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THE RELATIONSHIP BETWEEN ATHLETIC PARTICIPATION AND THE ACADEMIC APTITUDE, ACHIEVEMENT AND PROGRESS OF MALE AND FEMALE ATHLETES IN REVENUE AND NON-REVENUE PRODUCING SPORTS AT THE OHIO STATE UNIVERSITY

The Ohio State University PH.D. 1982

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DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Ann Marie Mayo, B.A., M.A.

******

The Ohio State University

1982

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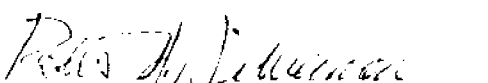

Advisor
Department of
Educational Special Services

To my parents, whose love and

support have made this possible.

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VITA

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CHAPTER I: INTRODUCTION

The Relationship Between Athletics and Higher Education: An Overview

The relationship between involvement in intercollegiate sports and academic performance has been an area of interest for educators since the first interschool football game between Rutgers and Princeton in 1869. The influence and acceptance of athletics within the framework of American college and university life is evidenced by the fact that it has withstood a multitude of controversies and scandals since its inception.

From the beginning of athletics in the American college, the very fundamental of play itself was challenged by the principles of Puritanism and the Protestant ethic. However, by the 1850's even evening prayers had given way to the discovery of outdoor sports and the development of collegiate athletics (Rudolph, 1962). The 1880's saw the growth of intercollegiate competition, the encouragement of the will to win, and the need for regulation in football. As early as the 1890's, a group of midwestern colleges came together in an agreement to use no more than two professional football players per game.

Frederick Rudolph, in his book, The American College and University: A History, notes that the traditional purposes of the American college were also served by football:

> "A 1901 observer of the collegiate scene discovered in football not only an antidote to physical softness created by material plenty but also an antidote to the increasing complexity, mechanization, and standardization in American life. Football -

> early football, in any case - glorified the individual; it put on display not the wonders of machines but the robustness, ingenuity, and imagination of man" (Rudolph, p.377).

Rudolph also claims that some additional values were to be found in the rise of football: Class distinctions became relatively unimportant among students and athletes; drinking took on a decreased emphasis as a source of recreation; and the incidence of rebellions, riots and hazings seemed to decline. And, competitive football also helped restore old feelings of collegiate unity.

The growth of collegiate football and the development of intercollegiate sports owe much to the rapid support they gained from alumni and administration:

> "For, once the sport had been accepted, the game had to be won. Americans lacked a psychology of failure. They had developed a very workable ethic for success. In football, this ethic was revealed in 'the almost invisible line between clever tactics and foul play' and in all those excesses of enthusiasm, recruitment, and training which were aspects of total mobilization for victory" (Rudolph, p.382).

Students and alumni gained control of organized athletics in the American college because the faculty wanted nothing to do with it. Rudolph (1962) notes that when the management structure of athletics became too large and complex for the students, the alumni gladly "jumped to the opportunity which student ineffectiveness and faculty indifference gave them. Later, when many faculties recognized what had happened, it was too late."

It did not take some faculty members too long, however, to rise against the tide. Harvard faculty stirrings led to joint faculty-student and then joint faculty-student-alumni boards of control. By 1890, each

sport at Harvard had its own "graduate advisory committee, which theoretically represented the conscience of Harvard in athletic matters..." (Rudolph, p.384).

In 1905, after 68 deaths had been recorded in the four previous years in football, and at the urging of President Roosevelt, a meeting of the nation's colleges was called to determine the worth, if any, and the fate of football. Some schools dropped their football programs for a short period; others sought to "clean up" the game. This group, which was called the Football Conference, next established a permanent organization known as the Intercollegiate Athletic Association of the United States. In 1910 the name of this organization was changed to the National Collegiate Athletic Association (N.C.A.A.).

The original concept of the N.C.A.A.'s organization was that its basis and influence would be national in scope. The guiding principles established in its first constitution were the concepts of faculty control and competition by amateurs. A strict set of eligibility requirements and strict enforcement methods were also presented in the N.C.A.A.'s first constitution. After much debate, this purpose was rejected; and the constitution was rewritten with neither legislative nor executive powers. In its new concept, "the N.C.A.A. was conceived as an educational body organized with the intent of accomplishing its purposes by supporting the ideals of amateur sports by college students, establishing well defined notions of the association's principles, writing rules for play for college sports, and suggesting eligibility rules and regulations" (Martinelli, 1968). Thus the purpose of the N.C.A.A. was not to act as a national regulatory agency, but as an agency to encourage colleges to strive for high ideals in their own programs.

Over the years the role of the N.C.A.A. has become more regulatory in nature than the original philosophies intended. The areas in which the N.C.A.A. has chosen to establish and enforce regulations are defined in the "Fundamental Policy" Statement:

> Section 2. Fundamental Policy. (a) The competitive athletic programs of the colleges are designed to be a vital part of the educational system. A basic purpose of this Association is to maintain intercollegiate athletics an an integral part of the educational program and the athlete as an integral part of the student body and, by so doing, retain a clear line of demarcation between college athlete and professional sports.
>
> (b) Legislation governing the conduct of intercollegiate athletic programs of member institutions shall apply to basic athletic issues such as admissions, financial aid, eligibility, and recruiting; member institutions shall be obligated to apply and enforce this legislation, and the enforcement program of the Association shall be applied to an institution when it fails to fulfill this obligation. (NCAA Handbook, 1980-81)

Today the N.C.A.A. sets minimum standards for admission and eligibility. The institution may choose to adhere to these regulations or to enforce its own regulations which may be stricter.

It is in the definition of the amateur status of college athletes and the suggestion of eligibility rules and regulations that the N.C.A.A. has encountered the most opposition from individual institutions as questions and problems with subsidization of student-athletes have occurred. Subsidization is the provision of financial aid to student-athletes, which today may only consist of tuition, fees, room and board, and books. Subsidization is also the issue which has attracted perhaps more attention than any other issue in the history of collegiate athletics. Throughout the history of intercollegiate athletics money has been the most effective inducement in getting athletes to attend certain institutions. Promises of part-time employment (for which you earn good pay but

do little work), cars, and extra bonuses have been used frequently to lure young men with great athletic ability to certain institutions. The moral, ethical, and practical ramifications of individual subsidization have found little solution over the years. And we are today no closer to solving this problem than our predecessors were in 1905.

The reasons for the plethora of problems with subsidization are varied. The first, however, is also the most obvious: Americans have always placed a high priority on winning. Individual college administrations have presented divergent viewpoints on the practice of subsidizing college athletes. Academic values have often been compromised as the commercial value of a winning football team has never gone unnoticed. And lastly, our acceptance of the English model of the amateur athlete has created many problems in the development of criteria of acceptable and unacceptable practices in athletic subsidization (Martinelli, 1968). The English model, having been somewhat mutated in America, called for athletic competition based on the pure love of sport, no funding of the athlete in any manner, no coaching by anyone deemed to be "professional", and stressed that losing honestly was far better than winning dishonestly. The degree of subsidization of athletes and the student-athlete's relationship within the academic community have brought about the most criticism and scandal throughout the years.

Statement of the Problem

Throughout the history of intercollegiate sport, problems with performer exploitation, illegal recruiting practices, and academic cheating have emerged periodically. In the academic year 1979-80, however, the

relationship between athletics and academics came to the forefront of national news. On November 5, 1979, eight Arizona State University football players were declared ineligible to compete by the National Collegiate Athletic Association fo receiving credit for extension courses they never attended. Similar experiences were reported at Oregon State University, The University of Oregon, The University of Southern California, and New Mexico State University. Several ex-football players are presently suing California State University, Northridge, claiming that they were never given the chance to receive a college education.

Underwood (1980) refers to these instances of academic cheating as "The spoor of an educational system gone mad... The rash of phony transcripts and academic cheating spells out the fact that athletics are now an abomination to the ideals of higher education. Victims: The student-athletes. Culprits: The system and those who run it." Needless to say, there may be additional victims (i.e. other students, the institution itself, etc.) and there may be other culprits.

Educators and athletic administrators are currently debating the questions of athletic grant-in-aid as opposed to aid based on need or scholastic ability. Many feel that aid based on athletic ability encourages student (or performer) exploitation and the recruiting of athletes with little or no academic ability. Underwood caricaturized this exploited athlete:

> "...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."

This image of the "dumb jock" has been with us for as long as we have had intercollegiate competition. That image, however, has recently become a reality in education:

> "The 'dumb jock' has now come into 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, 1980).

The major criticisms of collegiate athletics in the twentieth century have been aimed at the revenue producing sports and those sports which serve as training institutions for the professional leagues. These criticisms have been aimed at football, basketball, and in some cases, ice hockey. It would naturally follow that the greater the potential revenue production of the sport, the greater the chances of exploitation of the athletes. And it would also follow that the greater the athlete's chances of pursuing a professional athletic career, or the greater their perceived chances, the more readily they will allow themselves to be exploited.

