year GPA

Table 21 shows the correlation between variables. This correlation table explains the relationships between independent variables as well as the relationships between the independent variables and the dependent variable.

Table 21

Variables	Actual GPA	Sport Code	Aid Status	Admit Status	Gender	Ethnicity	HS GPA	HS RANK	ACTC	ACTE	ACTM
Actual GPA	1	.334(**)	.017	.422(**)	-.320(**)	-.025	.649(**)	.583(**)	.556(**)	.533(**)	.531(**)
Sport Code		1	.059	.341(**)	-.365(**)	-.099(*)	.347(**)	.285(**)	.371(**)	.343(**)	.335(**)
Aid Status			1	-.252(**)	-.102(*)	-.012	-.138(**)	-.142(**)	-.249(**)	-.251(**)	-.177(**)
Admit Status				1	-.190(**)	-.047	.639(**)	.669(**)	.628(**)	.569(**)	.584(**)
Gender					1	.021	-.335(**)	-.278(**)	-.158(**)	-.261(**)	-.087(*)
Ethnicity						1	-.071	-.033	-.106(*)	-.062	-.087(*)
HS GPA							1	.872(**)	.572(**)	.554(**)	.548(**)
HS RANK								1	.535(**)	.525(**)	.520(**)
ACTC									1	.888(**)	.869(**)
ACTE										1	.685(**)
ACTM											1

N = 570

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

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

CHAPTER V

SUMMARY, FINDINGS, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER STUDY

Summary

The purpose of this study was (1) to compare the first year academic performance of student athletes to the campus predicted first year GPA and (2) identify a more accurate model to predict first year GPA for this population considering the vast differences between student athletes and the general student body.

The analysis of predicted and actual first year performance allowed the researcher to determine if the prediction model used by the Office of University Admissions is an accurate predictor of first year GPA for student athletes. It was determined that the prediction model created by the Office of University Admissions to predict first year GPA for the incoming student body does not accurately predict first year GPA for the student athlete population. This caused the researcher to reject the null hypothesis that the campus formula was an accurate predictor of first year academic performance for student athletes. This analysis further allowed the researcher to identify characteristics of students who seemed to flourish in the structured, supportive environment provided by the academic support system in athletics. In contrast, the researcher was able to

identify students who, based on the individual student's incoming ability, struggled to perform at the institution's expectations.

Based on the rejection of the null hypothesis stated above, a regression analysis was performed in an attempt to identify variables that significantly explain the variance in first year GPA for student athletes. There is an interesting mix of findings that will be presented and discussed in the upcoming sections.

Findings

This section will present the findings from the research done on academic performance of student athletes at the University of Missouri. The comparison to campus predicted GPA will be presented first, followed by the results from the regression analysis.

Based on campus's generally accepted prediction equation for the incoming student body, the population of student athletes as a whole outperformed the campus predicted first year GPA by an average of .201 grade points, with approximately 70% of the students performing better than the campus predicted GPA. Further analysis of the data continued to separate and identify students who outperformed the predicted GPA by considerable margins.

The most notable findings are those of students in the special admit category. Initial breakdown of this group showed that the predicted GPA was outperformed by .432 grade points. This seems to be a large discrepancy considering this is in the context of a 4-point scale.

The initial analysis of students on athletic scholarship and those that are not on athletic aid shows a small difference. However, further analysis of this variable shows a large discrepancy between male scholarship and male non-scholarship students with male scholarship students outperforming the predicted GPA by .290 grade points while the non-scholarship males performed at a -.003 rate compared to the campus predicted GPA. In addition, an even larger difference is shown when breaking aid status into revenue and non-revenue sports. The outcome shows a difference of more than half of a grade point, with students on athletic scholarship in revenue sports outperforming the predicted GPA by .426 grade points while non-scholarship students participating in revenue sports actually performed at a -.135 grade point margin.

