An investigation of the academic preparation and performance of student-athletes at Iowa State University

Gary Irving Wade
Iowa State University

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An investigation of the academic preparation and performance of student-athletes at Iowa State University

Wade, Gary Irving, Ph.D.
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An investigation of the academic preparation and performance of student-athletes at Iowa State University

by

Gary Irving Wade

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of the Requirements for the Degree of DOCTOR OF PHILOSOPHY

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Approved:
Signature was redacted for privacy.
In Charge of Major Work
Signature was redacted for privacy.
For the Major Department
Signature was redacted for privacy.
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INTRODUCTION

The relationship between higher education and intercollegiate athletics has been a controversial one since the earliest development of sporting events in the United States. While athletic games developed as contests between villages in early America, organized sport developed within the sphere of higher education with the organization of athletic conferences. The debate concerning the place for athletics within higher education centers around the structure of American society and the role of higher education within that society.

A special Carnegie Foundation report in 1929 on 'American College Athletics' described the main purpose of a University: "While the university in every civilized country will reflect, to a greater extent, national ideals and habits of mind, its primary function in every country is to serve as an exponent of its highest intellectual life." (Carnegie Foundation, 1929, p. v). Those who favor a role for athletics within higher education claim that it is a perfect mirror of the basic foundations of American society. The ideals of an absence of class feelings and recognition of equal opportunity for the poor as well as the rich permeate both the American social structure and its higher education model. (Carnegie Foundation, 1929, p. xiii). That is directly opposed to the older, more established pattern of the university which was developed in Europe: "...colleges in the United States began to be sensitive to the fact that they were not on a plane of scholarship and research comparable with that of the European universities, and particularly of the German universities..." (Carnegie Foundation, 1929, p. ix). The European model was one based on the fact that education was reserved for the privileged. "...the idea of higher education for the masses, largely ignored in Europe except in Russia, has caught on in such strongholds of elitism as England and Germany" (Geiger, 1963, p. 6). The idea of higher education as the great social
equalizer, available to everyone, remains virtually a commitment of American society and education yet today.

The aim of a university has been accepted as the development of intellectual life. While the European model grew around that principle, the American model has expanded the concept. American higher education generally offers an education with emphasis on preparing the mind to handle real life situations, pointing especially towards a future business or profession for the student. (Carnegie Foundation, 1929, p. ix). The inclusion of athletics within that American higher education model followed a national social pattern emphasizing competition. Just as communities were quick to copy successful models such as schools, libraries and governmental organizations, universities also copied successful innovations. If one university found success with an idea, others soon followed. Immediately behind imitation came competition. Natural feelings of competitiveness led to contests of skill. Early rivalries between communities soon led to intercollegiate rivalries based on geographical competition. Organized sport grew from these local contests of skill, organized around the development of institutions of higher education.

From the early beginnings of organized athletic activity it was assumed that there was a legitimate place in the American college for organized sport (Carnegie Foundation, 1929, p. vi). Basically, the claims followed two ideas: First, that sport was good for the national as well as individual health, and second, that sport developed character. It was a character which mirrored our national image in America, developing around the agrarian ethic of hard work with the land. The result of that work ethic was the opportunity for everyone to move ahead in American society. That opportunity was soon adopted by higher education. "The starting point of any discussion of higher education and Democracy in America must obviously be the
Morrill Land-Grant Act....the revolutionary effects of the colleges launched under the Morrill Act were the admission of a host of new subjects to the precincts of higher education and the demonstration that higher education for the masses was workable" (Geiger, 1963, pp. 3-5).

The involvement of people in games dates back to the earliest history of man. In America, athletic events originated with its earliest citizens. Football was referred to as early as 1609 in Virginia. (Carnegie Foundation, 1929, p. 14). Almost immediately, however, the sport began to reflect the national image. Tied closely to the soil and its hard work brings opportunity ethic, American society rested around its hard labors. Sport was a natural outgrowth of recreation. Sport grew within community boundaries with time set aside for special celebrations such as market days, barn raisings, huskings and harvest time. Spirited competition was the focal point of most of the recreation period. Some of the earliest paintings of the New England Thanksgiving holiday reveal sections of men kicking a football. The developing growth of social organizations as well as the rise of the militia led to the creation of rivalries, which led naturally to the tests of athletic skills. (Carnegie Foundation, 1929, p. 14). Thus, American sport evolved concurrently with the American college, both based on the ideals of American social development.

Those who argued for the inclusion of athletics within the framework of American colleges felt that it was basically good for the school. Annual fall uprisings, which raised havoc in the local communities, had been a result of pentup energies of undergraduates. Sports provided a positive alternative. (Peabody, 1907, p. 56). School officials maintained that athletics taught respect for authority, school and community as well as students' property. They claimed that sport mirrored the real
world and that students needed a chance to talk of life outside the boundaries of what was taught in the classroom.

The main claim for the supporters of athletic competition in higher education, however, continued to be the health benefits of exercise, and more importantly, the virtues of competition. Many of the nation's leaders of the day argued the deplorable physical state of the nation's college students prior to the inclusion of athletics. (White, 1905, p. 663). The development of leadership skills and discipline taught by being a team member, as well as sacrifices of time and effort were deemed desirable individual characteristics.

Those who argued against the inclusion of athletics within the framework of higher education centered their claims around two basic themes: the first being that the pursuit of higher education should remain strictly an intellectual endeavor. The second theme revolved around the excesses of sport: unethical recruitment and participation, excessive and brutal injuries and decline of the amateur athletic initiative. Some of the modern critics of American higher education, including David Riesman, imply that admitting the masses has resulted in lowered standards for our colleges (Geiger, 1963, p. 8). This concept argues against the development of both the guiding principle behind American education and the growth of American society as it is known today. America was built around the principle that everyone is equal and entitled to a fair chance to succeed in life. American higher education exemplifies that principle by providing an opportunity for anyone who wishes to participate.

Further, critics became persistent challengers of what has become known as the excesses of intercollegiate athletics: massive injuries; gambling; drug abuse; cheating; recruiting abuses; professionalism of amateur athletics; encouragement of team sports at the expense of the more desirable individual participation. Former
Harvard University President Charles W. Eliot was the most outspoken critic of the wanton exaggeration he saw in intercollegiate athletics of the time. (Carnegie Foundation, 1929, p. 24).

The greatest, most consistent claim which opponents of athletics have expressed since the very early days is the de-emphasis of the ultimate goal of higher education: the development of the intellect.

**Problem Statement**

Whether or not the purpose of higher education is the overall development of the mind or training for the professions is a philosophical debate which may never reach a conclusion. Arguments over the excesses of intercollegiate athletics are another debate which promises no single, conclusive answer.

The problem that this research project undertakes relates to whether or not the development of the intellect remains the focus for student-athletes in higher education today.

Academic achievement is defined by most writers as the attainment of graduation status. (Parsons, 1969, p. 20). However, some higher education officials believe that a college degree is too narrow a definition for success in higher education. There is a belief that merely getting certain student-athletes out of a negative home community environment and into the collegiate atmosphere is enough of an opportunity to get ahead in life. Ness lays the debate out simply: "Is it the assumption that the degree is the only meaningful result of the student-athletes' exposure to college?" (Ness, 1981, p. 23).

**Purpose**

The purpose of this study is to investigate and describe student-athletes' preparation for and performance in college. Additionally, study results will reflect upon
the role of the institution in support of the student-athlete's pursuit of higher education.

The key to understanding this academic/athletic dilemma begins with the student-athlete. At the base of this relationship is an athletic tender. The agreement is a mutually-binding contract between two parties, the prospective school and the potential athlete. At its simplest, the tender is an agreement that offers the student athlete an opportunity to reach his or her potential in two areas, on the athletic field as well as in the classroom. The most fundamental goal of the agreement, however, is a college education. The tender is a legally-binding agreement that ties both parties to the pledge. The offering institution must maintain the maximum opportunity for the student athlete to progress toward graduation in return for the athlete's agreement to participate on an athletic team. However, many observers claim that in recent years the athlete's pledge to seek graduation with an effort equal to that displayed on the athletic field has been forgotten.

"Data descriptive of athletes only are relatively meaningless in the absence of some kind of reference point against which to compare them." (Stecklein & Dameron, 1965, p. 3). The design of this study, therefore, included a comparison group of males and females who were not participants on intercollegiate athletic teams. The groups were matched according to date of entry into college and by race.

Need for Study

College presidents, facing mounting challenges from such powerful areas as the legislative branch of the federal government, have promised to critically evaluate the system and recommend changes in academic matters that threaten the reputation of higher education institutions. Faced by a public outcry that "they've lost control," college presidents have taken steps to show that they are still in control. The last
two annual meetings of the National Collegiate Athletic Association (N.C.A.A.) have seen significant participation increases from college presidents. Indeed, the presidents' group has formed a subgroup known as the Knight Commission to begin a three-year study of measures relating to the interrelationship of athletic and academic issues.

Before officials can make changes, however, there needs to be an empirical base of data collected for them to reflect upon. While the presidents have concentrated on graduation rate inquiries, this study would include other measures of academic performance as well as the preparation of student-athletes for the college experience. The investigation would seek to add to current data and help college administrators make responsible decisions about intercollegiate athletics and its role in higher education.

The methodology of this study creates a baseline of data for on-going comparison and analysis of the development of academic opportunities for student-athletes at Iowa State University. The tool provided should assist support service personnel in their efforts to monitor and assist student-athletes in their educational endeavors. Additionally, these data should prove useful in assessing the effects of recent legislative actions related to the rise in higher admission standards mandated for student-athletes by the N.C.A.A.

**Research Questions**

Several research questions guided the direction of this study.

The first research question concerned whether or not the data revealed any differences between the student-athlete and non-athlete subject groups in academic preparation for college. The second research question related to whether or not the data revealed any differences between the student-athlete and non-athlete subject
groups in academic success in college. The third research question sought to measure any differences between the student-athlete and non-athlete subject groups in academic performance in college. The fourth research question concerned whether or not the data revealed any differences between the student-athlete and non-athlete subject groups regarding factors contributing to nonperformance in college. The fifth and final research question related to whether or not the data revealed any differences between the student-athlete and non-athlete subject groups in participation in summer school during their college careers.

Hypotheses

The five hypotheses to be tested are reported in the null form.

1. There is no difference in academic preparation for college of a selected group of student-athletes and non-athletes; and subgroups of student-athletes (those participating in revenue-generating sports versus those in non-revenue-generating sports and male versus female athletes) as measured by:
   a. high school rank;
   b. American College Testing (ACT) composite score.

2. There is no difference in academic success in college of a selected group of student-athletes and non-athletes; and subgroups of student-athletes (those participating in revenue-generating sports versus those in non-revenue-generating sports and male versus female athletes) as measured by:
   a. graduation success
   b. the number of terms necessary to complete graduation requirements

3. There is no difference in academic performance in college of a selected group of student-athletes and non-athletes; and subgroups of student-athletes (those
participating in revenue-generating sports versus those in non-revenue-generating sports and male versus female athletes) as measured by:

a. cumulative hours

b. cumulative grade-point-average

4. There is no difference in factors contributing to nonperformance in college of a selected group of student-athletes and non-athletes; and subgroups of student-athletes (those participating in revenue-generating sports versus those in non-revenue-generating sports and male versus female athletes) as measured by:

a. the number of major changes

b. the number of lower division credits registered for after the completion of 60 hours;

c. the number of remedial courses registered for

d. the number of terms reported on temporary enrollment for academic deficiencies

5. There is no difference in the participation in summer school of a select group of student-athletes and non-athletes; and subgroups of student-athletes (those participating in revenue-generating sports versus those in non-revenue-generating sports and male versus female athletes) in:

a. the number of summer school sessions enrolled

b. the number of hours enrolled for during summer sessions

c. the number of hours passed during summer sessions

d. the cumulative grade-point-average during summer sessions

Definitions

1. A student-athlete is a student who has been certified to the National Collegiate Athletic Association (N.C.A.A.) as a prospective participant for an Iowa State University athletic team.
2. A non-athlete is a student who has enrolled at Iowa State University who does not participate for an athletic team.

3. A revenue-generating sport participant is one who performs with an athletic team that is considered to be self-sufficient or generating significant revenue (football and basketball are the most commonly-accepted teams that generate significant amounts of revenue).

4. A non-revenue-generating sport participant is one who performs with an athlete sport team that is generally considered not to be self-sufficient or that does not generate significant amounts of revenue.