The myth of sports as a method of upward social and economic mobility creates the environment in which the athlete, especially the black athlete, is left open to exploitation. Harry Edwards, a black sociologist, is concerned with the fact that:

> "In the last 20 years colleges have allowed their 'money' sports - football and basketball - to become farm systems for the professional leagues and in so doing have permitted their athletes to embrace a terrible myth: that attending college with the sole aim of making the pros is compatible with the academic environment, even at the expense of scholarship. Scholastically handicapped players are thus invited into college to pursue an impossible dream: to become one of the small number of college players (less than 2%) who make it in the NFL or NBA" (Underwood, 1980).

In 1980, there were fewer than 1,000 black athletes making a living in professional sports. The black culture in America, however, has fostered the belief that professional sports can be the way out of the ghetto, not only for the athlete, but for his entire family. Thus, the athlete pursues the dream, enforced by all those around him. "Spurred on by a misguided notion of athletic black supremacy and served a daily diet of pro athletes as role models, perhaps 3 million black youths between 13 and 22 are out there dreaming of careers as pro athletes. The odds against them are 20,000 to 1" (Underwood, 1980).

The lack of national standards of academic eligibility, the desire of some institutions to produce winning teams at all cost, and the decline in academic standards in the past several years have produced a situation in which more undereducated student-athletes than ever are getting into college. "Not just underpriveleged young men who need a chance, but unqualified young men who have no chance, not in the classroom" (Underwood, 1980). Colleges and universities have lately concerned themselves with the graduation rates of those athletes who succeed in professional sports, as one index of academic emphasis. It is not those athletes, however, who should warrant our concern. The real failures of the system are those poor athletes, who pursue the myth, and then fail both athletically and academically. And then, there are those who somehow graduate, but have little that resembles a college education.

Purpose of the Study

Collegiate athletic programs today consist of much more that football and basketball teams. They consist of male and female athletes, subsidized

and non-subsidized, competing in a variety of team and individual sports which may or may not generate revenue.

It is the purpose of this study to examine the relationship of student-athletes to the academic environment in which they find themselves, by addressing several questions. How prepared is the athlete, academically and attitudinally, to enter the environment of higher education? How well is the athlete able to succeed academically? And, how do athletes cope with or survive this environment? More importantly, however, do the answers to these questions differ for different types of athletes? Are there differences among male and female athletes, subsidized and non-subsidized athletes, athletes in the revenue producing sports and the non-revenue producing sports, and lastly, black and white athletes?

The main measures of academic aptitude and predicted success in college have always been considered to be test scores and grade point average. The American College Test (ACT) and the Scholastic Aptitude Test (SAT) are used nationwide to predict a student's aptitude for college work. Due to grade inflation over the last few years, the student's rank in his high school graduating class has proven to be a better predictor of college success than his high school grade point average. Most university admissions offices, athletic conferences, and the N.C.A.A. have prediction tables, which based on a student's SAT or ACT score and his high school rank, predict success in college by estimating a first year grade point average. While these tables in some instances prove inaccurate, they remain the most valuable tool for estimating college success. As such, they are used by athletic administrators and admissions officers in many institutions to help avoid performer

exploitation. This study will examine these data for athletes in the previously mentioned categories to determine if differences in preparation and academic aptitude occur among athletes.

Measurement of academic success in college has always been determined by graduation and by grade point average. One of the accusations against athletics has been that grade point averages of athletes are "padded" with physical education activity courses and other courses deemed to be "easy" or "cake". This study will examine the grade point averages of student-athletes calculated in a variety of ways for comparison. The study will look at overall or cumulative point hour ratio (CPHR) as compared with the student-athlete's point hour ratio in only those courses which meet Basic Education Requirements (BERPHR). The percentage of coursework done in Basic Education Requirement courses (%BER) will also be compared. The student-athlete's point hour ratio may suffer during his season of competition based on his motivation, athletic or academic, and the amount of pressure placed on him by the rigors of his sport. Thus, the data for the quarter of competition, the point hour ratio (PHR/QCOMP) and the percentage of Basic Education courses scheduled in the quarter of competition (%BER/QCOMP), will be compared for various types of athletes.

How the student relates to and adapts to the academic environment may be determined by examining several factors which have previously been thought of as academic survival mechanisms. Enrollment in fewer Basic Education courses and in more physical education activity courses may be one way of coping academically. The percentage of BER course data will be compared to determine if different types of athletes schedule these

courses differently. The choice of academic major may also be another coping mechanism. Certain academic majors have always been perceived by students to be "easier" than others, and certain majors have always been perceived to be "more compatible" with an athletes' goals. While it is impossible to assess why a student-athlete may choose a certain major, an examination of the numbers of student-athletes in the various categories enrolled in certain major fields of study, may provide some insights regarding their larger value.

The average number of hours in which a student-athlete is enrolled as compared to the number of hours the athlete enrolls in during the quarter of competition may prove to be another coping strategy. These data will also be examined for the various categories of athletes. It must be remembered, however, that athletes must maintain a minimum number of course hours attempted and earned in order to maintain their academic eligibility.

The data on student-athletes used in this study will be compared with average data on students enrolled in the same institution, when available. That comparison, however, is not the primary purpose of this study. The primary purpose of this investigation, will be to determine if different classifications of student-athletes (male vs. female, subsidized vs. non-subsidized, black vs. white, revenue sport vs. non-revenue sport, and individual vs. team sport) are adequately and equally prepared for college, achieve adequately and equally in college, and use academic coping or survival strategies in the same manner.

Significance of the Study

The academic scandals of the 1979-1980 academic year have drawn attention to much about the imbalance between athletics and academics in some of America's most prestigious colleges and universities. These scandals, however, all appear to be in one arena, that of the revenue producing sports. The emergence of indictments of academic misconduct only in football and basketball may be due to one or more factors. Football and basketball, as the largest revenue producing sports, hold the most public interest. If misconduct takes place in other athletic areas, perhaps our attention is not drawn so readily to it. It is thus important to examine academic conduct among different categories of athletes in an attempt to isolate those athletes who may have problems or weaknesses, rather than indict athletic programs as a whole.

Much of what has been said and believed about the academic abilities and performance (or lack of it) of student-athletes, is based on untested assumptions and value-laden beliefs (McPherson, 1980). One example of this is the image of the "dumb jock" as previously described. Research findings about the academic performance of athletes are inconsistent and contradictory. And, the bulk of the evidence, however convincing or not convincing, is based on research with male athletes in revenue producing sports.

Both Sigholtz (1971) and Parsons (1976) found male athletes, especially grant-in-aid athletes, to be better achievers academically than their non-athletic counterparts matched on college board test scores and academic major. Studying male grant-in-aid athletes at The Ohio State University between 1962 and 1964, Parsons concluded that athletes achieve

higher academically than matched non-athletes. In his study, however, Parsons did not take into account non-grant-in-aid athletes, differences in the revenue and non-revenue producing sports, or point hour ratio in different types of courses. He examined overall cumulative point hour ratio.

Other researchers have found no differences academically between athletes and their non-athletic counterparts (McKnight, 1972; Steuck, 1963; and Shirley, 1960). At Howard University freshmen athletes were found to achieve academically greater success than freshmen non-athletes matched by college board scores; and students in individual sports and the non-pressure and minor sports were also found to achieve academically greater success (Kirchner, 1962). Getz (1976), examining academic achievement during the season of competition as compared with the off-seasons found no significant differences.

In a study of women athletes only, Wood (1975) discovered no significant differences between athletes and non-athletes matched on test scores, when comparing academic performance. Wood, however, did not compare female athletes with their male counterparts.

It is hoped that this research will add to our knowledge in several areas. First, although it will compare data on athletes to average data on the student body, that will not be the primary purpose of this study. An attempt will be made to compare and contrast the academic aptitude, achievement, and progress of different categories of student-athletes, recognizing from the beginning that student-athletes are not regular or average students, that the pressures they live under are not those of regular students, and that their motivation for college attendance may or may not be the same.

Secondly, an examination of several different measures of academic aptitude, achievement, and progress will be made in addition to standard grade point average. Also taken into account will be differences in academic performance during the season of competition for different types of student-athletes.

Thirdly, this research will attempt to isolate those groups of student-athletes who may have a problem in academic aptitude or achievement, and who may or may not have discovered certain academic coping strategies in order to succeed in the academic environment in which they have found themselves. If such strategies or mechanisms appear to exist, an attempt will be made to isolate them, determine who is using them, and see how successfully they work.

Hopefully, this investigation will demonstrate much more about student-athletes than simple comparison with their non-athletic counterparts. This study seeks to isolate those athletes with problems or weaknesses in their academic aptitude and achievement and suggest methods of correction before individual athletes and entire programs are subjected to more exploitation.