Another interesting discovery was found when looking at ethnic origin. Students in each category of ethnic origin outperformed the campus predicted GPA, but to what extent was interesting. African American students performed better than Caucasian students when taking academic preparedness into the consideration. African American students outperformed the predicted GPA by .303 grade points while Caucasian students outperformed the predicted GPA by .167 grade points.

The results not only provided intriguing information on students who outperformed the predicted GPA, but also some who performed poorly compared to the predicted GPA. The most underperforming group is found when looking at regular admit males who participate in revenue sports, but are not on athletic aid. This group performs at a -.229 when compared to the campus predicted GPA.

Of further interest are the findings that did not differentiate between certain groups. For instance, students in both revenue and non-revenue sports outperformed the predicted GPA, but the difference between these two groups was very small with students in revenue sports at .217 and students in non-revenue sports at .195 points above the predicted GPA. This was a surprising result considering the large amount of attention that is given to the academic failures of students that participate in revenue producing sports.

Based on the above findings, it was determined that the prediction model used by the Office of University Admissions was not an accurate predictor of first year GPA for student athletes. Thus, the null hypothesis for question 1 was rejected, leading the researcher to attempt to identify a more accurate model to predict first year GPA for the student athlete population.

A stepwise regression analysis was performed and provided a model that showed three variables that significantly predict first year performance for student athletes. Together, high school GPA, ACT composite, and aid status explained nearly 50% of the variance in first year GPA. High School GPA was responsible for explaining 42% of the variance, ACT Composite explaining just over 5% of the variance, and aid status explaining approximately 2.5% of the variance. Two more variables were statistically significant (gender and admit status), but were left out of the results because the variables explained less than 1% of the variance and thus were not considered substantial enough to retain.

Six variables were not significant in predicting first year success, including ACT English score, ACT Math score, high school class rank, race, sport code,

and admit status. However, analysis of the correlation coefficient (*r*) table explains why some of these variables were not significant. Independent variables that are highly correlated explain a similar portion of the variance in first year GPA. Thus, the regression analysis will identify the most significant of those highly correlated variables. For example, for obvious reasons the ACT English (*r* = .888) and ACT Math (*r* = .869) variables were significant and highly correlated with the ACT Composite variable. Thus, the ACT Composite variable was accepted while the English and Math sub-score variables were rejected. In addition, high school class rank (*r* = .872) and high school GPA were significant and highly correlated, creating a similar situation to the ACT variables. Further, admit status at the University of Missouri is based on high school GPA (*r* = .639) and class rank (*r* = .669). So, it is understood why those variables were significant with high correlation, leading admit status to be rejected in the regression analysis.

The correlation outcome produced an interesting finding. It was found that sport code was not even moderately correlated with other variables and was not a significant predictor of first year GPA. This was an intriguing result considering the attention given to the perceived poor academic performance of students in revenue producing sports. The regression analysis also concluded that sport participation did not predict first year success.

Continued analysis of the correlation table shows the relationship between the dependent variable (actual first year GPA) and the independent variables. Only two variables, aid status (*r* = .017) and ethnicity (*r* = -.025) were not

significantly correlated to first year GPA. There were five variables, admit status (r = .422), high school rank (r = .583), ACT composite (r = .556), ACT English (r = .533), and ACT Math (r = .531), that were significant and moderately correlated with first year GPA and one variable, high school GPA (r = .649), was significant and highly correlated with first year GPA.

Discussion

The researcher's purpose for looking at the academic performance of student athletes in relation to the predicted grade point average produced by a verified campus measure was to include the difference in academic preparation of students. To compare grade point averages from one student to another without considering the incoming ability of the student is irresponsible and inaccurate. Unfortunately, this technique is performed and accepted in much of the related literature, such as Shuman & Bowen's 2001 study on the academic performance of student athletes compared to non-athletes and Maloney & McCormick's (1993) study on the academic achievement of student athletes. An accepted formula to predict first year success gives the researcher an opportunity to look at performance in context and evaluate that performance by comparing it to what was expected.