**Delimitations**

Since this is a single-institution study, the results of this endeavor may only be generalizable to similar institutions with identical reputations of athletic involvement and with academically similar histories.

Since the study period is relatively short (two years), the results of this study are limited to and generalizable to similar athletic institutions, taking into account the variety of value structures from institution to institution.
REVIEW OF THE LITERATURE

Since the earliest days of sport in America society and its incorporation into the higher education field, studies of the relationship between education and athletics have consistently been a major part of the research literature. With a concern toward the possible negative effects (academically) of athletic participation, the studies have concentrated empirically on comparing student-athletes with non-athletes, between sport groups (including revenue-generating sports versus non-revenue-generating sports), female athletes with male athletes and white athletes with black. In addition, the prominence of the role of athletics within the general society has forged a nationwide anecdotal literature base built mainly around the perceived evils of athletics at the intercollegiate level.

This literature search will review the anecdotal evidence to place the study within the proper popular perspective, relating academics to athletics. This part of the literature search will investigate the stereotypical image of "The Dumb Jock" and the institutional role in the creation and support of that myth. The first section concerning the anecdotal evidence will conclude with a review of a currently-evolving agenda for reform.

The literature search will then review the empirical evidence to lay a more theoretical framework for the remainder of the investigation. It will begin with methodological problems that have plagued the empirical research. The literature search will then follow the development of six baseline studies which the author intends to replicate.
The Anecdotal Case

What was allowed to become a circus--college sports--threatens to become the means by which the public believes the entire enterprise (higher education) is a sideshow. --A. Bartlett Giamatti, former president of Yale University and commissioner of Major League Baseball (Sperber, 1990, p. 1)

Even after athletics assumed its place in higher education, dissenters continued to fight the battle. Studies into the role of the student-athlete predate the organization of the governing body of intercollegiate athletics, the National Collegiate Athletic Association (N.C.A.A.) in 1906. Numerous studies at the state, regional and national level fill a nearly 90-year history. The concern remains a strong one. Davis and Cooper (1934) noted: "There are those who are skeptical of the athletic picture fitting into the educational frame. It is even held that no corner of the athletic design 'squares' at present, within the rectangular frame of the educational institution" (p. 69).

In the Myth of the Student-Athlete, Brownlee & Linnon (1990) said: "College sport is being undermined by its own mythology. The entire enterprise is founded on the whimsical notion of the amateur, the scholar-athlete who studies and trains hard and is rewarded for his efforts, not with money but with sporting values and, above all, an education. But this implicit bargain has today become a mockery" (p. 50).

"Athletics are now an abomination to the ideals of higher education. Victims: the student-athletes. Culprits: the system." claims Underwood (1985) in an expose cover story in Sports Illustrated. "This is the spore of an educational system gone mad" (p. 38).
"Universities, once thought of as ivory towers housing utopian dreamers, now are very much a part of the grimy, real world." Cramer (1986) adds in a Kappan Special Report for Phi Delta Kappan educational magazine. (p. 8)

"Perhaps the most common sin of colleges and universities in the U.S. is to accept academically unqualified student athletes, make little effort to provide an education for them, and kiss them a rude good-bye when they are injured or their eligibility is exhausted. College athletes often find their careers finished before their educations have begun" (Cramer, 1986, p. 8).

"Academic standards have been eroded to the point where more undereducated student-athletes than ever are getting into college today. Not just underprivileged young men who need a chance, but unqualified young men who have no chance, not in the classroom...they wind up down the road with neither of the things they need most: 1) an education and 2) a degree. (Cramer, 1986, p. 8)

"Appalling as the public record is, the current state of the so-called student athlete becomes nothing short of unconscionable when academe's heavily-fortified wall of 'privacy' is breached," (Underwood, 1985, p. 39) chides those responsible for the administration of higher education.

Finally, Underwood terms the situation a "national disgrace." (Underwood 1985, p. 39).

The Dumb Jock

For as long as intercollegiate sports have been taken seriously in the U.S., the image of the 'dumb jock' has endured. In caricature, he is not an altogether unappealing figure: the fullback whose neck is a size larger than the best grade he has ever received in math class; the kid with a
rampant pituitary gland who calmly dribbles behind his back but breaks into a cold sweat at the prospect of diagramming a simple sentence.

The 'dumb jock' has now come full flower in the American educational system. He is fast becoming a national catastrophe. He is already a national disgrace. About the only good thing one can say about him is that his blossoming has inadvertently exposed the larger failures of the educational process. (Underwood, 1985, pp. 39-40)

Davis and Cooper (1934) put forth a thesis: "One of the most common points of attack against organized athletics within education's walls is that the athletes themselves are poor students, as compared with the non-athletes" (p. 68).

The stereotypical image of the "dumb jock" identified earlier (Underwood, 1985, p. 40) remains the focal point of individual concern. Sociologist Harry Edwards (1984) said: "For as long as organized sports participation has been associated with American education, the traditionally comic, not altogether unappealing 'dumb jock' image of the student athlete has endured" (p. 8).

In an article on Advising the Student Athlete, Zing (1982) adds:

The image...of the 'dumb jock' is a stereotype....devastating.

The label connotes neckless Neanderthals whose communicative abilities are limited to monosyllabic grunts across a line of scrimmage, or kids with rampant pituitary glands whose analytical skills cease with the X's and O's of a coach's chalkboard. For these characters, the term scholar-athlete has little or no serious meaning. Howls of laughter or huffs of cynicism greet the athlete or athletic administrators who would pretend otherwise (p. 16).
In a book intended to help high school athletes select a university and prepare for college life, Figler (1985) includes a chapter on 'Fighting the Dumb Jock Image.' He says: "Unfortunately, athletes aren't always judged on their own merits. The image of athletes as dumb jocks is held by some teachers, some students, and worst of all, by some athletes. It suggests that if you are an athlete, you are probably less able to do college-level work. Further, the dumb jock image suggests that you probably aren't interested in schoolwork even if you have the ability" (pp. 144-145).

"The dumb jock image exists to some degree on most college campuses. Sometimes this reputation is earned; at other times, athletes are stereotyped in this way. . . you may find a few teammates, some of whom might even be among the leading players, who seem to take pride in avoiding schoolwork; not studying, failing to meet deadlines, and trying to get around regulations" (Figler, 1985, p. 145).

A college academic counselor, Nelson (1983) addressed the issue: "Many people assume that if a person is tall, strong and agile, that person may play basketball, but probably possesses a small, weak and inferior brain. It is almost as if mother nature endowed them with muscle and strength in order to compensate for their intellectual deficiencies. . . this general correlative assumption is being handed down as legendary fact from one generation to the next, gaining momentum with each new sports scandal and authenticity with each athlete who flunks out of college" (p. 176).

Wang (1978) in a study at New Mexico State University in echoed the idea: "For many years, physical education majors and athletes have been labeled as 'dumb jocks' as some laymen have charged that the athletes have big muscles and small brains" (p. 9).

In a special Guide for the College-Bound Student Athlete, seeking to help prospective student-athletes and academic advisors to deal with the "dumb jock"
stereotype, the National Academic Advising Association (NACADA-1986) warned of the implications of perpetuating the myth: "If they are viewed as dumb jocks, who cannot handle a full load of academic courses, then they will behave accordingly. . . if an athlete needs remedial reading help, the focus should be on the problem rather than on the 'dumbness' of the "jock" (p. 21).

The NACADA (1986) publication encourages "reassurance to athletes who face antagonism bred in disdain, jealousy, or racism from students and faculty members."

It suggests that "many athletes, especially those with weak academic backgrounds feel isolated from the student body. . . athletes disclosed a feeling of embarrassment in many of their classes. This feeling, caused by academic skill deficiencies, contributed to their lack of participation in many courses." NACADA asks: "Are high risk athletes feeling intimidated and embarrassed in the classroom--to the point of being passive, not attending and ultimately, failing?" (p. 21)

Institutional Responsibility

For the purpose of this review, attention is now directed at the institution and its role in ending or perpetuating the "dumb jock" stereotype. Edwards (1984) said: "Only recently has American society been jolted into recognizing the extensive and tragic implications of widespread educational mediocrity and failure among student-athletes, and--no less importantly--that 'dumb jocks' are not born; they are being systematically created" (p. 8).

Former University of Maryland Chancellor John Slaughter (1988), who was also once Chairman of the N.C.A.A.'s President's Commission talked about the institution's responsibility to the student-athlete: "It's unconscionable for a school to admit a young person who does not have a reasonable chance of success" (p. 64).
In a *Phi Kappan Deltan* magazine Special Report, Sperber (1990) said:

Although I am a fan of college sports, I have long wondered whether and to what extent their increasing importance complements or corrupts the academic mission of their host universities.

After intensively researching these questions for a number of years, I came to one absolute conclusion: intercollegiate athletics, especially the big-time version, has become College Sports, Inc., a huge commercial entertainment conglomerate, with operating methods and objectives totally separate from, and often opposed to, the educational aims of the schools that house its franchises....this situation is untenable for American higher education, and a basic redefinition of the role of intercollegiate athletics within the university is absolutely necessary. (p. 1-2).

As early as 1929 The Carnegie Foundation for the Advancement of Teaching had recognized the problem: "The compromises that have to be made to keep such students in the college and to pass them through to a degree, give an air of insincerity to the whole university-college regime . . . The need today is to re-examine our educational regime with the determination to attain in greater measure the sincerity and thoroughness that is the lifeblood of a true university in any country at any age" (p. xxi).

Concern today begins with the educational product as "accounts surfaced of athletes who had completed four years of college but could not read, of high attrition rates and low graduation rates for athletes, and of pressures and stresses that prevented athletes from attending to their role as students" (Academic Athletic Journal, 1986, p. 31).
Sack (1979) adds to the dilemma: "Attending useless classes and otherwise maintaining the facade of being a student are simply part of the price the system demands. In other words, the present system forces some athletes into school who would rather not be there in the first place" (p. 93).

In an article in Educational Forum (1982), Zingg coined the term "jockitis," summarizing the stereotypical image: "The easy course load ("Hey, man, no need to bust yourself here"), the casual approach to studies ("No worry, brother, the coach will take care of things"), the arrogant disregard of early warning signs ("They won't dare flunk me!") are only preliminary symptoms of a disease known as 'jockitis.' Excessive class cuts, plagiarized term papers and substitute test takers, aided by professors who conveniently look the other way and administrators who condone a double standard aggravate the malady" (p. 286).

The 1986 National Association of Academic Advisors for Athletes (NACADA), publication warns of the potential damage done to society by perpetuation of the "dumb jock" myth: "many athletes are content to 'slide by' with minimal effort. Under these conditions, school becomes a game in which if an athlete wins, the athlete still loses. Making it 'easy' for . . . student athletes to succeed in college also makes it easy for them to fail after they leave college" (p. 7).

Underwood (1985) further supports the concept: "Through their playing days at college they are kept 'eligible' via an eventless and immaterial habitation of the classroom. They wind up down the road with neither of the things they need most: 1) an education and 2) a degree" (p. 41).

Former Notre Dame football player Alan Sack (1979) agrees:

Under these conditions, the ballplayer is forced to take academic short cuts. He cheats, cuts classes and seeks out the least-demanding professor.
His choice of courses, his daily schedule of classes, his choice of majors—all of these decisions are made to guarantee that academic concerns will hinder athletic performance as little as possible. (p. 91)

Cramer (1986) terms the situation "academic baby-sitting" where "athletes remained eligible to play sports by taking 'developmental studies' courses--sometimes being given more than four chances by one major University to pass developmental courses" (p. 2).

A University of Michigan study (Davis & Pobanz, 1916, p. 222) conjectured that "the contention is often made that the college athlete comes to college largely to compete in athletics, and that his stay in college is conditioned on his ability to pick out the so-called 'pipe' courses. . . the line of least resistance."