Limitations of the Study

This study is interested in examining the academic aptitude, progress, and achievement and determining academic coping strategies of varsity athletes in different categories (i.e. male vs. female, subsidized vs. non-subsidized, black vs white, revenue vs. non-revenue sport, and team vs. individual sport).

For the purpose of this investigation the following delimitation is made: The study will be limited to athletes (grant-in-aid and non-grant-

in-aid) who participated as members of the 30 intercollegiate teams for men and women at The Ohio State University during the 1980-81 academic year, both freshmen and upperclassmen. The population will be subjected to random sampling procedures proportionately by sex and by team.

Average data for the O.S.U. general student body will be compared with these data when possible, but it should be noted again that these comparisons are not the primary interest or intent of this research. A comparison of the overall cumulative point hour ratio of athletes with the non-athlete population will be made. However, point hour ratio figures which control for "soft" courses, as this study presents, are not available for the entire population. This study seeks to isolate within a given athletic population, those athletes who may be the source of future problems or exploitation, defined by their academic aptitude and achievement, and suggest methods for the correction of these conditions.

Definition of Terms

The following definitions will facilitate the reading of the remainder of this study:

Academic achievement: Measure of a student-athlete's actually attained success in college (i.e. cumulative point hour ratio, point hour ratio in Basic Education Courses, point hour ratio during quarter of competition).

Academic aptitude: Measures which supposedly reflect the academic ability of student-athletes, and their predicted success in college (i.e. ACT or SAT score, and rank in high school graduating class).

Academic eligibility: The ability to participate in intercollegiate athletics based on grade point average and academic progress attained.

Academic progress: Measures of a student-athlete's actual fulfillment of quantitative requirements (hours earned) toward a degree.

Academic Scholarship: Financial aid given to an individual on the basis of one's academic competence. This competence can be based upon national test scores and high school cumulative grade point average.

Athletic Grant-In-Aid: Financial aid awarded to an athlete on the basis of potential and/or actual athletic skill providing the individual has met required academic and medical standards.

Intercollegiate Athletics: Competition of teams representing different institutions at the college and university level and composed of amateur student-athletes who engage in particular sports for the educational, physical, mental and social benefits to be derived therefrom.

Prospective Student-Athlete: An individual who, because of athletic ability or sports performance skills, would be desired on an intercollegiate team and who has not attended an institution of higher education.

Recruiting: The attempted inducement of athletes into a particular institution for their athletic services through the proferring of financial aid.

Revenue Producing Sports: Sports whose gate receipts cover the total costs (other than grant-in-aid) for that sport and produce additional revenue for the athletic department or institution. At O.S.U. this includes men's football and basketball.

Sport Season or Season of Competition: That time period which commences with the beginning of practice following team tryouts and ends with the final regularly scheduled event prior to any post-season competition.

Student-Athlete: A student-athlete is any student enrolled full-time in an undergraduate academic program and participating as a member of an intercollegiate athletic team.

Subsidization: The provision of financial aid in the form of paid tuition, room and board, fees and books, or any part of these in consideration of athletic ability and participation on an intercollegiate team.

In addition to the above terms, the following abbreviations are used throughout the paper:

AIAW - Association for Intercollegiate Athletics for Women

NCAA - National Collegiate Athletic Association

ACT - American College Test

SAT - Scholastic Aptitude Test

PHR - Point hour ratio (grade point average)

CPHR - Cumulative point hour ratio (overall grade point average)

BER - Basic Education Requirement

QCOMP - Quarter of Competition (season of competition)

The second chapter reviews the literature on the relationship between athletics and academics. It classifies the literature into three areas: the historical research, the descriptive research, and the prescriptive literature which deals with current issues. Chapter three describes the methodological approach and is supplemented by Appendices A through C,

which detail the variables and the data collection process. The fourth chapter presents the analyses of the data. And, conclusions and recommendations for further research and for practice, appear in chapter five.

CHAPTER II: REVIEW OF LITERATURE

Classification of the Literature

While the scandals in collegiate athletics have proved to be a popular topic for the national press in the last few years, not much has emerged in the scholarly literature. What has been written about athletics and academics, other than what has appeared in the press, can be classified into three distinct groups. One body of literature deals with the history of intercollegiate athletics and the history of subsidization of athletes. A second body of literature consists of the descriptive research studies which deal with academic performance and its relationship in athletics. A third body of literature deals with the current issues in collegiate athletics: describing the problems, calling for reform, and proposing solutions. This last group, the prescriptive literature, is by far the most abundant. Calls for reform and unsolicited solutions to the myriad problems of intercollegiate athletics appear everywhere in the literature of higher education and in the popular literature. After a review of the limited and conflicting research done in this area, however, it will become quite apparent to the reader, that the bases for most of the prescriptive literature is as McPherson (1980) states, based on untested assumptions and value-laden beliefs.

The Historical Research

One reading of any historical study of collegiate athletics in America will attest to the problems inherent in the relationship between

athletics and academics. This historical literature also serves to demonstrate the bases for many of the assumptions and beliefs which have plagued collegiate athletics. These beliefs and assumptions stem from a long, documented history of abuse within the system.

Frederick Rudolph in his book The American College and University: A History, follows the rise of football, intramural sports, and intercollegiate competition with respect to the development of the American university. In the 1850's athletics were accused of interfering with evening prayers. And, as early as 1890 the use of professional players had to be regulated, as the will to win (Tunis, 1958) overcame even the most prestigious American colleges and universities. More than one father withdrew his son from college in protest over the growth of athletics which were felt to be "low and unbecoming gentlemen and scholars" and "to detract from that dignity and deportment which become a man of science" (Rudolph, 1962).

In a chapter devoted to "The Rise of Football," Rudolph outlines not only the extraordinary growth of the sport, but also its effect on many other aspects of collegiate life. The spirit of collegiate unity which football had created had never been sparked by anything to this extent, and neither had the devotion of the alumni. The revenue producing aspects of the sport did not go unnoticed either, as huge football stadiums, able to seat thousands, began to appear at the center of campuses all across the country. Some social class distinctions began to disappear within the university as athletic prowress became a popular trait; and women, "for whom attendance at sporting events had been forbidden by the dictates

of decency, made intercollegiate football an aspect of their emancipation" (Rudolph, 1962). They began to appear in numbers at football games around 1885.

It was the professionalism and brutality of football which would also evoke criticism. Early complaints about subsidization of athletes, rumors of "unfair advantage" and the "seasonal migration of athletes like birds", would plague athletic programs for years (Rice, 1958; Kiracofe, 1932; and Martinelli, 1968). Even in the early 1890's, direct offers of money, promises of part-time employment, athletic success, social favor and the joys of college life seem to have been the most powerful attraction to prospective recruits (Woerlein, 1938).

The criticism, however, was never strong enough to overpower the growing popularity of football, which offered something for everyone. And thus, through over one hundred years of collegiate football, it is still the professionalism and the brutality of the sport and the exploitation of the athlete which evoke the most criticism.

Other sports in colleges and universities grew out of the dissatisfaction of the majority of the student body who felt as did one student at the University of California in 1904: "Athletics as conducted now in our larger universities is but for the few picked teams while the very students who most need physical development become stoop-shouldered rooting from backless bleachers..." (Rudolph, 1962). In 1902, Rudolph notes, "alumni were expressing concern over the tendency of spectator football to make Princeton men 'athletes by proxy.'" Track and field, handball, and tennis grew rapidly as outdoor sports released students from the drudgery of the gymnasium. In answer to students' desires for

exercise and fun the intramural movement grew. In many places the athletic department "began to think of intramural leagues as recruiting and training teams for the varsity" (Rudolph). Later, as intramural programs grew larger, intercollegiate competition developed in areas other than football.

The Descriptive Research

The majority of the research relating athletic performance to academic achievement has compared the grade point averages of athletes with their matched non-athlete counterparts. And, for the most part, the findings of this research are inconsistent and the inequalities of the studies make interpretation difficult. A majority of these comparisons ind[illegible] there is no significant difference between academic performance of athletes and non-athletes. A few conclude that athletes perform academically higher than non-athletes, and a few conclude that athletes perform at an academically lower level. While this study does not seek to add one more comparison of athletes and non-athletes to the literature, these are the studies most similar to this one, and as such, will be reviewed here.

In an examination of several variables of athletic competition and academic achievement, Kirchner (1962) compared athletes with matched non-athletes at Central Michigan University for the academic years 1955-56 through 1959-60. He found high levels of significant difference in mean academic achievement for the following four sub-groups: 1) non-pressure sports, 2) minor (or non-revenue producing) sports, 3) wrestling, and 4) participants in two or more sports. Kirchner also drew the following four conclusions relevant to his research:

1. Athletic participation had no detrimental effect on scholarship.
2. The individual sports showing the greatest success were track, wrestling, and cross country.
3. The non-pressure and minor sports had the highest levels of academic achievement.
4. Freshmen participants showed superior achievement when compared to their non-athletic matches.