Some very interesting findings were discovered when dissecting the data by demographic categories. The fact that the student athlete population as a whole outperforms the campus predicted GPA by two-tenths of a grade point is

not surprising due to the support that is available. However, continued breakdown of the data identifies very interesting findings.

One positive outcome was the performance of African American student athletes. These students performed .303 grade points higher than the campus predicted GPA. This group's performance was interesting to see as it has been stated that African American students tend to perform better when they feel like they are a part of a community and have other people that have similar interests to connect with (Toney & Lowe, 2001). Athletics lends itself to this setting because students are closely connected with other teammates and have many of the same interests. This sense of community has no doubt helped student athletes adapt to college life and find the support needed to surpass expectations in the classroom.

The largest discrepancy in performance proved to be with the special admit population. Although special admits did not meet minimum admissions standards to the University, the institution admitted these students because of the positive benefits that are provided in another area of campus life. Because of the special admission, this group tends to be the most closely monitored. It is important to highlight this group's performance as these students are a responsible part of the University community and must make adequate academic progress once here. The data shows that this is true as special admit student athletes tend to outperform the campus predicted GPA by more than four-tenths of a grade point as a whole and even more when the data is analyzed further. While it was not in the scope of this study, it appears that this performance is

largely due to the structure of athletics and the academic support that is provided, including the emphasis put on the academic success of this population. This is a positive finding as it shows the institution's commitment to the student. If an institution is going to admit a student that does not meet minimum standards, then a responsibility is put on the University to provide the support necessary to aid in the academic success of these students. If the institution can not provide that support, it would be irresponsible to admit these students in the first place.

An additional positive viewpoint that is presented from this outcome appears when looking at the proportion of African American students included. 20% of the student athlete population analyzed in this study were African American compared to only 6% of the undergraduate population at Missouri. It is stimulating to see the long term benefits that these students are providing the institution as each student adds to the increasingly diverse population of the student body. It seems like a positive situation for the student, the institution, and society. The student is receiving a quality education, the institution creates an environment filled with diversity and society gets individuals who are able to provide wide contributions to its development.

One finding that is of particular concern is the discrepancy between scholarship and non-scholarship students in revenue sports. While it is impressive to see the scholarship students in this group outperform the predicted GPA by more than four-tenths of a grade point, it is concerning to see the non-scholarship student in this same category perform at such a low level,

underperforming by more than a tenth of a grade point. This is an area that should be addressed by identifying the issues surrounding the problem and providing the necessary support to bring about change. The institution must provide the same emphasis and support for all students, regardless of scholarship status. In return, these students should be held to the same academic responsibility.

The surprising lack of difference between revenue and non-revenue sports was an interesting outcome. Generally, it is presumed that students participating in revenue sports perform at a low academic level. It may be true that these students perform at a lower level when just GPA is compared. However, when incoming ability is taken into consideration, these students are performing similar to other student athletes and better than campus expectations. This was proven as both groups outperformed the campus predicted GPA by approximately .2 grade points. This is another important reason why a context should be identified when looking at the performance of students. While students in revenue sports may perform at a lower level overall than general students, based on the academic ability and the predicted GPA of each student, this group is performing at a similar or slightly higher level.

The second purpose of this study was to identify a model that accounts for the greatest portion of variance in first year academic performance for student athletes. It was not surprising to see high school GPA and ACT Composite as significant predictors of academic success, but it was interesting to see aid status replace the campus' high school class rank variable. Nearly 50% of the variance

in first year performance was predicted with these three variables. While the variables that were significant are noteworthy, the variables that are not significant warrant considerable attention. Sport code was discussed earlier as a variable with interesting findings. In addition, gender and race were variables that were anticipated to be significant in explaining student athlete performance. This is especially interesting due to the attention given by the media expecting males and minority students to perform poorly academically.