Nelson (1983) adds: "They (athletes) are expected to produce more both in academics and on the athletic fields, and find they are treated like dumb jocks out for a free ride on the university success train. To preserve their eligibility, they often are shunted into crib courses like cattle and expected to stay there." She further asks: "Why are there so many intercollegiate athletes enrolled in 'basket weaving' courses in an effort to preserve them for four years worth of eligibility?" (p. 183)

Underwood (1985) extends the delusion: "And if a coach's prize recruit with fifth-grade reading skills or his J.C. All-America transfer with no discernible academic background isn't making it in the dancing classes at State U., well, then there are always extension courses...some of which can apparently be taught anywhere--in a garage or in somebody's rumpus room. Sometimes these courses are Mickey Mouse electives, the direct descendants of the old 'basket-weaving' classes" (p. 47).
An unidentified NCAA official told Underwood (1985) how the process works: it's easy, you simply avoid core-curriculum-type courses that are required to move you into a degree-granting program. Many schools have no exact time when you have to declare your major. You can slide around. Take every service course, participate in activity courses, learn how to officiate a volleyball game or how to play badminton and get nowhere. Then, when you run out of easy ones and have to declare a major, you simply change majors—move from one study group to another, satisfying the language of 'progress' without progressing at all. (p. 47)

Agenda For Reform

The question of whether or not college athletes are truly students has reached the point where in June of 1987, the President's Commission of the National Collegiate Athletic Association mailed to its member institutions a policy paper titled "Agenda for Reform." The intent was to spur an 18-month national forum on the proper role of intercollegiate athletics within higher education. To support the forum, the President's Commission sponsored a study of intercollegiate athletics to identify the effects of participation in intercollegiate sport on student-athletes. The results of that study and resulting NCAA recommendations comprise the remainder of this section, along with other major investigations helping to develop a comparative data base for this study.

The first NCAA reform proposal, a controversial one indeed, was Proposition 48, passed in 1983 and enacted in 1986. The NCAA Bylaws proposal:

...requires a minimum 2.00 high school grade point average in a core curriculum of at least 11 defined academic courses and a minimum 700 combined score on the SAT or a 15 composite score on the ACT for a student to be immediately eligible as a college freshman to participate in
intercollegiate athletics and receive athletically-related financial aid.

(NCAA Bylaw 5-1-j).

Proposition 48 was intended to establish minimum standards for entering college athletes. The 18-month study undertaken by the Presidents Commission was an attempt to monitor the progress of the rule changes.

The literature review demonstrates that a considerable amount of empirical research has been conducted concerning the relationship between athletic ability and scholastic achievement. The rest of this chapter will seek to review pertinent empirical research on the relationship between athletic ability and scholastic progress.

The Empirical Record

Generally, the investigative literature suffers from several problems: single-institution studies, limited numbers, a lack of longitudinal data, studies that concentrate on single measures and too wide a variety of statistical designs, and other methodological problems.

Davis and Cooper (1934) recognized the problems of collecting such information in their early review of the literature: "... since that time (the first study of athletics and academics conducted at Amherst in 1903), over forty similar studies have been pursued in the secondary schools, colleges and universities, with conflicting results" (p. 68).

"At the present moment the issue is still not clear cut because of such factors as a lack of agreement upon the definition of 'athlete' and 'nonathlete'; disagreement over the validity of the tools used to measure 'scholastic ability'; the unequal number of cases in the two groups in many studies; and, charges and countercharges of bias" (Davis and Cooper, 1934, p. 68).
Little had changed in forty years of educational research when Stevenson (1974) repeated the concern for study imperfections:

The validity of these research studies clearly stands and falls upon its methodology, upon the basic assumption of population similarity, and subsequently upon such other methodological concerns as the adequacy of the instrumentation and the adequacy of the definitions of population difference... the research findings that we have described are somewhat confusing and contradictory. (p. 296)

More recently, Purdy (1981) reiterates the continuing problem: "Research on the relationship between college sport participation, educational attainment, and the possible negative effects on athletes is meager and generally limited to a single indicator of educational success" (p. 440).

In 1984 Figler added: "Although many have recently pointed to the lack of academic preparation of college athletes, particularly the problems of athletes in revenue-producing athletics; few empirical studies exist that examine the relationship between student athletes, their prior academic preparation, and subsequent academic achievements" (p. 16).

Recognizing this major problem area, the NCAA took action at its 1990 annual meeting to seek the missing data and institutional linkages. All NCAA members will begin reporting graduation rates and related data directly to the NCAA beginning later in 1991. That data will help form a firm foundation for ongoing statistical analysis, providing much needed longitudinal data to assist researchers in future student-athlete educational research.
A concerned legislator, Mississippi Senator Thad Cochran, notes that the NCAA is capable of handling its own reform and that the data being gathered is an important part of the effort:

Without question, the NCAA's actions speak of a willingness by its members to bring into the open possible institutional variances in graduation-rate performance, notwithstanding differing institutional admissions practices and notwithstanding the fact that available historical data indicates that athletes graduate at the same rate as or at a slightly better rate than the student body as a whole. (p. 5).

Studies at Amherst (Brigham, 1903), Rutgers (Bevier, 1905), Harvard (Harvard Graduates' Magazine, 1921), Penn State (Rhoton, 1923), Minnesota (Peterson, 1928), Arkansas State (Estes, 1929), Minnesota (Morton, 1930), Penn State (Cooper, J.A., 1931), Ohio State (Parsons, 1969), by the N.C.A.A. (N.C.A.A., 1988), Indiana (Sulek, 1989) and California State University at Fullerton (Cone, 1990) have shown non-athletes exceeding the academic performance of athletes in comparison studies.

Conversely, Kansas State (Worcester, 1923), McGill (Finlay, 1926), California (Miller, 1926), Indiana (Ruble, 1928) and Colorado State (Purdy, 1982) have shown athletes outperforming nonathletes in the classroom.

Studies at Wisconsin (Wardlaw, 1921), Ohio State (Hindman, 1923), Minnesota (Jacobsen, 1929), Minnesota (Stecklein, 1965), Kent State (Smith, 1966), Iowa State (Stuart, 1983) and Missouri (Patterson, 1988) have shown no difference in the academic progress between athletes and non-athletes.

Another major concern is how student-athletes compare with the non-athlete group in measures of college preparedness. Major studies at Ohio State (Burtt, 1923), Minnesota (Peterson, 1928), Ohio State (Hindman, 1928), Minnesota
(Stecklein, 1965), Colorado State (Purdy, 1982), Ohio State (Parsons, 1969), Iowa State (Stuart, 1983), Auburn (Murphy, 1987), the N.C.A.A. (N.C.A.A., 1988) and Missouri (Patterson, 1988) found athletes generally rating lower than the comparison groups of non-athletes on measures of college readiness.

Studies at Yale (Crawford, 1927), Muhlenberg (Boyer, 1928) and Minnesota (Peterson, 1928) found athletes better prepared for college-level academic work while at Minnesota (Jacobsen, 1929) found no significant difference between the preparedness measures relating athletes and nonathletes.

**Baseline Studies**

This researcher has selected six baseline studies upon which to build a replication model, all chosen from studies involving Division I NCAA institutional members participating in major athletic conferences. Mainly, however, each study strives to minimize as many of the afore-mentioned study limitations as possible. This investigator believes they offer the most appropriate methodology presented and relate most directly to the variables this current study intends to investigate.

A study released by the N.C.A.A. (1988) was intended to study the "effects of participation in intercollegiate athletics on student-athletes." The investigation sampled 42 of the 291 members in Division I of the N.C.A.A. (p. 1). In seeking to control for student-athletes time commitment to their sport, the N.C.A.A. used a comparison group of students involved in extracurricular activities in journalism, music and student government.

General results showed that athletes were somewhat less prepared for college level academic work, that they performed slightly lower in the classroom, found it harder to make academics their top priority, and were more likely than non-athletes to feel isolated from other students on their campuses.
Regarding preparation for college level work, college football and basketball players scored lower on the American College Testing (ACT) and Scholastic Aptitude Test (SAT) examinations. The study took particular note that athletes in sport groups other than the two major revenue-producing endeavors placed between the levels of the two comparison groups. Additionally, high school grade-point-averages reflected a slight advantage for the nonathletic group.

As far as academic progress was concerned, student athletes produced lower grade-point-averages than did students from the non-athlete comparison group. Among student-athletes, football and basketball players had the lowest grade point averages. Comparable numbers of student-athletes and extracurricular students said they had never repeated courses, received incompletes or been on academic probation. Although these three measures of academic progress showed no significant difference between the two comparison groups, there was a consistent link found between the measures involved with football and basketball players. The conclusion of this N.C.A.A. (1988) study was that "in all of these respects, student-athletes are more like extracurricular students than some might have imagined." (p. 37)

The fourth report in the NCAA's national study of intercollegiate athletics focused on athletes who were women. The primary concerns for this part of the study were female basketball players versus male basketball players; women in sports other than basketball; and women in extracurricular activities other than intercollegiate athletics.

As measured by the SAT and ACT scores, women basketball players entered college as well prepared for college work as their male counterparts, but less prepared than women students involved in extracurricular activities other than athletics. They recorded significantly higher high school grade point averages than male basketball players, equal to other women's sports groups and just slightly behind the
extracurricular women's group. Performance in college, as far as grade-point-average was concerned, found the women basketball players significantly behind the women's extracurricular group. Women basketball players fell slightly behind women in other college sporting groups and significantly ahead of male basketball players in grade-point-average comparisons.

Indicative of a growing governmental interest in the role of the student-athlete in higher education, the U.S. Senate Committee on Labor and Human Resources (chaired by Senator Edward Kennedy) required the General Accounting Office to conduct a survey (1989). The Committee hoped to gather evidence to support Senate Bill 580, the 'Student Right-to-Know Act,' concerning colleges and their support of the student athlete. The study was intended to determine what it would cost N.C.A.A. institutions to provide institutional data annually. A secondary goal was to check the graduation rates of student-athletes in men's basketball and football (revenue-producing sports) programs. Using a five-year completion period for measuring graduation rates, both basketball and football players had a lower graduation rate compared to the general student body.

One of the most noted studies in the research literature is that of Purdy (1982) at Colorado State University, undertaken to: "assess the extent of the athletes' educational progress at the institution" (p. 3). All athletes who participated during a ten-year period were included in the sample of 2,088. Educational progress was measured in terms of grade point average and graduation rates and was compared to the general student population (GSP).

Results of the study showed that the entering test scores of athletes were found to be slightly lower than those of the general student population (GSP). Educational attainment was more likely among females than males. Individual and non-revenue
sports participants achieved higher educational attainment than did athletes from the major revenue-producing sports (football and basketball). In conclusion, "the data did refute the notion that athletic participation is detrimental to the educational process" (Purdy, 1982, p. 3). Another major reason for selecting this study for inclusion in the literature review was the fact that (along with the report of the NCAA), it was one of extremely few studies to include women athletes in the comparison base.

An often-quoted study in the literature on athletic academic achievement is a study at the University of Minnesota by Stecklein and Dameron (1965). The intent was "to undertake a study of the academic characteristics, progress, and patterns of study of students who participate in intercollegiate athletics" (Stecklein and Dameron, 1965, p. 1).

Athletes (202) enrolled from the classes of 1960 and 1961 were selected for the sample. The study concentrated on comparison characteristics at the time of college admission (high school rank; test scores; college of initial registration); academic progress (degree earned, length of attendance, grade point average, credits taken, subject areas studied and intercollege transfers); and deterrents to academic progress (quarters dropped, course cancellations and incompletes, time on probation, and number of times dropped for low scholastic achievement).

The preparedness results found athletes scoring higher overall, although not significantly different, in high school rank. However, non-athletes recorded higher entrance test scores (although again, not significantly different).

In results relating to the area of academic progress, athletes were found to graduate at a statistically significant higher rate than the non-athlete comparison group. Although athletes generally took longer than non-athletes to graduate, no significant difference was found between the average number of quarters required for
athlete and non-athlete to complete degree requirements. Both groups also averaged
approximately one summer session of attendance in their academic pursuit. Again, no
significant degree of difference was uncovered. As for the most common measure of
academic progress, grade point average, the figures showed that there was little
difference between the scores of athletes and non-athletes. A slight advantage went
in favor of the athletes. Athletes were reported to make significantly more transfers
between colleges than non-athletes.

Regarding deterrents to academic progress, non-athletes were found to drop out of
school at a significantly higher level than athletes; non-athletes were found to cancel a
smaller portion of their courses and athletes had a slightly higher tendency to register
incompletes. Academic probation rates were not found to be appreciably different
between the two groups. A slightly higher percentage of athletes were dropped for
low scholarship.

Additionally, the study sought to compare measures between sports groups within
the student-athlete comparison group. In brief, the differences in preparedness were
not found to be statistically significant. Regarding academic progress, those in
'individual' sports, as opposed to 'team' sports, were found to graduate at a
significantly higher rate. However, the study noted that the overall low number of
athletes in the study reduced considerably the validity level of 'between-sport'
comparisons.