Steuck (1963), using athletes and non-athletes at Wisconsis State College at LaCrosse, compared 96 males who lettered in varsity sports, 43 males who competed but did not letter, and 147 non-athletic students. He found no significant differences between the three samples in the data he examined which included high school rank, scores on high school intelligence tests, college activities, and offices held, among others. He did not find significant differences between the three samples in grade point average. In his ranking of the mean grade point average of the sports he examined, it is interesting to note that basketball, a team sport, displays the highest average grade point average, followed by the individual sports, and closing with the team sports - baseball and football. As the basketball program at Wisconsin State College at LaCross is not a major Division I basketball program, this may or may not account for the high mean grade point average in basketball. His grade point rankings included:

Basketball	2.54
Golf	2.42
Tennis	2.41
Cross Country	2.27
Track	2.27
Wrestling	2.22
Swimming	2.20
Baseball	2.13
Football	2.11

McKnight (1972), examined academic achievement of selected athletes and non-athletes at Howard University. His study, an analysis of variance on cumulative grade point average for eight consecutive semesters, showed that the influence of athletic participation on academic achievement of athletes when contrasted with the academic achievement of non-athletes was very slight. He concluded that the nature of the sport, the time and energy devoted to it and the amount of spectator interest in the individual's performance do have some effect on academic achievement.

A 1956 study at the University of Minnesota (Stecklein, 1965), indicated that athletes did as well as non-athletes in making progress toward degrees. A higher percentage of athletes earned their degrees in a shorter period of time, carried a slightly higher grade point average, and were not expelled for low scholarship as often as their non-athletic peers.

Two examinations of football players only (Smith, 1965 and Hilyer, 1968) agreed that participation in football had no adverse effect upon academic achievement or progress over a long period of time. Hilyer's comparison of 1,396 South Eastern Conference football players enrolled in 1962, with a random sample of the male population in the South Eastern Conference, discovered that even though the selected male population achieved higher on entrance test scores than did the football players:

1. There was no significant difference for cumulative grade point average.
2. There was no significant difference in the percentage of earned degrees in five years.
3. A significantly higher percentage of football players were placed

on academic probation during their careers, however.

4. There was no significant difference in relation to academic failures.

Shirley (1960), in one of the few studies investigating academic achievement, interests, and personality traits of athletes and non-athletes at the University of Oklahoma, found:

1. There was no significant difference in grade point average.
2. Non-athletes earned more course credit for three years.
3. Non-athletes scored higher on the theoretical values test, which indicates a preference for dealing with theoretical concerns and problems and in using the scientific method in thinking.
4. There were no significant differences on personality tests, and
5. There were no differences on occupational indexes.

A study at The Ohio State University (Parsons, 1969) using grant-in-aid athletes compared with matched non-athletes concluded that grant-in-aid athletes achieve to a higher degree than non-athletes. Parsons indicated that more athletes graduated and that the attrition rate for non-athletes was 20% higher than for athletes. Parsons found the mean grade point average of athletes after three quarters was 2.26. This exceeded the grade point average of non-athletes which was 2.17.

At Arizona State University, Jones (1967) reached similar conclusions. Jones noted that:

1. Athletic participation does not have deleterious effects on a student's grade point average.
2. Athletes compared to non-athletes achieve significantly higher grades, and

3. High academic achievers tended to select individual or non-contact sports that can be carried into adult life (tennis, golf, and cross country).

Two examinations of athletes' grades during the season of competition found conflicting results. Rarick (1943) found in his Iowa study that the grades of athletes tended to drop during the season of competition and were significantly lower in those pressure sports such as football and basketball. Getz (1976), studying athletes at Heidelberg University, found that there was no significant difference between the mean grade point average in the season of competition as compared with the season of non-athletic participation. The population used in his research actually earned a higher mean grade point average in the off season; however, this was not significant at the .01 level. He did, however, find that good students did achieve significantly better in the off-season, and that there was little difference in the credit hour load carried by athletes in the season of competition as compared with the off-season.

Only two researchers (Wang, 1971 and Hilyer, 1968) actually looked at athletes' choice of academic major. Wang examined scholastic performance in required general education courses among three samples: athletes in Physical Education majors, athletes in other majors, and non-athlete Physical Education majors. He examined the subjects' grades in four general education courses taken during the freshman or sophomore years and their ACT scores in the same four areas (English, Math, Social Studies, and Natural Sciences). He determined that:

1. There was a significant difference between the scholastic performance and aptitude of the 2 samples of athletes - the non-

physical education major athletes demonstrated significantly higher scores in grade point average and on the ACT test.

2. There was no significant difference between scholastic performance of the athlete physical education majors and the non-athlete physical education majors.
3. The athlete non-physical education majors were better performers (significantly) than the non-athlete physical education majors.
4. Both groups of athletes showed significantly better scholastic performance than the non-athlete physical education majors.
5. The non-physical education majors achieved at a scholastically higher level than the physical education majors.

Hilyer, in his research with football players in the South Eastern Conference, found that a significantly higher percentage of football players selected education and journalism majors, while the overall male population selected Arts and Sciences and Engineering/Architecture majors to a significantly higher degree.

Only one study (Earl, 1968) could be identified which dealt directly with academic achievement among ethnic minorities. Earl's investigation, as such, although only indirectly related to this study, should be noted. Earl examined 333 athletes and non-athletes in four sub-groups (Anglo, Indian, Negro, and Spanish-American) at the University of New Mexico. Earl's conclusions are ennumerated below:

1. There is no significant difference between the academic achievement of successful Anglo athletes and Anglo non-athletes.
2. There is no significant difference between Indian athletes and non-athletes.

3. Negro non-athletes achieve higher than negro athletes.
4. Spanish-American non-athletes achieve higher than Spanish-American athletes.
5. There is no significant difference in academic achievement of athletes versus non-athletes overall.
6. Anglos achieve higher than Indians and Negroes.
7. Spanish-Americans achieve higher than Indians and Negroes.
8. There is no significant difference between Anglos and Spanish-Americans.
9. There is no significant difference between Indians and Negroes.

Earl's findings regarding the higher achievement of negro non-athletes as compared with negro athletes is consistent with sociological theory regarding black athletes. The attrition rate of negro non-athletes may be higher because the marginal non-athlete does not have the motivation to stay in school, that his athlete counterpart has.

An examination of female athletes at the University of Maryland (Wood, 1975) was the only study of female athletes' academic performance which could be identified. Wood compared academic achievement of 478 female athletes and non-athletes. His analysis revealed that athletes and non-athletes did not differ in academic achievement as measured by cumulative grade point averages. No differences were found among the cumulative grade point averages of athletes participating in team sports, individual sports, or a combination of both sport types. No difference was found among the cumulative grade point averages of athletes rated by their coaches as outstanding athletes, regular starters, or substitutes.

Athletes who majored in physical education did not differ in their cumulative point hour ratios from athletes who did not major in physical education.

Just as the research attempting to relate academic performance with athletic participation is contradictory, so is the theoretical and empirical literature with respect to the causal specification of athletics and academic performance. Most of this literature in educational sociology is based on research with high school students. As this study will not attempt to examine the causal aspects, this brief overview is presented as background, as most college athletes begin their athletic participation in high school and establish many behavior patterns at that stage of development.

The first argument presented (Coleman, 1961) is a zero-sum argument. Coleman "views the adolescent society as a finite system in which commitment to academic, athletic, or social values represents a loss to the other two" (Otto and Alwin, 1977). Just as with the academic achievement and athletic participation research presented earlier, some educational sociologists (Rehberg and Schafer, 1968; and Spady, 1970,71) argue that the two student cultures are causally linked with athletics positively effecting grades; while Otto (1975) argues that participation in extra-curricular activities, which require minimal academic performance, have a negative effect on academic performance.

The interpretation of the above research is difficult for several reasons. The inequalities in the studies are difficult to measure. When comparing athletes to their non-athlete counterparts, true matches of populations are difficult to achieve. Selective attrition for various

reasons (i.e. personal, financial, academic) occurs in the general student population with more frequency than in the athletic population. And athletes are not regular students, but students who live under a very different set of pressures than non-athletes. In attempting to compare one athletic population with another, the same types of problems arise. Athletes in athletic programs in Division I schools where more emphasis may be placed on revenue sports, may be very different than athletes in Division II and III schools.

An initial interpretation of the studies reviewed in this chapter suggests that athletes at some institutions achieve academically higher than their non-athlete counterparts, while at other institutions athletes achieve lower than their non-athlete counterparts, and at still other institutions, athletes and non-athletes demonstrate no differences in academic achievement. Athletes also appear to make better progress toward degrees and are not expelled for academic reasons as often as their non-athlete counterparts. However, these results are probably attributed to "normal progress" requirements for eligibility and higher motivation of marginal athletes to stay in school than of their non-athlete counterparts.