This information should prove significant for the institution and student support center for athletics. With the increased attention put on the academic success of student athletes by the NCAA, the institution will be held more accountable than ever. The punishments dealt by the NCAA to institutions with below average academic performance could cripple the athletic department's ability to compete with national counterparts. The academic performance of these student athletes also reflect on the institution as a whole. With the attention given to publicly released data, the University's name is attached to this performance, thus giving these students the ability to affect the public perception of the University. This research provides the institution with the data necessary to identify students who may need extra academic attention and can be utilized to mandate specific programming for these students.

Conclusions

These findings continue to support the purpose of the current study to initially compare performance to a standard measuring tool. Without the context given in this study, one might assume that many of the students identified performed poorly in their academic endeavors. In contrast, when academic preparedness was taken into consideration, most student athletes proved to perform at or above expected performance levels.

It is commendable that student athletes as a whole outperform the campus predicted GPA while accepting the challenging task of balancing a rigorous academic schedule and demanding athletic commitment. While this study did not attempt to identify causation, this performance is in no doubt aided by the structured nature of athletics, the community that it creates and the support that is provided. However, it also shows that the University is fulfilling the commitment to the student when he/she accepts to attend an institution to compete in athletics.

Academic support systems for student athletes provide a nurturing, controlled environment that aid in the individual development and growth as a student and not just as an athlete. This commitment to academic growth is surely a key component to the academic success of the student athlete population. Continued investment and emphasis put on the academic excellence of the student athlete population is supported in research by Lambertson (1998), when departments with required programming for student athletes averaged a

14% higher graduation rate than programs with no mandatory programming. If a non-targeted approach has such a profound affect on graduation, the current research can open up the doors of possibility for these academic support programs. If resources and attention can be focused to those students who need the most assistance, the first year success of these students will lead to retention and the ultimate goal of graduation.

Recommendations for Further Study

While a significant model was identified, only 50% of the variance in first year performance was defined. Future research should identify additional variables that could define additional variance in the first year academic performance of student athletes. The difficulty in this is that the possibilities are endless and thus provides an obstacle as to which way the researcher should continue. However, this research leads to so many additional questions, that one could spend a career diving deeper into academic performance of the intriguing population that is the student athlete.

Additional research could be continued on the current model to further develop the ability to predict the academic success of student athletes at the University of Missouri. As the profile of student changes, so does the model. Thus, if the model is to an accurate benefit to the institution, it must be kept current with each incoming class.

Another possibility for future research rests with the ability to take this model to other institutions in an attempt to identify significant predictors within each institution. The current outcomes will provide the University of Missouri the ability to identify students who need additional support to be successful at the institution. Other institutions are suggested to look at similar research in order to provide the programs necessary to ensure the academic success of student athletes.

It is suggested that the administration at the University of Missouri utilize the current research in order to evaluate the current performance of student athletes as well as increase programming for those falling below campus expectations. Continued assessment of programming and student performance will provide the institution with further research and data on incoming student athletes.

Due to the nature of the transfer student, a predicted GPA is not created for this population. Further research may be able to look into the ability and performance of these students in order to identify a similar model. Unfortunately, much of the incoming academic information is not readily available for these students so the research must be creative in identifying ways to define incoming ability.

Another important aspect to consider when looking at specific sport teams is the impact that the coach has on his/her students. The philosophy of the coach has a profound affect on the emphasis put on academic success. Further

research would benefit by identifying a method to measure individual coach's influence on academic performance.

This research provided a foundation for future research concerning the academic performance of student athletes at the University of Missouri. As important as this research is in identifying a model with which to start from, this research provides ample opportunity to continue defining variables that affect first year student athlete academic success.

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VITA

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Upon completion of his Masters degree in 2001, Joseph began his career in athletic administration at the University of Missouri. Over the next five years, he oversaw all academic services for the sports of football and volleyball. In 2006 he was promoted to Director of Academic Services in the University of Missouri Department of Intercollegiate Athletics.

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