Another prominent athletic/academic research study was conducted at Ohio State
University by Parsons (1969). The two-year study of 116 freshmen student-athletes
entering the university in the years 1962-63 and 1963-64 was intended to investigate
whether or not "the grant-in-aid athlete realizes an achievement level at least equal to
that of the non-athlete," and whether "the rate of attrition of grant-in-aid students will approximate the rate of attrition for nonathletes." (Parsons, 1969, p. 12)

In preparing for college, the student athletes at Ohio State University were found to test (ACT) somewhat below the all-university performance. However, there was no significant difference reported in either high school grade point average or high school rank.

A significantly greater proportion of the grant-in-aid athletes earned degrees than did non-athletes (59 percent to 43 percent). Both groups required approximately the same number of quarters of enrollment to earn their degree and the mean actual grade-point-averages for the two groups were very similar. A greater percentage of non-athletes originally enrolled were academically dismissed than were grant-in-aid athletes and this was at a level of statistical significance.

The final baseline study this author will use as a comparison was conducted previously at the school for which this study is the focus, Iowa State University (ISU). The study was conducted by Debra Stuart (1983) and her sample included all freshmen football players entering ISU between 1977 and 1980, a total of 309 athletes and 285 nonathletes. This study was intended to assess the "academic preparation, performance, curriculum and persistence of a group of intercollegiate student athletes." (Stuart, 1983, p. 58)

Significant differences in academic preparation between the two groups were found: student athletes had a higher mean high school rank, lower mean high school grade-point-average and a lower mean ACT composite score (although not statistically significant).

Relating to academic performance, the students playing football and the comparison group of non-athletes did not differ significantly when considering mean
college grade-point-average, mean semester credit hours and average number of courses dropped or repeated.

Regarding factors contributing to nonperformance, individual student-athletes and non-athletes made similar numbers of changes in majors, nor was the persistence rate found to be significantly different between the two groups.

The conclusion reached in this study was: "Athletes...performed as well academically...as a matched group of non-athletes. This comparable performance occurred despite evidence of a significantly lower level of academic preparation among the athletes." (Stuart, 1983, p. 60)

**Summary**

In summary, the anecdotal evidence builds a case for concern about the role of athletics within academics, concentrating on the myth of the "dumb jock" and his/her place in the college/university setting. In addition, anecdotal evidence is offered by the popular media concerning the evils of sport in society today: corruption, drug abuse, cheating, and abuses in recruiting the college athlete. The popular evidence helps to build a growing hysteria centered entirely around the negative aspects of sport in society. The evidence for this case is the dramatic action taken in the last 18 months by the governing body for intercollegiate athletics (the National Collegiate Athletic Association). Further evidence is the emergence of the President's Commission of the N.C.A.A. as a major legislative force. A subgroup of the President's Commission, the Knight Commission, is directing a three-year study to analyze the relationship between athletic involvement and academic participation in its member institutions.

While the anecdotal evidence is clearly one-sided, the empirical evidence is more objective, but fraught with methodological problems. "The validity of these research
studies clearly stands and falls upon its methodology, upon the basic assumption of population similarity, and subsequently upon such other methodological concerns as the adequacy of instrumentation and the adequacy of the definitions of population difference...the research findings that we have described are somewhat confusing and contradictory." (Stevenson, 1974, p. 296) Indeed, the literature today remains as clouded by methodological problems as that of nearly 20 years ago. Low population numbers, single-factor studies, and a wide and varied empirical base continue to be the shortcomings of much of the empirical data within this particular field of study. Due to these many and varied studies as well as their very diverse findings, no definitive conclusions have yet been reached in the general body of literature.
METHODOLOGY

This chapter describes the methods used to obtain and analyze data collected for this survey. Subsequent sections deal with subjects used for the study, method of data collection and means of data analysis.

The Iowa State University Committee on the Use of Human Subjects in Research reviewed this study and concluded that the rights and welfare of the students were adequately protected, that the risks were outweighed by the potential benefits and expected value of the knowledge sought, and that confidentiality of data was assured.

Subjects

The selection of subjects was based on matching, by entry data, non-athletes with student-athletes at Iowa State University (ISU) in 1981-83. The study was limited to two years to control for changes in academic policies and practices. The time period was selected to allow for a full five years of education. A five-year time period is the current maximum standard established by the National Collegiate Athletic Association (N.C.A.A.) for student-athletes to complete their athletic eligibility.

All freshmen athletes, both scholarship and non-scholarship in all ISU sports (198 male; 92 female) were identified and verified from the Big Eight Conference list given to the Registrar's Office and used to verify student-athlete eligibility for competition. The athletes were further verified through a 'Grant-in-Aid' list for all sports maintained by an athletic academic counselor. In order to control for the contribution of Iowa State University, junior college transfers were not included. See Table 1 for descriptive student data. Matching non-athletes with student-athletes began with lists obtained from the ISU Registrar's Office through the Iowa State University Institutional Research Office. This method resulted in a representative sample of 290 both
scholarship and nonscholarship athletes compared with a sample of 280 non-athlete students, representative of the Iowa State University general student population (GSP).

**TABLE 1:** The Number of Participants and Their Respective Team Sport Memberships for Student-Athlete Groups.

<table>
<thead>
<tr>
<th>Sport</th>
<th>Number</th>
<th>Graduated</th>
<th>%Graduated</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>280</td>
<td>151</td>
<td>54</td>
</tr>
<tr>
<td>Football (M)</td>
<td>67</td>
<td>21</td>
<td>30</td>
</tr>
<tr>
<td>Gymnastics (M)</td>
<td>22</td>
<td>9</td>
<td>41</td>
</tr>
<tr>
<td>Swimming (M)</td>
<td>20</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>Golf (M)</td>
<td>5</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>Track (M)</td>
<td>13</td>
<td>9</td>
<td>69</td>
</tr>
<tr>
<td>Baseball (M)</td>
<td>17</td>
<td>6</td>
<td>35</td>
</tr>
<tr>
<td>Wrestling (M)</td>
<td>28</td>
<td>10</td>
<td>36</td>
</tr>
<tr>
<td>Volleyball (W)</td>
<td>12</td>
<td>8</td>
<td>67</td>
</tr>
<tr>
<td>Softball (W)</td>
<td>8</td>
<td>6</td>
<td>75</td>
</tr>
<tr>
<td>Basketball (W)</td>
<td>13</td>
<td>7</td>
<td>54</td>
</tr>
<tr>
<td>Basketball (M)</td>
<td>11</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Cross Country (M)</td>
<td>7</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Gymnastics (W)</td>
<td>13</td>
<td>8</td>
<td>62</td>
</tr>
<tr>
<td>Tennis (W)</td>
<td>11</td>
<td>9</td>
<td>82</td>
</tr>
<tr>
<td>Golf (W)</td>
<td>5</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>Swimming (W)</td>
<td>17</td>
<td>11</td>
<td>65</td>
</tr>
<tr>
<td>Tennis (M)</td>
<td>8</td>
<td>5</td>
<td>50</td>
</tr>
<tr>
<td>Cross Country (W)</td>
<td>13</td>
<td>6</td>
<td>46</td>
</tr>
</tbody>
</table>

(M)=Male athlete  
(F)=Female athlete
Data Collection

The admissions file and an official Iowa State University transcript contained the data required to test the hypotheses. Explanations of each variable include where and in what form the information was obtained. The goal of this research was to gather information about academic performance even though some of these variables are highly correlated.

Data Analysis

Data collected for the purposes of this study were analyzed using the SPSS-X system of statistical analysis for the social sciences. Work was completed through the Iowa State University computation center.

The chief statistical tests utilized to conduct this study were independent t-tests and the chi-square test of independence.

Several research questions guided the direction of this study. The first question asked whether or not the data revealed any differences between the subject groups in academic preparation for college as tested by the following hypothesis.

Hypothesis 1

There is no difference in academic preparation for college of a selected group of student-athletes and non-athletes; and subgroups of student-athletes (those participating in revenue-generating sports versus those in non-revenue-generating sports and male versus female athletes) as measured by:

a. High School rank

b. American College Testing (ACT) composite score.

High School rank: The high school rank of every student is reported on his or her transcript. It is calculated by dividing the student's numeric standing in his or her graduation class by the class size, therefore 1% is the highest possible rank.
**ACT score:** The ACT score is reported on the transcript of Iowa State University Students. For those who reported only SAT scores, a conversion table used by the Institutional Research Office at Iowa State University was applied and reported in the ACT data.

The second research question guiding this study related to whether or not the data revealed any differences between the subject groups in academic success in college as tested by the following hypothesis.

**Hypothesis 2**

There is no difference in academic success in college of a selected group of student-athletes and non-athletes; and subgroups of student-athletes (those participating in revenue-generating sports versus those in non-revenue-generating sports and male versus female athletes) as measured by:

a. Graduation success

b. Terms to graduation (the number of terms necessary to complete graduation requirements for those who graduated).

The third research question guiding this study related to whether or not the data revealed any significant differences between the subject groups in academic performance in college as tested by the following hypothesis.

**Hypothesis 3**

There is no difference in academic performance in college of a selected group of student-athletes and non-athletes; and subgroups of student-athletes (those participating in revenue-generating sports versus those involved in non-revenue-generating sports and male versus female athletes) as measured by:

a. Cumulative grade-point-average (GPA)

b. Cumulative hours
Cumulative grade-point-average and cumulative hours: The cumulative grade-point-average each student earned and the cumulative hours completed towards a degree requirement of 124 credits were obtained from his or her ISU transcript. The GPA includes all terms of enrollment, including summer sessions. However, the GPA does not include transfer credits from other institutions.

The fourth research question guiding this study related to whether or not the data revealed any differences between the subject groups concerning factors contributing to nonperformance in college as measured by the following hypothesis.

**Hypothesis 4:**

There is no difference in factors contributing to nonperformance in college of a selected group of student-athletes and non-athletes; and subgroups of student-athletes (those participating in revenue-generating sports versus those in non-revenue-generating sports and male versus female athletes) as measured by:

a. The number of major changes

b. The number of lower division credits registered for after completing 60 hours

c. The number of remedial courses registered for

d. The number of terms reported on temporary enrollment for academic deficiencies.

**Major changes:** The number of times a student changed his/her major area of academic interest was collected from the student's transcript.

**Upper/lower division credits:** The number of upper division (numbered 300-courses and above) versus lower division (courses numbered below 300) academic credits earned, specifically, the number of lower division credits earned after the completion of 60 hours of credit, was calculated from the student's transcript.
Remedial courses: The number of remedial courses for which the student registered during the academic career was calculated from the student transcript. Remedial courses were identified with assistance from the Office of Institutional Research at Iowa State University, which monitors student academic achievement for the university. Those courses so identified included all mathematics and english courses under level 100, chemistry 50 and psychology 131.

Temporary enrollment: The number of terms a student was placed on temporary enrollment for unsatisfactory progress was indicated on the student's transcript.

The fifth research question guiding this study related to whether or not the data revealed differences between the subject groups in terms of participation in summer school as tested by the following hypothesis.

**Hypothesis 5**

There is no difference in the participation in summer school of a select group of student-athletes and non-athletes; and subgroups of student-athletes (those participating in revenue-generating sports and those in non-revenue-generating sports and male versus female athletes) in:

a. The number of summer school sessions enrolled
b. The number of hours enrolled for during summer sessions
c. The number of hours passed during summer sessions
d. The cumulative grade-point-average during summer sessions.

Summer school: The number of times a student enrolled in summer school sessions, credits registered for and passed as well as cumulative summer school grade-point-averages were all drawn from the student's transcript.
Analysis

To test the first hypothesis concerning academic preparation, independent t-tests were used to identify any significant differences, at the .05 level, between student-athletes and non-athlete groups, between athletes participating in revenue-generating sports and those in non-revenue-producing sports, and between male and female athletes in mean high school rank and ACT scores.

The second hypothesis concerning the academic success was measured in two ways. The graduation rate was determined by utilizing the chi-square test of independence. The terms to graduation was measured by the use of independent t-tests, significant at the .05 level.

The third hypothesis concerning academic performance was tested in a similar manner. Independent t-tests were used to examine the difference, significant at the .05 level, in mean cumulative hours and grade-point-average.

The fourth hypothesis concerning factors contributing to academic nonperformance was measured in a similar manner. Independent t-tests were used to examine the difference, significant at the .05 level, in the number of terms reported on temporary enrollment, the number of changes in the major, upper division/lower division credits (especially after the 60-hour credit level), and the number of remedial coursest taken.