Black athletes, it would appear, achieve significantly lower than other athletes, but achieve significantly higher than their black non-athlete counterparts. The motivation for attendance for marginal students is once again important in examining these results.

Athletes in individual sports achieve academically higher than athletes who compete as members of teams; and conversely, better students appear to choose individual sports which they can continue as lifetime sports.

A greater number of football players choose those academic majors which are perceived to be either "easier" or "more compatible" with their athletic goals (i.e. physical education and journalism), and athletes who choose these majors appear to achieve academically lower than athletes in other majors.

Female athletes appear to resemble closely female non-athletes in academic aptitude and achievement.

The Issues

As the research indicates, it is not a comparison of athletes' academic performance with non-athletes' academic performance which indicates a significant problem or a need for change. It is the scandals and the isolated cases of academic misconduct which evoke public outrage and emotional calls for reform. For the purposes of review, this portion of the literature, dealing with the current issues in collegiate athletics, is classified into seven categories: calls for reform in academic policy the amateur/professional argument, the minority issues, Title IX and opportunities for women in athletics, the value of athletics in higher education, general editorial calls for reform, and current models of counseling and academic support for student-athletes.

Calls for Reform in Academic Policy

The academic scandals of the 1979-80 academic year initiated much concern among educators regarding the academic integrity of higher educational institutions and their athletic programs. In July, 1980, a joint statement was issued by the American Council of Education (ACE)

Committee on Collegiate Athletics in conjunction with the NCAA, the National Association for Intercollegiate Athletics (NAIA), and the American Association of College Registrars and Admissions Officers (AACRAO). In this statement these organizations called for precluding the use of extension courses for eligibility purposes and raising the grade point average qualifier for participation in athletics. At the same time the American Council on Education issued a Credentials Report demanding that college presidents assume responsibility and designate a person responsible for the admission of athletes and for certifying and evaluating athletic eligibility. They also suggested measures to insure that authentic transcripts and test scores were reaching admissions offices, and suggested certain studies be made to prevent abuses of standards and fraudulent academic practices. The ongoing analyses suggested by ACE were to be studies of secondary school grade point average, admissions test scores, and listings of courses and major degree programs completed by athletes.

Rarick (1974) notes that while the NCAA statement of purpose defines collegiate athletics as being "for" the college athletes who participate in them, that is not always the case. In many instances athletes and their academic schedules seem to serve the athletic program. He suggests that academic credit for participation in varsity sports be done away with, hoping that this would keep out the borderline athlete.

Several college presidents responded to these documents in an article in the Fall 1980 Educational Record entitled "Collegiate Athletics: Views from the Front Office." They agreed that athletics remain a worthwhile enterprise, and suggested some new approaches for universities

and for the general public. In addition to suggestions for tightening national regulations for athletic programs, President Harold Enarson of The Ohio State University suggested four recommendations for the general public. The first was to only expect the kind of perfect behavior of athletic programs that you expect from society at large. Secondly, understand that for as complex as athletics is at the collegiate level, it can be easily compromised by overanxious "friends". Third, accept one truth about athletics - for every winner there must be a loser. And, following that, adopt a new attitude toward sports, which like Jesse Owens believes that "sportsmanship is the ultimate victory" (Educational Record, 1980). Other articles (Middleton, 1980; and Hammel, 1980) discuss the same problems with college officials and call for reform at the national level.

The Amateur/Professional Argument

The amateur/professional argument in collegiate athletics has endured since the 1890's. In the early days of football, professionals were recognized and paid for their services. The argument today derives from the fact that athletes are paid in the form of subsidization of fees and tuition and room and board, and that their status as students is questionable. The two strongest calls for reform in this area (Morris, 1957; and Shaara, 1966) contend that college athletes are professional and should be paid accordingly for their services.

Minority Issues

The questions of exploitation of minorities in collegiate athletics, their unpreparedness for collegiate life, and the myth of the black

athlete in professional sports have been addressed in several articles. Olsen (1968) addressed the problems of the black athlete in a series of articles, detailing individual instances of abuses of both athletes and of the system. Underwood (1980) and Edwards (1979) also address the problems of black athletes, and tell the same stories of black athletes, using colleges and being used by colleges in their attempts to make the pros.

Title IX

The Education Amendments Act of 1972 was passed by the United States Congress on June 23rd of that year. Title IX of this piece of legislation specifically states that:

> "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal assistance..."

The passage of this act had a number of far-reaching ramifications for most educational institutions, and especially for collegiate athletic programs. In 1976, Robert Cole noted that:

> "Title IX forbids sex discrimination in any educational institution receiving federal financial assistance--16,000 public school systems and nearly 2,700 postsecondary institutions. Although the regulations dealing with physical education and athletics have received the lion's share of the publicity, the law also bans sex discrimination in every other area of education, notably financial aid, pension benefits, employment and compensation of staff, facilities and counseling" (Cole, 1976).

However, since the primary consideration of this study is with athletics, this examination of Title IX will be limited to the resulting ramifications for collegiate athletic programs.

After its passage on June 23, 1972, the law was placed into action, except in the areas of athletics and physical education. The Department

of Health, Education and Welfare (HEW), realizing that problems would arise, established a review period for tentative guidelines for implementation of Title IX in athletics. After 3 years of review, the final guidelines were published. This 3 year waiting period served to enhance public rumor, speculation, and much misunderstanding as to what Title IX would bring to athletics (Blaufarb, 1976).

Wandzilak (1977) summarizes some of the misunderstanding:

> "In order to understand the controversy of Title IX and the problems that arose from it, one must also examine the social setting of the time. To a large extent, men saw Title IX as a challenge to what was rightfully theirs, interscholastic and intercollegiate athletics. They visualized numerous possibilities which ranged from the loss of funds to their various teams to the total invasion of females in co-educational fashion which would make athletics more of a social club than a competitive experience."

Saario (1976) notes that "Title IX did not become law in a vacuum." Educational funding pressures, dropping enrollments, and questions of the utility of educational credentials, plagued colleges and universities and their athletic departments. Title IX added to the economic and social limitations being imposed at the time.

Actual opposition grew during the guideline formation period. Numerous legislative attempts were made to modify Title IX, all unsuccessful (Wandzilak). The NCAA spent more than $200,000 in lobbying efforts to limit the scope of the law (Hogan, 1976). Most attempts, including that of the NCAA, proposed to exempt the revenue producing intercollegiate sports from this regulation.

With the passage of the guidelines on July 21, 1975, most postsecondary institutions had 3 years to bring themselves into compliance with the law and 1 year to examine their programs for areas of noncompliance. At the same time a memorandum from the Department of Health, Education and

Welfare suggested 3 steps for attainmant of compliance:

1) Compare the requirements of the regulation addressed to non-discrimination in athletic programs and equal opportunity in the provision of athletic scholarships with current policies and practices.
2) Determine the interests of both sexes in the sports to be offered by the institution and, where the sport is a contact sport or where participants are selected on the basis of competition, also determine the relative abilities of members of each sex for each sport offered, in order to decide whether to have single-sex teams or teams composed of both sexes.
3) Develop a plan to accommodate effectively the interests and abilities of both sexes, which plan must be fully implemented as expeditiously as possible and in no event later than July 21, 1978

Guidelines set forth in the HEW memorandum also elaborated on factors of equal opportunity which should be considered in terms of athletics. These include:

1) whether selected sports reflected interests and abilities of both sexes
2) provision of supplies and equipment
3) game and practice schedules
4) travel and per diem allowances
5) coaching and academic tutoring opportunities and the assignment and pay of the coaches and tutors
6) locker rooms, practice and competitive facilities
7) medical training services
8) housing and dining facilities and services
9) publicity.

The basic statement concerning the responsibility of the institution to allocate athletic grants-in-aid consists of the following:

> "To the extent that a recipient awards athletic scholarships or grants-in-aid, it must provide reasonable opportunities for such awards for members of each sex in proportion to the number of students of each sex participating in interscholastic or intercollegiate athletics."

Increased cost was one of the major arguments of athletic administrators to the financial aid portion of Title IX. One solution was to cut the total number of grants offered. However, most large institutions, with

fully funded football programs, chose to seek the additional funding for women rather than cut the number of grants-in-aid available for men.