The fifth hypothesis concerning summer school participation was also measured using independent t-tests, significant at the .05 level, on the number of summer sessions enroled, credits enrolled for and passed in summer sessions and cumulative summer school grade-point-averages.
FINDINGS

In studying the academic preparation, performance, success, factors contributing to nonperformance and summer school participation of student-athletes, 15 comparisons were made between student-athletes and non-athletes. The report of the findings is arranged in order of the hypotheses tested. Each section includes a description of both groups as well as a comparison of athletes drawn from non-revenue-producing sports to those selected from revenue-generating sports (football and basketball). Additionally, comparisons were made between groups of male athletes versus female athletes.

To test for significant differences between groups of student-athletes and non-athletes (and between revenue versus non-revenue sport participants and male versus female athletes), comparisons were made to the t-distribution or the X2-distribution at the .05 significance level. The t-test was used to test difference in variables assumed to be normally distributed and measured on the ratio scale. The standard error of difference and degrees of freedom used in the formula were dependent upon whether or not the variances of each group were equal. The chi-square test of independence was used with frequency counts.

The acceptable level of significance throughout the analysis was .05 rather than .01, both commonly accepted levels in social science research. It was believed that avoiding a Type II error (that is, failing to reject the hypothesis when it was indeed false) would be slightly more important than making the mistake of rejecting a true hypothesis. Results reported at the .01 level of significance will be considered highly significant for purposes of comparison.
Academic Preparation

Hypothesis 1: There is no difference in academic preparation between groups of student-athletes and non-athletes; between athletes participating in revenue-generating sports versus non-revenue sport participants; or between male and female athletes as measured by (a)-high school rank and (b)-American College Testing (ACT) composite score.

Significant differences (p≤.05) in academic preparation did exist in the variable of high school rank between student-athletes and the matched group of non-athletes entering Iowa State University in the fall terms of 1981 and 1982. The group of non-athletes had a higher mean high school rank (23.68 for the non-athlete group to 31.08 for the student-athlete group) which was found to be significant. The non-athletes also had a higher mean ACT test score, 23.68, to 21.01 for the athletic group, but that was not found to be significantly different.

A highly-significant difference existed in high school rank of athletes participating in revenue-producing sports versus non-revenue sport athletes (42.14 for the revenue athlete to 26.92 for the non-revenue athlete). A highly-significant difference was also reported between revenue-sport team athletes and non-revenue sport team athletes in ACT test scores. The non-revenue sport athlete scored 21.88 on the ACT test composite while the athlete group involved in revenue-producing sport teams scored 18.58.

Highly-significant differences existed in both measures of college preparation between male and female student-athletes. In high school rank, females outranked males, ranking in the upper 20% of their graduating class while the male athletes in the study were found to rank in the upper 36% of their graduating class. In the ACT composite test score results, females held a significantly higher mean score (19.45).
over male athletes (16.42). See Table 2 for overall results in academic preparation.

Part a of Hypothesis 1 (concerning high school rank) that student-athletes did not differ from non-athletes in academic preparation was rejected while part b (concerning ACT composite test score) was not. There is support for the conclusion that student-athletes had significant differences in high school preparation as measured by the variable of high school rank; but there was no significant difference found in the ACT composite test score variable.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Athlete</th>
<th>Non-Athlete</th>
<th>Revenue</th>
<th>Non-Revenue</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Rank</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>31.01</td>
<td>23.68</td>
<td>42.14</td>
<td>26.92</td>
<td>36.33</td>
<td>19.75</td>
</tr>
<tr>
<td>S.D.</td>
<td>21.16</td>
<td>17.16</td>
<td>21.70</td>
<td>19.46</td>
<td>21.50</td>
<td>21.50</td>
</tr>
<tr>
<td>n</td>
<td>290</td>
<td>280</td>
<td>78</td>
<td>212</td>
<td>197</td>
<td>93</td>
</tr>
<tr>
<td>ACT Composite Score (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>21.02</td>
<td>22.98</td>
<td>18.59</td>
<td>21.88</td>
<td>16.42</td>
<td>19.45</td>
</tr>
<tr>
<td>S.D.</td>
<td>5.06</td>
<td>5.00</td>
<td>5.72</td>
<td>4.51</td>
<td>9.69</td>
<td>7.67</td>
</tr>
<tr>
<td>n</td>
<td>240</td>
<td>260</td>
<td>63</td>
<td>177</td>
<td>197</td>
<td>93</td>
</tr>
</tbody>
</table>

(1) Maximum scores=36.

The first hypothesis concerning preparation for college was rejected in the comparison of athletes participating in revenue-producing sports versus those athletes participating in sports that are not considered revenue-producing because highly-significant differences were found in both variables. There is support for the
conclusion that student-athletes participating in non-revenue-producing sports had
significant differences in high school preparation as measured by the variables of high
school rank and ACT composite test score.

The hypothesis was rejected in the comparison of male and female athletes
because highly-significant differences were also found in both variables (high school
rank and ACT composite test score). There is support for the conclusion that male
student-athletes had significant differences in high school preparation as measured by
the variables of high school rank and ACT composite test score.

Academic Success

Hypothesis 2: There is no difference in academic success as measured by the
graduation rate and the terms necessary to complete degree requirements between
the groups of student-athletes and non-athletes; athletes participating in revenue-
generating sports versus those involved in non-revenue-generating sports; and
between male and female athletes.

The primary measure of academic success for this study is graduation status and it
was measured by using the Chi-Square test of independence. The graduation rate of
athletes (132 of 290=45.5%) did differ significantly from nonathletes (151 of
280=53.9%). In addition, athletes participating in revenue-producing sports (24 of
78=30.8%) differed at a highly-significant rate from athletes participating in non-
revenue-producing sports (108 of 212=50.9%). Also, females participating in athletics
did graduate (58 of 93=62%) at a higher rate that was significantly different from that
of male athletes (74 of 197=38%). Therefore, the researcher rejected part a
(concerning graduate success) of hypothesis two concerning academic success in all
three comparisons (student-athlete versus non-athlete; revenue-generating sport
participant versus non-revenue sport participant; male versus female athletes).
The second measure of academic success was the variable of terms required to complete degree requirements for those who ultimately graduated. Summer sessions were included in the total of terms required to graduate. Highly-significant differences were found in the variable between all three subject groups. The student-athlete mean was 10.12 versus 9.48 semesters for non-athletes to complete degree requirements; athletes participating in revenue-generating sports needed 11.50 semesters to complete degree requirements as opposed to the non-revenue-generating sport participant mean of 9.80 semesters; and male athletes needed 10.48 semesters as compared to 9.65 semesters for female athletes to complete degree requirements (see Table 3).

Thus, this researcher rejected hypothesis two for all three comparisons (student-athletes and non-athletes; athletes participating in revenue-generating and those involved in non-revenue-generating sports; and male and female athletes).

| TABLE 3: Measures of Academic Success of Student-Athletes, Non-Athletes, Revenue-Generating versus Non-Revenue-Generating Sport Participants and Male and Female Athletes |
|-------------------------------------------------|------------|-----------|----------|----------|--------|--------|
| Variable                                        | Athlete    | Non-Athlete| Revenue  | Non-Revenue| Male   | Female |
| Terms to Graduation                             | Mean       | 9.48       | 11.50    | 9.80      | 10.48  | 9.65   |
|                                                | S.D.       | 1.13       | 1.38     | 1.38      | 1.52   | 1.42   |
|                                                | n          | 150        | 24       | 106       | 73     | 57     |

**Academic Performance**

**Hypothesis 3:** There is no difference in academic performance as measured by
cumulative grade-point-average and cumulative hours completed between the three comparison groups. The student-athletes and non-athletes were not found to differ significantly in the two measures of academic performance, cumulative grade-point-average and cumulative hours completed. The mean cumulative grade-point-average for student-athletes was 2.35 while the non-student athlete group mean score was 2.42. The mean cumulative hours toward graduation total was 92.5 for the athlete group while the non-student athlete mean was 92.3. Therefore, the researcher failed to reject hypothesis two in the student-athlete versus non-athlete comparison.

TABLE 4: Measures of Academic Performance of Student-Athletes, Non-Athletes, Revenue-Generating Sport Athletes and Non-Revenue-Generating Sport Athletes and Male and Female Athletes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Athlete</th>
<th>Non-Athlete</th>
<th>Revenue</th>
<th>Non-Revenue</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade-Point Avg.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>2.35</td>
<td>2.42</td>
<td>1.98</td>
<td>2.48</td>
<td>2.17</td>
<td>2.73</td>
</tr>
<tr>
<td>S.D.</td>
<td>.74</td>
<td>.79</td>
<td>.57</td>
<td>.75</td>
<td>.70</td>
<td>.70</td>
</tr>
<tr>
<td>n</td>
<td>290</td>
<td>280</td>
<td>78</td>
<td>212</td>
<td>197</td>
<td>93</td>
</tr>
<tr>
<td>Cumulative Hours</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>92.5</td>
<td>92.3</td>
<td>90.1</td>
<td>93.4</td>
<td>89.5</td>
<td>99.0</td>
</tr>
<tr>
<td>S.D.</td>
<td>45.2</td>
<td>45.5</td>
<td>46.5</td>
<td>44.8</td>
<td>46.3</td>
<td>42.2</td>
</tr>
<tr>
<td>n</td>
<td>290</td>
<td>280</td>
<td>78</td>
<td>212</td>
<td>197</td>
<td>93</td>
</tr>
</tbody>
</table>

In regard to the athletic subgroups and the second hypothesis, part a (concerning cumulative grade-point-average) of the hypothesis was rejected and part b (concerning cumulative hours) was not rejected.
A highly-significant difference was found in cumulative grade-point-averages between those athletes participating in non-revenue-generating sports (2.48) versus those involved with revenue-generating sports (1.98) and also between male (2.17) and female (2.73) athletes. However, a significant difference was not found in either comparison in the cumulative hours accumulated toward completion of graduation requirements (see Table 4).

Factors Contributing to Academic Nonperformance

Hypothesis 4: There is no difference regarding factors contributing to academic nonperformance between student-athletes and non-athletes; athletes involved in revenue-generating sports and those participating in non-revenue-generating sport teams; and male and female athletes as measured by the number of changes in majors, the number of lower division courses taken after the completion of 60 hours of coursework, the number of remedial courses taken, and the number of terms reported on academic probation (temporary enrollment).

The comparison of student-athletes and non-athletes rejected just one of the four-related variables in Hypothesis 4 concerning factors contributing to academic nonperformance. There was a highly-significant difference in the number of remedial courses taken with the student-athlete, on average, taking .50 remedial courses and the non-student athlete group taking .34 remedial courses. However, there was no significant difference found between the other three measures: major changes, lower division credits taken after the completion of 60 hours, and terms reported on temporary enrollment. Student-athletes made 1.11 major changes during their academic career compared to 1.08 major changes for non-athlete students. Student-athletes took more lower division credits after the completion of 60 hours, 15.73, compared to 13.66 for the non-athlete student group. Student-athletes were reported
on temporary enrollment .51 times during their academic career compared to .48 for the student from the non-athlete group.

The comparison of the subgroup of athletes participating in revenue-generating sports versus those involved in non-revenue-generating sports found highly-significant differences in all four variables. Revenue-generating sport participants had higher mean scores (1.24) than those athletes participating in non-revenue-generating sports in the number of major changes (1.06). The revenue-generating sport participant took 17.92 lower division credits after the completion of 60 hours of coursework, compared to 14.93 for the athlete from the non-revenue generating sport group. The student-athlete from the revenue-generating sport group also registered for more remedial courses (1.03) compared to just .31 for the non-revenue-generating sport participant. And the revenue-generating sport participant was reported on temporary enrollment more often than the non-revenue-generating sport participant, .77 terms compared to .41 terms. Thus, the fourth hypothesis was rejected in the comparison of revenue versus non-revenue producing sport team participants.

The subgroup comparison of male and female athletes resulted in two parts of the hypothesis being rejected while two others were not. Highly-significant differences were found between male (.60) and female (.30) athletes in the number of remedial courses registered for. Highly-significant differences were also found in the number of times reported on temporary enrollment for academic deficiencies. Males were reported with a mean score of .67 terms reported on temporary enrollment for academic deficiencies compared to .17 terms for female athletes. There were no significant differences found in the other two variables between male and female
athletes concerning the number of lower division credits taken after the completion of 60 hours and the number of times the major changed. Male athletes registered for 16.09 lower division credits after the completion of 60 hours of coursework compared to 14.99 for the female athletes. Female student-athletes recorded more changes in major, 1.17 compared to 1.08 compared to the male student-athlete (see Table 5).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Athlete</th>
<th>Non-Athlete</th>
<th>Revenue</th>
<th>Non-Revenue</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Major Changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
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<td>1.08</td>
<td>1.24</td>
<td>1.06</td>
<td>1.08</td>
<td>1.17</td>
</tr>
<tr>
<td>S.D.</td>
<td>1.1</td>
<td>1.0</td>
<td>1.3</td>
<td>1.0</td>
<td>1.1</td>
<td>1.2</td>
</tr>
<tr>
<td>n</td>
<td>290</td>
<td>280</td>
<td>78</td>
<td>212</td>
<td>197</td>
<td>93</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>15.73</td>
<td>13.66</td>
<td>17.92</td>
<td>14.93</td>
<td>16.09</td>
<td>14.99</td>
</tr>
<tr>
<td>S.D.</td>
<td>14.48</td>
<td>13.06</td>
<td>17.22</td>
<td>14.93</td>
<td>15.59</td>
<td>11.84</td>
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<td>280</td>
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<td>212</td>
<td>197</td>
<td>93</td>
</tr>
<tr>
<td>Number of Remedial Courses Registered for</td>
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</tr>
<tr>
<td>Mean</td>
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<td>.34</td>
<td>1.03</td>
<td>.31</td>
<td>.60</td>
<td>.30</td>
</tr>
<tr>
<td>S.D.</td>
<td>1.08</td>
<td>.81</td>
<td>1.30</td>
<td>.91</td>
<td>1.03</td>
<td>1.15</td>
</tr>
<tr>
<td>n</td>
<td>290</td>
<td>280</td>
<td>78</td>
<td>212</td>
<td>197</td>
<td>93</td>
</tr>
<tr>
<td>Terms on Temporary Enrollment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>.51</td>
<td>.48</td>
<td>.77</td>
<td>.41</td>
<td>.67</td>
<td>.17</td>
</tr>
<tr>
<td>S.D.</td>
<td>1.06</td>
<td>1.10</td>
<td>1.28</td>
<td>.95</td>
<td>1.20</td>
<td>.56</td>
</tr>
<tr>
<td>n</td>
<td>290</td>
<td>280</td>
<td>78</td>
<td>212</td>
<td>197</td>
<td>93</td>
</tr>
</tbody>
</table>
athletes recorded more changes in major, 1.17, compared to 1.08 for the male student-athlete (see Table 5).

Thus, the researcher rejected part b (concerning the number of remedial courses registered for) and part d (concerning the number of terms reported on temporary enrollment) of the hypothesis and failed to reject the part a (concerning lower division credits registered for after the completion of 60 hours) and part c (concerning the number of major changes) of Hypothesis 4 concerning factors contributing to nonperformance academically in the comparison of male and female athletes.

Summer Session Participation

Hypothesis 5: There is no difference regarding summer school participation between student-athletes and non-athletes; those athletes participating in revenue-generating sports versus those involved in non-revenue-generating sports; and male and female athletes, including number of summer sessions enrolled, hours enrolled for during summer sessions, hours passed in summer session and cumulative grade-point-average for summer school sessions.

In the comparison of student-athletes versus non-athletes the researcher rejected two of the four variables relating to summer school participation. A highly-significant difference was found between the student-athletes and non-athletes in the number of summer sessions enrolled. Student-athletes enrolled in .86 summer sessions during their academic career compared to .61 for the non-athlete student group. A highly-significant difference was also recorded in the number of credits passed during summer sessions with student-athletes passing an average of 10.92 credits in summer sessions compared to 8.25 for non-athletes. There were no significant differences found in the other two factors related to summer school participation. Student-athletes registered for 11.99 credits during summer sessions compared to 8.93 for non-
athlete students. The non-athlete group also recorded a higher grade-point-average in summer sessions, 2.82 compared to 2.66 for the student-athlete group. So, the researcher failed to reject part a and part c of Hypothesis 5 in the comparison of student-athletes versus non-athletes.

In the athletic subgroup comparison of those athletes participating in revenue-generating sports versus those involved in non-revenue-generating sports, highly-significant differences were found in three of the four variables: summer sessions enrolled and credits registered for and passed during summer sessions. Revenue-generating sport participants enrolled for nearly twice as many summer sessions during their academic career, 1.33, compared to .68 for the non-revenue sport participant. The revenue-generating group also enrolled for more summer sessions credits (16.79) compared to the non-revenue-generating sport participant (9.65). The revenue-generating sport participant also passed more summer school credits, 15.17, compared to 8.81 for the non-revenue generating sport participant. No significant difference was found in the cumulative grade-point-average for summer sessions between revenue-sport participants and non-revenue producing sport participants. The student-athletes from the non-revenue generating sport group recorded a higher summer session grade-point-average of 2.72 compared to 2.44 for the athletes from the revenue-generating sport group. Therefore, the researcher rejected parts a (number of summer sessions enrolled), part b (number of credits registered for during summer sessions) and part c (number of credits passed during summer sessions) while failing to reject part d (cumulative summer session grade-point-average) of Hypothesis 5 in the comparison of revenue versus non-revenue generating sport participants.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Athlete</th>
<th>Non-Athlete</th>
<th>Rev-Athlete</th>
<th>Non-Revenue</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Summer Sessions Enrolled</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
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<td>.61</td>
<td>1.33</td>
<td>.68</td>
<td>.90</td>
<td>.76</td>
</tr>
<tr>
<td>S.D.</td>
<td>1.07</td>
<td>.97</td>
<td>1.34</td>
<td>.90</td>
<td>1.14</td>
<td>.91</td>
</tr>
<tr>
<td>n</td>
<td>290</td>
<td>280</td>
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<td>197</td>
<td>93</td>
</tr>
<tr>
<td>Credit Hours Enrolled During Summer Sessions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>11.99</td>
<td>8.93</td>
<td>16.79</td>
<td>9.65</td>
<td>13.70</td>
<td>8.51</td>
</tr>
<tr>
<td>S.D.</td>
<td>7.30</td>
<td>4.85</td>
<td>8.61</td>
<td>5.18</td>
<td>7.75</td>
<td>4.68</td>
</tr>
<tr>
<td>n</td>
<td>142</td>
<td>106</td>
<td>47</td>
<td>96</td>
<td>96</td>
<td>46</td>
</tr>
<tr>
<td>Credit Hours Passed During Summer Sessions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>10.92</td>
<td>8.25</td>
<td>15.17</td>
<td>8.81</td>
<td>12.16</td>
<td>8.33</td>
</tr>
<tr>
<td>S.D.</td>
<td>6.53</td>
<td>4.76</td>
<td>7.56</td>
<td>4.73</td>
<td>7.06</td>
<td>4.27</td>
</tr>
<tr>
<td>n</td>
<td>142</td>
<td>106</td>
<td>47</td>
<td>96</td>
<td>96</td>
<td>46</td>
</tr>
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<td>Grade-Point-Average During Summer Sessions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>2.66</td>
<td>2.82</td>
<td>2.53</td>
<td>2.72</td>
<td>2.44</td>
<td>3.11</td>
</tr>
<tr>
<td>S.D.</td>
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<td>.84</td>
<td>.60</td>
<td>.86</td>
<td>.75</td>
<td>.69</td>
</tr>
<tr>
<td>n</td>
<td>142</td>
<td>106</td>
<td>47</td>
<td>96</td>
<td>96</td>
<td>46</td>
</tr>
</tbody>
</table>

In the final comparison of male versus female athletes, highly-significant differences were found in three of the four variables investigated. Male student-
athletes registered for more total academic credits during summer sessions, 13.70 compared to 8.51 for female student-athletes. Male athletes also passed more summer session academic credits with an average of 12.16 compared to 8.33 for female student-athletes. Females also had a significantly different grade-point-average of 3.11 in summer sessions compared to 2.44 for male student-athletes. There was no significant difference in the number of summer sessions that the two groups registered for as male athletes registered for .90 summer sessions during their academic careers while female student-athletes registered for .76. As a result of the findings, the researcher rejected part b (number of credits registered for during summer sessions), part c (number of credits passed during summer sessions) and part d (summer school grade-point-average) in the comparison of male and female student-athletes of Hypothesis 5 while failing to reject part a (number of summer sessions enrolled) of Hypothesis 5 (see Table 6).

Summary

Based on the results of this study, in the comparison of student-athletes to non-athletes, the researcher rejected the hypothesis relating to academic success; failed to reject the hypothesis relating to academic performance and rejected portions of the hypotheses relating to academic preparation (high school rank), factors contributing to nonperformance (number of remedial courses registered for), and summer school enrollment (number of credits registered for and passed during summer sessions).

In the athletic subgroup comparison of those athletes participating in revenue-generating sports versus those involved in non-revenue-generating sports, the researcher rejected three hypotheses concerning academic preparation, academic success and factors contributing to nonperformance while reject parts of the other two hypotheses concerning academic performance (cumulative grade-point-average) and
summer school enrollment (number of sessions enrolled and number of credits registered for as well as passed during summer sessions).

In the athletic subgroup comparison of male and female athletes, the researcher rejected two hypotheses relating to academic preparation and academic success while rejecting portions of the other three hypotheses relating to academic performance (cumulative grade-point-average), factors contributing to nonperformance (number of remedial courses registered for and number of terms reported on temporary enrollment) and summer school enrollment (number of credits registered for and passed as well as cumulative grade-point-average during summer school sessions).
DISCUSSION AND CONCLUSIONS

Summary

The purpose of this study was to replicate the findings of several national studies investigating student-athlete's preparation for and performance in college. Additionally, the study sought to reflect upon the role of the individual institution in its support of the student-athlete's pursuit of higher education.

In this study, a comparison of student-athletes with a group of non-athletes provided a standard by which the academic abilities of student-athletes participating in all intercollegiate sports at a major midwestern university could be judged. A group of non-athletes was matched with a group of student-athletes by year of entry into the university as well as by race. This comparison helped to evaluate the impact of athletic participation in intercollegiate athletics on academic success.

Additionally, comparisons were made between two subgroups of student-athletes: Athletes participating in those sports which are considered to be revenue-generating versus those athletes involved in sports generally not considered to produce self-sufficient revenues. Also, another subgroup comparison was made between male and female athletes.

Differences in college preparation, academic performance, success, factors contributing to nonperformance and summer school participation between student-athletes enrolling at Iowa State University in the fall terms of 1981 and 1982 and a matched group of non-athletes were tested for significance.

In the comparison of student-athletes and non-athletes, the athletic group compared favorably to the non-athletic group on eight of the 14 measures. In regards to college preparation, the non-athlete group ranked higher in their graduating high school class and also recorded higher marks on the ACT composite test score.
Relating to success in college, the non-athlete group was also more likely to graduate and needed longer to complete degree requirements. In regards to academic performance, both groups completed similar levels of cumulative hours during their career, but the non-athlete group recorded a higher cumulative grade-point-average. Relating to factors contributing to nonperformance, both groups scored similarly in the number of remedial courses registered for, the number of changes in majors during the academic career and the number of terms spent on temporary enrollment for academic deficiencies. However, the student-athlete group registered for more lower division academic credits after the completion of 60 hours of study than did the non-athlete group. Relating to the final variable, summer school participation, student-athletes attended more summer sessions during their academic career, registering for and completing more hours than did students from the non-athlete group. The non-athlete group also recorded a higher grade-point-average in summer school sessions.

In the comparison of athletes participating in revenue-generating sports versus those involved in non-revenue-generating sports, the revenue-generating sport participant performed lower as a group on all 14 comparison measures. Revenue-generating sport participants scored lower on both measures of college preparation, in high school rank as well as ACT composite test score. The revenue-generating sport participant also scored lower on both measures of academic success, being less likely to graduate and needing more terms to complete degree requirements when they ultimately did graduate. Revenue-generating sport participants also were outscored on both measures of academic performance, cumulative hours and cumulative grade-point-average. Non-revenue-generating sport participants outperformed the revenue-generating sport group in all four measures of factors contributing to nonperformance as well: the number of changes in major, the number of lower division credits
registered for after the completion of 60 hours; the number of remedial courses taken and the number of terms spent on temporary enrollment for academic deficiencies. Finally, the revenue-generating sport participant took part in more summer school sessions, enrolled for and passed more academic credits during summer school and had a lower cumulative summer school grade-point-average than did student-athletes participating in non-revenue-generating sports.