The Value of Intercollegiate Athletics

Regardless of the controversies, certain factions still extoll the virtues of athletic competition, the values it instills, and its role in the educational process. Kniker (1974) notes that "critics have focused on the warped priorities which result in expensive athletic facilities being built before basic academic buildings are constructed and on recruiting scandals which show universities obtained good players but poor scholars." He praises the value of competition and what he calls "Social Security Value". By this he means that athletics insure athletes of the opportunity to study as well as play and that any amount of academic performance and school attendance (i.e. not dropping out) probably benefits the student. Sanford, Bergstrom and Lozoff (1973) speak to the role of athletics in student development. They note that participation in athletics develops the "whole person" as one must learn to accept criticism and be self-critical, work with identifiable objectives, and accept discipline. "People who have developed competence and identity feel free to express themselves openly. They are less afraid to get good grades or be considerate to other people."

Editorial Remarks

The general editorial comments regarding athletics have not been nearly so kind. Everyone from admissions counselors (Miles, 1980), to

professors (Schott, 1981), to sportswriters (Underwood, 1980), has taken their "shot" at athletics. The win-at-any-cost philosophy of collegiate athletics has been widely elaborated upon (Nyquist, 1979; and Hereford, 1978). Unethical practices in recruiting and "the on-campus care and feeding of athletes" have drawn much attention. Women's athletics has recently begun to draw much of the same criticism, as their philosophies have moved closer to that of their male counterparts (Nyquist, 1979). Equality of opportunity has brought with it equality of opportunity for exploitation and abuse.

Counseling and Academic Support Models

Along with these unsolicited calls for change and reform have come several prescriptive measures which may prove to be extremely valuable. These are models for the provision of counseling and academic support services aimed directly at the problems of student-athletes. The idea for such services began with the realization that certain groups of student-athletes had problems specific to them (Remer et al, 1978). These needs suggested models for specific units designed to deal with these problems. The University of Pittsburgh designed one of the first programs providing Academic Support Services for student-athletes (Yuna et al, 1981). This program works from outside the athletic department (i.e. under the Provost) to serve the student-athlete population. The academic support services address three areas: Academic Assessment/Basic Academic Skills, Mechanical/Procedural Skills, and Social Adjustment Skills. The Academic Assessment/Basic Skill Development portion of the program begins with an initial assessment of the student's academic abilities and refers the athlete for help and remediation in needed areas. The Mechanical/

Procedural Skills portion of the program recognizes the fact that athletes have too often been coddled through school and it forces them to learn to function procedurally within the university (i.e. to fill out registration forms, financial aid forms, etc.). The Social Adjustment portion of the program provides counseling services to individuals experiencing difficulty in adjusting to the University. The Iowa State University model (Gurney and Robinson, 1981) is similar. Phase I consists of early targeting of educationally disadvantaged student-athletes. Phase II is the assessment portion of the program in consultation with learning disability and psychometric professionals at the counseling service. Phase III is the implementation of the Athletic Department's Academic Support Services including reading development, academic learning skill development, career guidance, personal counseling and tutorial help. The career guidance segment recognizes immediately that "student-athletes often enter the university with non-academic goals." Career guidance from this early point could be an important aid in increasing athletes' motivation in academic performance.

Summary

If, as the research indicates, there is no difference between the average athlete and the average student as far as academic performance is concerned, the problems exist only among a portion of the athletic population. Another comparison of student and student-athlete would serve little use. This study will attempt to take this research further, to isolate that athlete, or those athletes among whom problems exist. If the many incidences of academic scandal and misconduct have occurred in attempts to

counter for some academically unprepared or disabled portion of the athletic population, it is time we isolate that portion of the population and suggest some remedial approaches to the problem.

The current calls for reform and cries of outrage at the present situation are based merely on scattered instances of misconduct which create sensational stories for the national press. The research in the area provides us with little information on which to make judgements about the academic performance of student-athletes. Individual institutions, it would appear, treat individual athletes differently. Generalizations about athletes and academics are for the most part, emotionally based. In view of the scholarly research, and without knowledge of the historical problems, the present concern seems unwarranted. This study is interested in the validation of this present concern through the isolation of specific athletes who may demonstrate less than average academic aptitude and achievement.

CHAPTER III: METHODOLOGY

Purposes of the Study

The purpose of this study is to examine the academic aptitude, achievement, and progress of five, sometimes overlapping categories of athletes (male and female athletes, grant-in-aid and non-grant-in-aid athletes, athletes in revenue and non-revenue producing sports, white and minority athletes, and athletes in team and individual sports) in an attempt to determine if there are differences, and if so to use that information in order to determine what the specific problems might be in athletics. An attempt will also be made to compare these data to the norms for the non-athlete student population whenever possible, in an attempt to demonstrate the relationship of student-athlets to the larger population. This is to be done by analyzing predictive measures, test scores, grade point averages calculated several different ways, and average course loads for each student-athlete, as found on individual records and transcripts.

Population

The Intercollegiate Athletic Program at The Ohio State University is one of the largest in the country. It offers thirty intercollegiate sports, 18 for men and 12 for women. Ohio State's male athletes compete in the Big 10 Conference and in Division I of the National Collegiate Athletic Association. Criteria for Division I membership dictate the maximum number of

varsity intercollegiate athletic grants-in-aid to be awarded, the minimum number of varsity sports which must be offered by the institution, the minimum average paid attendance per home football game, and the minimum number of permanent seats in the stadium used for home football games. The NCAA also dictates minimum eligibility requirements, and competitors in Division I must conduct their competitions under rules which are "at least as stringent" as those provisions (NCAA Manual, 1980-81).

Ohio State's women athletes compete in Region 5 of the Association for Intercollegiate Athletics for Women (AIAW). The women's program is also rated Division I. In the academic year 1981-82, two of the women's sports, basketball and fencing, will compete in championships for women offered by the NCAA. Ohio State presently has two years to decide whether the women's program will remain in AIAW or become a part of the NCAA women's program. Presently, the Ohio State women's program is making the transition into the Big 10 Conference structure.

The Ohio State University Athletic Department offers 285 total athletic grants-in-aid. These may be distributed as full grants, or split and awarded as partial grants. The number of grants-in-aid: 95 full grants for football (The NCAA maximum for Division I), 15 full grants for basketball (also the NCAA Division I maximum), 80 full grants distributed among ten of the other men's sports and awarded as either full or partial grants. 80 grants is the NCAA Division I maximum for other men's sports. This will be decreased to 70 during the 1981-82 academic year. 95 full grants are distributed among the twelve women's sports and may be awarded as full or split as partial grants. The total athletic grant-

in-aid budget at The Ohio State University for 1980-81 amounted to $1,176,175. The operating budget for both men's and women's sports in 1980-81 equalled $10,818,222.

Approximately 700 athletes, 450 men and 250 women, compete in intercollegiate athletics at O.S.U. Of these 700, over half compete with no grant-in-aid. Walk-on athletes arrive at open try-outs, and if selected, compete without benefit of athletic financial aid. They may be awarded financial aid at a later date, or they may continue to compete unaided.

Sample

In the interest of comparing data not only for men and women, but for athletes in the revenue sports and the non-revenue sports, the population was initially divided into three groups. The revenue producing sports at O.S.U. are men's basketball and football. Thus, the population was divided into male revenue athletes, male non-revenue athletes, and female non-revenue athletes (all female sports at O.S.U. are currently non-revenue producing).

In order to compare data on those athletes receiving grants-in-aid with data on non-grant-in-aid athletes, these groups were further divided: grant-in-aid and non-grant-in-aid. Athletes in the revenue sports, football and basketball, are supplied with full grants-in-aid. Thus, in this case, the non-grant-in-aid cell for the revenue sports, is empty.

Because the number of grants-in-aid available in the non-revenue producing sports is minimal, coaches more often than not, award partial grants, in order to make what aid is available, available to more student-athletes. All of the non-revenue athletes on full-grants were used in the sample.

As this group did not make up quite 50% of each grant-in-aid cell, the rest of the grant-in-aid cell was supplemented by athletes on partial grants-in-aid.

The sample population consists of 250 athletes divided among the categories as described above. This distribution may be illustrated as in Figure 1.

	Grant-In-Aid	Non-Grant-In-Aid
Male Revenue Producing	50 Full Grants-In-Aid	Empty
Male Non-Revenue Producing	50 Full & Partial Grants-In-Aid	50 Non-Grants-In-Aid
Female Non-Revenue Producing	50 Full & Partial Grants-In-Aid	50 Non-Grants-In-Aid

Figure 1

Distribution of Sample Population

Figure 2 shows the distribution of freshmen and upperclassmen in the sample.

	Grant-In-Aid	Non-Grant-In-Aid
Male Revenue Producing	25 freshmen 25 upperclassmen	Empty
Male Non-Revenue Producing	25 freshmen 25 upperclassmen	25 freshmen 25 upperclassmen
Female Non-Revenue Producing	25 freshmen 25 upperclassmen	25 freshmen 25 upperclassmen

Figure 2

Distribution of Freshmen and Upperclassmen in the Sample Population

A number was assigned to each athlete whose name appeared on a team roster, and then, using a random number table, athletes were drawn from each roster in each of the three sex-revenue combinations. The number of athletes drawn from each roster was indicated by the proportion of total O.S.U. athletes that team represented. No effort was made to account for representation of minorities at this stage in the sampling procedure. It was assumed that they would appear proportionately through the sampling procedure.

Hypotheses

From the research already completed and the scholarly literature on athletics and academic performance, the following hypotheses are posed for this present study. The major question is: Do different types of athletes demonstrate different levels of academic aptitude, achievement, and progress? And, if so, can the problem areas be determined in an effort to isolate that portion of the athletic population where the potential for academic abuse, misconduct, or exploitation may exist? In relationship to this major question, eight specific hypotheses are posed:

Hypothesis 1: Female athletes will demonstrate greater academic aptitude and achievement than their male counterparts.

Wood (1975) found no significant differences between the academic achievement of female athletes when compared with their female non-athlete counterparts. Even among athletes of different skill level, ability, and participation level, there were no differences indicated in academic achievement. As female students generally score higher on college board tests and

achieve higher than their male counterparts, female athletes should demonstrate higher academic aptitude and achievement than their male athlete counterparts.

Hypothesis 2: Athletes in non-revenue producing sports will demonstrate greater academic aptitude and achievement than their counterparts in the revenue producing sports. Progress for both combinations will be about the same due to eligibility requirements.

Research studies reviewed earlier demonstrated contradictory results when comparing revenue (or pressure) and non-revenue producing sports. Different institutions with different types of football and basketball programs will demonstrate differing results when comparing academic aptitude and achievement of revenue and non-revenue athletes. Ohio State University represents one of the more powerful football programs in the Big 10 Conference and in the nation. Heavy emphasis is placed on producing a winning team and on revenue production. Following previous studies, athletes in the revenue sports should demonstrate less academic aptitude and achievement than their non-revenue counterparts.

Hypothesis 3: Non-grant-in-aid athletes will demonstrate greater academic aptitude and achievement than their grant-in-aid counterparts.

Grant-in-aid athletes, especially those grant-in-aid athletes in the revenue producing sports, live under an additional set of pressures, which entail required athletic success for the renewal of their grant-in-aid each year. These athletes should demonstrate less academic achievement than non-grant-in-aid athletes who do not live with this additional pressure.

Hypothesis 4: Upperclassmen, who have had time to adjust to college life, will demonstrate greater academic achievement than their freshmen counterparts.

Most freshmen need time to adjust to college life, but the freshman athlete has additional factors encumbering his academic achievement during his freshman year. Time management problems, heavy practice and travel schedules, and adjustment to athletic as well as academic life can cause problems for freshmen. Many coaches and athletic administrators favor elimination of freshman eligibility in an effort to give freshmen time to adjust to the rigors of college life.

Hypothesis 5: Athletes who participate as individuals will show greater academic aptitude and achievement than athletes who compete as members of teams.

Kirchner (1962) and Jones (1967) found that athletes in individual sports achieved academically greater success than athletes in team sports. Conversely, the argument suggests that academically stronger students choose individual sports such as tennis, cross country, and golf, which they can carry into their later life as lifetime sports.

Hypothesis 6: During the quarter of competition, athletes in revenue producing sports will achieve less academic success than their counterparts in non-revenue producing sports.

Of the two studies which examined athletes' academic achievement during the quarter of competition (Rarick, 1943; and Getz, 1976) Rarick's Iowa study examined a major Division I athletic program. Rarick found athletes achieved significantly lower academically during the quarter of competition. Getz's study at Heidelberg University found no differences between achievement in off-seasons and seasons of competition. However, the program at

Heidelberg is not comparable to that of O.S.U. The heavy emphasis on football and basketball at O.S.U. should detract from the athlete's academic achievement during the quarter of competition.

Hypothesis 7: Undecided majors will achieve less academic success than those who have decided upon a major. Athletes who possess less academic aptitude and non-athletic goals will choose those majors perceived to be "easy" or "less intimidating" or "more compatible with their athletic goals".

Undecided majors lack certain academic goals for college attendance, but demonstrate other goals and interests, or they would not be enrolled. Athletes who are undecided about academic major possess a set of goals which are non-academic, and the athlete may or may not be enrolled in college to enhance only those goals.

Wang (1971) found that non-physical education major athletes demonstrated significantly higher academic performance than physical education major athletes. Hilyer (1968) also found that a significantly higher percentage of football players selected education and journalism majors, while the overall male population selected other majors.

Hypothesis 8: White athletes will demonstrate greater academic aptitude and achievement than their minority counterparts.

In only one study (Earl, 1968) were black athletes shown to achieve academically lower than their non-minority counterparts. Other studies have chosen not to deal with the minority issue. Sociological theory, however, indicates that black males may have certain non-academic goals which require college attendance. Collegiate football and basketball, as a means of

advancing into the professional leagues, force unprepared and unmotivated black athletes to pursue (or to seem to pursue) a college degree, desired or not.

Variables

The six variables used to define the sample population include:

Sex-Revenue Status: The revenue producing sports at The Ohio State University are defined as men's basketball and football. All other sports for men and women are non-revenue producing. Athletes will be defined as participating on men's or women's teams. Those few women participating on men's teams (i.e. pistol and rifle) will be eliminated from the sample. Sex and revenue status are defined as follows:

1 = Female, Non-Revenue Producing Sports

2 = Male, Non-Revenue Producing Sports

3 = Male, Revenue Producing Sports

Grant-In-Aid Status: Athletes will initially be designated as receiving grant-in-aid or as walk-ons (non-grant-in-aid):

1 = Grant-In-Aid

2 = Non-Grant-In-Aid

Next, those grants-in-aid will be designated as full grants (paying for tuition, fees, room, board, and books) or partial grants (paying for any combination of 1, 2, 3 or 4 of the above).

1 = Full Grant-In-Aid

2 = Partial Grant-In-Aid

3 = No Grant-In-Aid

Team and Individual Sports: Individual sports are designated to be: cross country, fencing, golf, gymnastics, swimming and diving, tennis, track and field, wrestling, pistol and rifle. Team sports include: football, basketball, baseball, softball, soccer, lacrosse, field hockey, synchronized swimming and volleyball.

1 = Individual Sport

2 = Team Sport

Class Rank: Freshmen are those individuals competing in athletics who have earned less than 36 quarter hours. Upperclassmen are those who have earned more than 36 quarter hours or who have transferred from another institution. (This is the athletic eligibility requirement for class standing, rather than the institutional requirement for class standing.)

1 = Freshmen

2 = Upperclassmen

Minority Status:

1 = White

2 = Black

Academic Major: For the sake of simplicity, as there are over 200 academic majors at The Ohio State University, this cateogry was divided into five areas:

1 = Undecided majors in General Baccalaureate Curriculum (non-degree granting program, primarily freshmen and sophomores).

2 = Physical Education, Recreation, and Communications majors. These majors may be perceived to be "easier" or "less

intimidating" or more consistent with the athletes' athletic goals.

3 = Administrative Science Majors (all business majors)

4 = Pre-med, engineering, hard sciences, allied medical fields.

5 = Other (i.e. Education, Social Work, Home Economics)

Thirteen variables measuring academic aptitude, achievement and progress were used in the study. The variables used to measure academic aptitude include:

High School Rank: The student's rank in their high school graduating class is calculated as a percentile:

e.g. $$100\left(\frac{\text{No. of students in class minus Student's position in class}}{\text{No. of Students in the Class}}\right) = \text{High School Rank}$$

American College Test (ACT) Score: The ACT composite score (unweighted sum) which is used in predicting college success during the first year. This test is usually taken during the senior year of high school. Scores range fom 1 to 35. The O.S.U. average score on the ACT for entering freshmen is 20.7.

Scholastic Aptitude Test Score: The Scholastic Aptitude Test Score Total (unweighted sum of the SAT-Verbal and SAT-Math scores) is used in predicting college success during the first year. Usually taken in the student's senior year of high school, scores may range from 300 to 1600. The O.S.U. average score on the SAT for entering freshmen is approximately 900.

It should be noted that most high school seniors take one or the other of the above tests, depending on which national test center has a testing facility closer to the high school.

Predicted Point Hour Ratio: The main measure of academic aptitude for potential student-athletes has been the prediction tables of the National Collegiate Athletic Association (NCAA), the individual athletic conferences (i.e. The Big Ten), or the individual academic institution. These tables are based on the national test standard score (either ACT or SAT) and high school rank in graduating class. Used as the primary qualifier for freshmen athletes, until 1976, when it was ruled unconstitutional to use such test scores which might be racially or culturally biased, as qualifiers for athletic participation, such tables are still used by admissions officers and athletic administrators to make admissions decisions and avoid performer exploitation. While these tables, in some instances prove inaccurate, they remain the most valuable tool for estimating college success. (See Appendix B for sample table).