In the comparison of male and female student-athletes, females outscores males on 13 of the 14 measures. In regards to college preparation, females ranked higher in their high school graduating class and also outsored their male counterparts on the ACT composite test score. Relating to academic success, female student-athletes were more likely to graduate and needed fewer terms to complete degree requirements than did male student-athletes. In regards to academic performance, females accumulated more academic credits during their career as well as a higher cumulative grade-point-average. Relating to factors contributing to nonperformance, female student-athletes were found to change their major more often than male student-athletes, but the male group registered for more remedial courses, took more lower division credits after the completion of 60 hours of coursework and were placed on temporary enrollment for academic deficiencies than did the female group. Finally, male athletes participated in more summer school sessions and registered for and passed more credits during summer sessions. However, female student-athletes recorded a higher cumulative grade-point-average in summer sessions than did male student-athletes.
Student-Athletes versus Non-Athletes

In the primary comparison of student-athletes versus non-athletes, the athletic group compared favorably to the non-athletic group on eight of the 14 measures. However, the results from three variables raise some issues for further consideration.

The first variable was college preparation, comprised of high school rank and ACT composite test score. A difference in the high school rank variable between the two groups was noted. The non-athlete group high school rank mean was 24 while the student-athlete group mean was 31. The non-athlete student ranked 7 percentage points higher academically in his or her high school graduating class. In accordance with high school rank for admission purposes, a lower rank is more desirable. High school rank is an important factor because it is supported by the research literature as having the most predictive value regarding the prospects for academic success in higher education. Reported low class rank by a student-athlete on the high school rank variable should send an early-warning signal to school officials in considering admission recommendations. Additionally, if the student-athlete is admitted, it is imperative that sufficient support services be available to allow the student-athlete the opportunity to be successful in his or her pursuit of higher education. The second measure of college preparation, the ACT composite test score revealed a 24.0 average for non-athletes compared to a 21.0 average for the non-athlete group, which tends to support the high school rank data.

The second variable studied related to academic success was graduation. The measure was divided into two categories: earning a degree and the number of terms necessary to complete degree requirements. The non-athlete student outperformed the student-athlete group in both measures. The Chi Square test of independence indicated that non-athlete group members were more likely to graduate than members
of the student-athlete group. In comparison, student-athletes who ultimately graduated needed an extra half-term on the average to complete degree requirements (10 terms to 9.5). University officials need to be aware of the significant difference that exists in graduation rates between the student-athlete and non-athlete groups. These results are consistent with that reported in the research literature. This investigator believes that the results might be linked to the major time commitments that student-athletes are obligated to with the award of their athletic scholarships. A more viable research comparison might be made with students who face similar time constraints in their academic pursuits. Comparisons with students who work at least 20 hours a week and carry full time loads or with students who have similar time commitments in extracurricular activities such as student government, student publications, etc. may provide more viable results.

The third variable tested related to academic performance. Student-athletes compared favorably to the non-athlete student group in both measures of academic performance: cumulative hours and cumulative grade-point average. Student-athletes, on average, totaled 92.5 cumulative hours during their academic career as compared to 92.3 hours for non-athlete students. The non-athletes recorded a higher cumulative grade-point-average of 2.42 for their academic career compared to 2.35 for the student-athlete group, but the difference was not considered significant. Despite a weaker preparation for college, student-athletes compare favorably with the non-student-athletic group in measures of college academic performance. This indicates that despite shortcomings, student-athletes are performing fairly well as a group in their college studies. It might be that academic support services are meeting the needs of student-athletes in their educational endeavors.
The fourth variable tested concerned the category of factors contributing to nonperformance. Student-athletes registered for an average of .50 remedial courses during their academic career while non-athletes registered for .34. With many universities reducing remedial offerings in a time of budget constraints, such cutbacks might make it more difficult for student-athletes to maintain satisfactory academic progress towards completing degree requirements. The fact that student-athletes require more remedial courses in their academic pursuits also raises the question of whether or not student-athletes are properly prepared to enter college. Student-athletes registered for three more lower division academic credits after the completion of 60 hours, 15.73 for student-athletes compared to 13.66 for non-athletes. Student-athletes changed their major more often during their academic career than did non-athletes. The student-athletes group mean on major changes was 1.11 while the non-student athletes group mean was 1.08. Student-athletes spent more terms on temporary enrollment for academic reasons than did the non-athlete comparison groups. Student-athletes were reported on temporary enrollment an average of .50 times during their academic career while the non-athlete mean was .48.

The final area of concern relating to the comparison of student-athletes with non-athletes included summer school participation. Student-athletes registered for and passed more academic credits during summer school sessions than did non-athletes. Student-athletes registered for over 12 summer session credits, passing nearly 11, while the non-athletic group registered for just under nine credits while passing just over eight. This variable is very complex to interpret. Either the student-athletes were taking the coursework to help ease their future academic load or they were taking the classes to make up academic credits to meet the satisfactory progress requirements. This research did not reveal sufficient evidence to reach a conclusion.
between the two options listed above. In addition, student-athletes registered for more total summer sessions (.86) to .61 for the non-athlete group. The non-athlete group recorded a 2.82 cumulative grade-point-average in summer sessions compared to 2.66 for the student-athlete group.

Based on the data, it appears that student-athletes compared favorably with the non-athlete student group in the performance variables relating to cumulative hours completed and cumulative grade-point-average. However, the college preparation variable of high school rank combined with the academic success measures of graduate status and the number of terms necessary to complete graduation requirements to raise concern. This investigation supports the work of previous research that student-athletes were less likely to graduate than comparison groups of non-athletes (Brigham 1903, Bevier 1905, Harvard Graduate's Magazine 1921, Rhoton 1923, Peterson 1928, Estes 1929, Morton 1930, Cooper 1931, Parson 1969, N.C.A.A. 1988, Sulek 1989 and Cone 1990). This investigation further supports the work of previous research pertaining to academic preparation for college, indicating that student-athletes enter college less well-prepared than non-athletes (Burtt 1923, Peterson 1928, Hindman 1928, Stecklein 1965, Purdy 1982, Parsons 1969, Stuart 1983, Murphy 1987, N.C.A.A. 1988 and Patterson 1988).

Revenue-Generating Athlete versus Non-Revenue-Generating Athlete

The most obvious concerns resulting from this investigation revolve around the comparison of student-athletes participating in revenue-generating sports with those participating in non-revenue generating sports. The data indicates that the revenue-generating group performed lower on all 14 of the measures utilized for comparison: college preparation (high school rank and ACT composite test scores); academic success (graduation and terms to graduation); academic performance (cumulative hours and cumulative grade-point-average); factors contributing to nonperformance
(number of major changes, lower division credits taken after 60 hours, number of remedial courses taken, and number of terms reported on temporary enrollment); and summer school participation (number of summer sessions enrolled, number of hours enrolled and passed during summer sessions and summer session grade-point-average).

These results when considered along with the anecdotal evidence cited in chapter two support the need to review academic preparation on the part of student-athletes entering college.

Relating to college preparation, student-athletes from revenue-generating sports ranked 42nd in their graduating class, on average, while the non-revenue-generating sport participant ranked 27th. Concerning this measure, a lower score is more desirable. The revenue-generating sport participant also recorded a lower ACT composite test scores (19) as compared to 22 for the student-athlete participating in a non-revenue generating sport. Such highly diverse scores within the student-athlete group itself should deliver an early warning message to school officials. First, the question arises as to whether or not student-athletes have adequate preparation to compete in the classroom as well as on the athletic field. Secondly, once admitted, at-risk student-athletes must be monitored carefully and supported by appropriate student services. Student-athletes must be convinced from the beginning of their college academic careers that succeeding in the classroom is as critical as performing on the athletic field. If necessary, student-athletes scoring at the lower end of these two college preparation scales (high school rank and ACT composite test scores) might be considered for red shirt seasons where they are withheld from athletic competition to concentrate on establishing themselves in the classroom.
In the variables related to academic success, student-athletes participating in revenue-generating sports lagged behind those student-athletes participating in non-revenue generating sports. The academic success variables included: degree status and the number of terms necessary to complete degree requirements. The Chi Square test of independence revealed that the student-athlete group participating in non-revenue generating sports graduated at a significantly higher rate than did student-athletes playing revenue-generating sports. It also took the revenue-generating sport participant nearly two terms longer to complete graduation requirements. The revenue-generating sport participant, on average, needed 11.50 terms to complete degree requirements while the student-athlete from the non-revenue-generating sport group needed 9.80 terms to complete degree requirements.

In regards to the third variable relating to academic performance, the revenue-generating sport participant lagged behind the non-revenue sport student-athlete in both comparisions, cumulative hours and cumulative grade-point-average. The non-revenue generating sport participant accumulated 93.43 credits, on average, during the academic career while the revenue-generating sport participant accumulated 91.00. The non-revenue generating sport participant group also scored a full half-point higher on cumulative grade-point-average with a 2.48 compared to 1.98 for the student-athlete from the revenue-generating sport participant. It should be noted that revenue-generating sport participants as a group failed to maintain an overall C average during their academic careers. In the opinion of this researcher, the combined results of these two measures (cumulative hours and cumulative grade-point average) raise a concern from the anecdotal evidence of chapter two as to whether or not student-athletes are being pushed to complete hours to be eligible for sport participation without regard to making satisfactory academic progress.
Concern also rises in regards to all four measures of factors relating to academic nonperformance: number of recorded changes in major, number of lower division credits taken after the completion of 60 hours, number of remedial courses taken and number of terms on temporary enrollment. The revenue-generating sport participant recorded a lower mean score of 17.92 in the number of lower division credits taken after the completion of 60 hours compared to 14.92 for the non-revenue generating sport participant. The revenue-generating sport participant also registered for 1.03 remedial courses during the academic career while the student-athlete from the non-revenue generating sport group registered for just .31 remedial courses. The revenue-generating sport participant recorded 1.24 changes in major during the academic career while the non-revenue generating sport participant recorded 1.06 major changes. Revenue-generating sport participants were reported on temporary enrollment, on average,.77 terms compared to just .44 terms for the non-revenue generating sport participant. The highly-diverse results again indicate the need for very careful supervision of the academic program of at risk student-athletes. The empirical results raise concern as to whether or not revenue-generating sport participants are student-athletes in the true sense of the word. Research findings in relation to this comparison of revenue-generating and non-revenue generating sport participants lead the investigator to pose five questions: 1.) Are revenue-generating sport participants taking required courses and maintaining satisfactory progress or are they looking for the easy way out as the anecdotal evidence suggests? 2.) Are revenue-generating sport participants taking a disproportionate number of lower division credits after the completion of 60 hours (into their junior year)? 3.) Are revenue-generating sport participants taking considerably more remedial coursework? 4.) Are revenue-generating sport participants changing their major more often to avoid
having to demonstrate satisfactory academic progression within a major area? 5.) Are revenue-generating-sport participants spending more time on temporary enrollment for academic performance than those student-athletes performing in non-revenue-generating sports? The results of this investigation do not lead to any definitive responses to the above questions. However, the data strongly supports a concern about the performance of the revenue-generating sport participant.

The final variable, participation in summer school, is again a difficult one to interpret. The revenue-generating sport participants enrolled in more summer sessions; enrolled and passed more summer school credits; but trailed the non-revenue sport group in summer school grade-point-average. The revenue-generating sport participant, on the average, enrolled for nearly twice as many summer sessions during their academic career (1.33) compared to the non-revenue-generating sport participant (.68). The student-athlete from the revenue-producing sport group enrolled for nearly double the credits during summer sessions (16.69) as did the non-revenue generating sport participant (9.68). The revenue-generating sport participant also passed nearly double the summer school credits, on average, during their academic career (15.17) compared to 8.83 for the student-athlete from the non-revenue generating sport group. However, the non-revenue generating sport participant recorded a higher summer school grade-point-average (2.73) compared to 2.53 for the revenue-generating sport participant on average. The extreme range between mean scores recorded on three of the four measures again raises questions concerning the revenue-generating sport participant. While other researchers might raise the argument extended at the conclusion of the student-athlete versus non-athlete section in this chapter that student-athletes from revenue-generating sports could possibly be working ahead on their degree programs, this investigator believes it is unlikely for
two reasons. The first reason is the combination with the poor performance in nearly all of the other variables. Second, given the extremely high mean scores in total number of summer sessions enrolled, total number of credits registered for and passed in summer sessions, it appears probable that the revenue-generating sport participant is trying to catch up to the standards set for academic progress.

In summary, this section comparing student-athletes participating in revenue-generating sports with those taking part in non-revenue-generating sports, study results raise concern about the student-athlete from the revenue-producing group. The revenue-generating sport participant was found to be less well prepared for college; to perform less well in the process; less likely to succeed (graduate); to have more problems with factors contributing to nonperformance; to go to summer school more often and to perform at a higher level during the summer. Every one of the criteria was found to differ between student-athletes participating in revenue-generating sports and those participating in non-revenue generating sports. This investigation supports previous research work where student-athletes performing in the major or revenue-producing sports were less well prepared for college and less likely to graduate (N.C.A.A. 1988, U.S. Senate Committee on Labor and Human Resources 1989, Purdy 1982).

**Male versus Female Athletes**

In the comparison of male student-athletes versus female student-athletes, females recorded higher mean scores on 13 of the 14 measures.

Relating to the first variable of college preparation, female student-athletes ranked higher in their high school graduating class and also recorded higher composite ACT test results. In high school rank, where a lower number is more desirable, female student-athletes ranked 20th on average in their high school class while male
students-athletes ranked 36th. Female student-athletes scored over three points higher on their ACT composite test scores, on average, with a 19.45 compared to 16.42 for the male student-athlete group. The difference in the two measurements once again indicates a need to carefully monitor the male student-athletes academic career.

The second variable under investigation, academic success, favored the female student-athletes in both comparisons: graduate status and terms necessary to complete graduation. The Chi Square test of independence revealed a significant difference in graduation rates between female student-athletes and male student-athletes, favoring the female group. It also took the male student-athlete group nearly a semester longer to complete degree requirements. Male student-athletes needed 10.48 terms to complete degree requirements while female student-athletes needed just 9.65. Again, the comparison speaks for careful monitoring of the academic program of the male student-athlete.

Regrading the academic performance variable, results again favored the female student-athlete in both comparisons. Female student-athletes recorded nearly ten more cumulative hours during their academic career (99.00) compared to 89.45 for the male student-athlete. Female student-athletes also registered a significantly higher cumulative grade-point-average (2.73) compared to 2.17 for the male student-athlete group. The diversity of the two results again indicates a need for careful monitoring of academic progress to be certain the male student-athlete has access to appropriate support services when needed.

In the comparison of factors contributing to academic nonperformance between male and female student-athletes, male athletes were placed on temporary enrollment more often than female student-athletes. Male athletes were reported on probation an average of .67 terms compared to just .17 for female student-athletes. Male
athletes also took a higher number of remedial courses (.60) than did female student-athletes (.30). Male athletes registered for more lower division credits after the completion of 60 hours than did female student-athletes. Males took 16.09 lower division credits after the completion of 60 hours compared to 14.99 for the female student-athlete. However, female athletes recorded more changes in majors than did the male student-athletes. Female student-athletes registered 1.17 major changes while male student-athletes registered 1.08 changes in major during their academic career. In combination, the results do not raise a concern with this investigator.

In the final comparison, relating to summer school participation, male student-athletes enrolled in a slightly higher total of summer sessions (.90) compared to .76 for the female student-athletes. Male student-athletes also registered for more cumulative academic credits in summer sessions (13.82) compared to 8.51 for the female student-athletes. Male student-athletes also passed more cumulative academic credits in summer sessions (12.24) compared to 8.33 for the female comparison group. However, female student-athletes recorded a significantly higher cumulative summer school grade-point-average (3.11) compared to 2.44 for the male student-athlete group. The difference in the number of credits registered for and passed in summer sessions and the summer school grade-point-average difference between male and female student-athlete groups once again point out the need to carefully monitor the academic progress of the male student-athlete.

In summary, this section on the comparison of male and female student-athletes, concern is raised about the academic preparation for college and success in college on behalf of the male student-athlete. Interest is also raised by the cumulative grade-point-average measurement as well as the number of terms spent on temporary enrollment for the male student-athlete, but overall the concern is not as great as
registered for the revenue-generating sport participant in the previous comparison. These results support previous research (N.C.A.A. 1988, Purdy 1982).

**Further Study**

While this research presents certain helpful conclusions, there remain a number of related but unanswered questions which suggest further study. Answering these questions in future research will provide additional information, possibly leading to help in solving some of the problem areas identified in this study.

1.) Research needs to be conducted specifically into the predictive ability of the high school units required by the N.C.A.A. in its Proposition 48 requirements for college athletic eligibility. Such predictive ability could be instrumental in determining which student-athletes are adequately prepared for college and have an opportunity for success.

2.) Additional research needs to be conducted regarding the poor performance of the revenue-generating sport participant.

Studies of the late 1960's and early 1970's into the sociological and psychological motivation for attending college need to be applied and interpreted in light of 1990 America. Studies that investigated student-athletes' college expectations, aspirations and attainment need to be replicated as do those investigating attitudes toward higher education (Coleman, 1960; Rehberg and Schafer, 1967; Frantz, 1968; Hauser and Lueptow, 1973; Spady, 19; Spreitzer and Pugh, 1973, Hanks and Eckland, 1976; Otto and Alwin, 1977; and DuBois, 1978). Studies like those of Picou (1978) as well as Spivey and Jones (1973) concerning the treatment of student-athletes from minority groups in higher education must be replicated. Studies of minority parent aspirations, expectations and motivation would also be helpful. Studies investigating high school
athletic departments and the academic treatment and motivation of inner city student-athletes might help to reflect upon the results of this study.

3.) Studies need to be conducted into the effectiveness of academic support services available to the student-athletes. Such issues as acceptance of academic support programs, their growth and role within the university and methods of operation might provide for the development of a successful model for nationwide application.

4.) Studies need to be conducted into the interpretation of the term satisfactory progress as defined by the N.C.A.A. The anecdotal evidence suggests and the empirical evidence does not discourage consideration of a study of individual school policies concerning the concept of satisfactory progress. The definition of the term needs universal delineation from a central organization to provide for more effective data gathering and comparison studies.

5.) There is a need to replicate and extend this research, examining academic success after six and even up to a period as long as ten years. Increasing financial constraints, a higher portion of students working their way through college, the pressures of winning on college coaches, the movement of former athletes returning to campus to complete degrees and much recent publicity and empathy for the maligned student-athlete indicate that future studies might provide different results.

6.) Research should be designed to include more athletes and more institutions. This study had intended to compare results within a sport-by-sport format. However, the selected two-year time period for the study did not allow, in most cases, sufficient numbers of individuals from selected sport teams for statistically-significant results. (See Table 1 for team sport graduation percentages). Longitudinal data, or athletic
records over a more significant time period (perhaps ten years and up), might make for more meaningful conclusions.

7.) Research needs to be conducted into the effects of recent N.C.A.A. initiatives and Knight Commission recommendations for all member institutions to participate in annual reporting of academic progress (graduation rates). The concern is for individual institutional variation and interpretation of results. Geographically the majority of N.C.A.A. schools participate in conferences. Interconference analysis leading up to intraconference and ultimately a nationwide network of standardized analysis would be the easiest and most efficient means of measurement, overcoming individual differences of interpretation.

8.) Further research needs to be conducted into the benefits of athletic participation. While graduation is ultimately held as the standard or aim of higher education, when athletics enters into the discussion, many people believe that providing economically-disadvantaged athletes the possibility of an alternative lifestyle with the hope of a college education is in itself enough. The idea of the absence of class feelings and recognition of equal opportunity for the poor as well as the rich permeates both the American social structure and its higher education model. (Carnegie Foundation, 1929, p. xiii). Similar to the life experiences debate (as opposed to the more traditional, strictly academic concerns) which continues in higher education today, many coaches believe that simply providing a way out is sufficient to warrant the participation of less-well prepared athletes in college.

9.) The ability of students to persist beyond various academic roadblocks (financial reasons and personal problems most notably) to maintain continuous progress toward the completion of degree requirements is a major area of study currently in the field of higher education. Just as importantly, research is needed into
the "why" for students who failed to succeed or even to persist in their college career once admitted. Many studies have been reported in the literature concerning dropout patterns but very few exist concerning the persistence of the student-athlete. Many assumptions are made that coaches cut student-athletes from the squad when they fail to live up to athletic expectations or have a falling out with the coach. Attrition researchers need to include student-athletes within their studies with the investigation of physical/psychological/sociological reasons why student-athletes leave college. Also, studies might expand to examine how many of those student-athletes who drop out of one school transfer to another and what sort of success they have in a different setting as well as the reasons behind the ultimate success or failure.

Suggestions

This researcher would like to offer some suggestions for this particular major midwestern university for which the study was conducted:

The University should continue to comply with N.C.A.A. reporting standards concerning the academic progress of student-athletes.

University officials should continue monitoring the academic records of student-athletes regarding the factors included in this study: academic preparation for college, academic performance and progress, academic success, factors contributing to nonperformance and summer school participation. This major midwestern university has taken an important step forward within the past few months with the appointment of an academic oversight committee for intercollegiate athletes.

Members of the athletic coaching staff should pay close attention in the athletic recruiting process to critical factors (low high school academic performance and low scores on college entrance examinations) uncovered by this investigation as
indicators of increasing the likelihood of academic success. Equal attention should be
given to the indicators of academic failure.

The university should continue to provide a strong academic support service of
counselors, tutors and advisors provided to assist student-athletes during their
college career, just as other students are provided such academic assistance. Such
services should extend beyond the classroom interaction to individual assessment of
academic strengths and weaknesses, personality development and maturity, to
encouraging good citizenship of student-athletes.

**Broader Implications**

Finally, this researcher would like to offer a suggestion for consideration by the
National Collegiate Athletic Association (N.C.A.A.) and its member institutions
nationwide.

Administrators and governing bodies need to realize the increasing wide variation
in the time it takes today's college student to complete degree requirements. The
traditional four-year college education is no longer the standard. A recent study by
the National Association of Independent Colleges and Universities revealed that only
15 percent of the students at four-year colleges had graduated within four years, and
fewer than half had completed a bachelor's degree after six years. (Wilson, 1990, p. 1)

While recognizing the need to reduce costs, such cutbacks should not be at the
expense of the student-athlete. Nationally, a process should be found to encourage
student-athletes who have completed their athletic eligibility to remain in college. If
they are making satisfactory progress toward a degree, there should be an opportunity
to qualify for financial assistance beyond the mandated five-year time period by the
N.C.A.A. In addition, student-athletes who leave campus without graduating but
decide later to return to campus to pursue their degree should be encouraged to do so.
The extended opportunity for financial assistance at the time of return would be a valuable incentive. This would allow for an opportunity for both parties to honor the binding student-athletic tender presented in chapter one as the contract between the student-athlete and the individual institution. If students are demonstrating satisfactory progress in their academic endeavors, they earn this opportunity to complete their education. By doing its part with the financial incentive, the institution is honoring its obligation to do all that it possibly can to see that the student-athlete reaches the goal of the higher education world: graduation. To settle for anything less is failure for both parties. Former National Collegiate Athletic Association (N.C.A.A.) President's Commission President John Slaughter (1989) outlined the obligation:

"It's unconscionable for a school to admit a young person who does not have a reasonable chance of success. Having admitted youngsters who are at risk, it's important to recognize the pressures on these students.... Institutions should provide support mechanisms not only for academic work but for psychological and emotional problems" (p. 372).

And finally Slaughter (1989) talks about the purpose of education:

"Education is what it's all about--not touchdowns, skyhooks or home runs... and if we make graduating the priority of every student-athlete, we'll be dealing honestly with our student-athletes, we'll set a positive example for younger students coming up, and we'll be true to the values that our institutions are supposed to embody" (p. 373).
REFERENCES


National Collegiate Athletic Association. (1988, November) *Studies of intercollegiate athletics* by the American Institutes for Research (AIR) for the President's Commission of the National Collegiate Athletic Association.


DEDICATION

This research is dedicated to four former advisee student-athletes, two who fought the academic battle and won and two who didn't. This work was inspired by the efforts of David Moss and Hughes Sufferen, ISU athletes who went on to graduate through intensive effort, motivation and dedication to succeeding. This work was further inspired by the efforts of Robert Hackett and James Butler, two ISU athletes who put in the effort and had the motivation, but who failed to persist due to some of the problems mentioned in the review of literature of this study.

This research is further dedicated to all academic counselors of student-athletes. May they learn quickly the hard lesson of challenging student-athletes without babying them. May they learn the hard lesson of serving as an academic guide and friend to student-athletes without trying to become pals, or worse yet, parents. May they learn the hard lesson of treating student-athletes as they would treat all students, providing support and background assistance necessary for the student-athlete to continually make satisfactory progress towards a college degree.
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