Conference tables were based on the records of a random sample of all enrolled freshmen or all male freshmen at each member institution of the conference. All information was pooled to develop a composite conference table.

The NCAA's national prediction table was based on a representative sample of NCAA members as determined by the NCAA Committee on Academic Testing and Requirements.

The Ohio State University uses a similar prediction table, based on entering freshmen at The Ohio State University in 1971. This table uses ACT or SAT score and high school rank to predict a student's first year overall grade point average.

For the purposes of this study, the O.S.U. prediction table, rather than the N.C.A.A. or Big 10 Conference tables will be used. The regression formula used to predict academic performance was calculated specifically for O.S.U. and therefore would be more appropriate for prediction of point hour for this population.

Since this formula was derived in 1971, and is still used, the predictions have tended to underestimate the actual point hour achieved, due to grade inflation common to most colleges and universities. Yet, this problem of underpredicting achieved point hours is not considered serious, because it is underpredicting point hours for the entire population.

Variables used to measure academic achievement include:

Cumulative Point Hour Ratio (CPHR): Cumulative point hour ratio is the student's total, overall grade point average for all work done at Ohio State in courses graded with a letter grade. This average is determined on a 4.0 scale, with grades A, A-, B+, B, B-, C+, C, C-, D+, D and Fail, counting 4.0, 3.7, 3.3, 3.0, 2.7, 2.3, 2.0, 1.7, 1.3, 1.0 and 0.0, respectively. (An "incomplete" will count zero points until a different grade is reported.) The average will be determined by dividing the total of the points for each credit hour by the total number of credit hours attempted, including courses failed.

$$\text{e.g. } \frac{4.0a + 3.7b + 3.3c + 3.0d + 2.7e + 2.3f + \ldots}{\text{Total credits attempted } (a + b + c + d + e + \ldots)} = \text{CPHR}$$

Basic Education Requirement Point Hour Ratio (BERPHR): The State of Ohio requires that students in every curriculum include in their coursework a body of courses designed to acquaint them with

the three basic areas of academic study: the humanities, the social sciences, and the natural sciences. Each undergraduate curriculum requires a minimum of 45 hours of courses classified as Basic Education Requirements (BERs), with a minimum of 15 hours in each of the three basic areas. This point hour will be calculated using only grades for those courses which meet these requirements and which were taken during the first two years of enrollment at O.S.U. See Appendix A for a list of these courses.

$$\text{e.g.} \quad \frac{\text{Total BER credit points}}{\text{Total BER hours}} = \text{BERPHR}$$

BER Point Hour Ratio/Quarter of Competition: BERPHR/QCOMP is the point hour ratio in the basic education courses attempted during any quarter of competition in which the athlete is enrolled. The total number of credit points in the BER courses taken in the season of competition will be divided by the total number of BER hours in which the student was enrolled during the season of competition.

$$\text{e.g.} \quad \frac{\text{Credit points in BER courses (Q Comp.)}}{\text{Total BER hours (Q Comp.)}} = \text{BERPHR/QCOMP}$$

Achieved Difference from Predicted Point Hour Ratio: The difference (+ or -) between the athlete's actually achieved point hour ratio at the end of the freshman year and The Ohio State University predicted point hour ratio based on the individual's high school rank in class and test score on the national college board test (ACT or SAT) will be defined as the achieved

difference from predicted point hour ratio.

e.g. CPHR of freshmen year - predicted PHR = Achieved difference

Difference Quarter of Competition: The difference (+ or -) between the student's average point ratio during their season of competition and the average cumulative point hour ratio for each of the quarters they are not competing.

e.g. PHR Q/COMP - PHR quarters not competing = Difference/Q COMP

Variables used to measure academic progress include:

Average Hours Per Quarter: This figure will be calculated by dividing the total number of hours attempted by the student by the number of quarters in which the student has been enrolled.

e.g. $\frac{\text{Total hours attempted}}{\text{Number of quarters enrolled}}$ = Av. hrs. per qtr.

It must be recognized here that the student athlete must earn a certain number of hours each year to remain eligible for competition, and the athlete must be enrolled in a minimum of 12 hours during the season of competition. At Ohio State University the yearly requirement is 36 hours (12 hours per quarter) earned the freshman year and a minimum of 48 hours (16 hours per quarter) each following year.

Average Hours Attempted/Quarter of Competition: Av. hours/QCOMP is the number of credit hours attempted during the seasons of competition. The total number of hours attempted in a season will be divided by the number of quarters of competition in which the student-athlete has been enrolled.

e.g. $\frac{\text{Hours attempted in all qtrs. of competition}}{\text{Number of quarters of competition}}$ = Av. hrs/QCOMP

BER Hours/Quarter of Competition: The average number of BER hours attempted by the student-athlete during any quarter of competition will be calculated by dividing the total number of BER hours attempted during any quarter of competition by the number of quarters of competition in which the student-athlete has been enrolled.

e.g. $\frac{\text{\# of BER hrs. attempted any QCOMP}}{\text{\# of qtrs. of competition enrolled}}$ = BER hrs./QCOMP

Percentage of Basic Education Requirement Courses: This will be defined as the percentage of credit hours of basic education requirement courses attempted out of all credit hours of course work attempted during the first two years.

e.g. $\frac{\text{credit hours of BER courses}}{\text{total credit hrs. attempted (1st and 2nd year)}}$ = %BER

Data Collection

From financial aid records provided by the Department of Athletics at The Ohio State University, each team roster was divided into three portions: full grant-in-aid athletes, partial grant-in-aid athletes, and non-grant-in-aid athletes. Once the sampling was accomplished, the academic data for each individual were recorded on individual record cards (See Appendix C). Efforts were made at all times to maintain anonymity in the data collection process. The names on each roster were coded by number and recorded on the cards by that number. The accuracy of

this data is assured by the pressure on the athletic department to maintain eligibility information which is accurate and up-to-date.

Permission was granted by the O.S.U. Department of Athletics to use the data maintained in its academic eligibility files on all student-athletes. Using this data, the Basic Education Course point hour ratio and the percentages of course work were calculated, as were the data for the quarter of competition for each athlete in the sample. Each individual's predicted point hour ratio and the differences actually earned as compared to predicted were also computed.

Every effort was made to obtain complete information on each individual, so as to leave nothing incomplete in the analysis. If complete information, excluding ACT, SAT, and high school class rank, were not available on an individual, that subject was discarded and a replacement was randomly selected, if available, to fill that cell. Since it was unlikely for any person to have taken both the ACT and SAT tests and since high school class rank was frequently unavailable, it was impossible to discard data for subjects with these scores missing. Thus, these three variables were run in separate analyses, in order to avoid problems with missing data.

Statistical Analysis

The data were subjected to both univariate and multivariate analysis of variance. To test for significant differences the Tukey Test for honest significant difference was applied when the sample size for each cell was equal. When the sample size varied for each cell, Scheffe's test for significant difference was applied.

The subjects were classifeid according to five independent variables; yet, a multivariate test based on all five independent variables simultaneously, was not possible. This was due to the fact that certain cells in the complete design were, by definition, empty. Such an example of an empty cell would be Female Revenue Sports, or Male Revenue Athletes not on grant-in-aid. Therefore, the multivariate analysis was at times applied to less than five variables, when all of the cells were not empty. At times, a design which was properly a two factor design, was analyzed using a one-way analysis. This limitation might result in a significant interaction between two factors not being detected. For instance, if there was an interaction between sex and revenue and non-revenue sports (i.e., if effect of revenue sports on women would be different than that of men), this would not be detected. However, if a significant difference between cells is found when analyzing the data using a one-way analysis of variance when it is actually an incomplete two-way design, this is definitely significant. The possible weakness is in not finding a significant interaction which exists.

The chi-square statistic was applied to contingency tables to determine if certain factors were related. The Mann-Whitney test was also applied to determine if a factor might be a positive or negative factor.

In all tests for significance, the .05 level was accepted, although several findings at the .01 level are reported.

Limitations

The study was conducted at The Ohio State University and the results are representative of the athletic department at O.S.U., but may not

represent the picture existing at other institutions, particularly Division II and III programs.

The study was done during one academic year, 1980-81, and does not indicate any trends over time.

Due to the presence of the empty cells it was impossible to detect interactions between selected variables. Some cells, such as minority athletes in non-revenue sports, contained so few individuals that the results of these cells were difficult to interpret.

Ohio State's athletes compete under very stringent requirements for academic eligibility. These standards are more stringent than the NCAA's basic standards and are even more stringent than those of the Big 10 Conference. These athletes must meet quantitative requirements (number of hours earned), qualitative requirements (grade point average), and "normal progress" requirements for graduation within 5 years of their high school matriculation. O.S.U. student-athletes must earn 36 hours their freshman year with a minimum cumulative point hour ratio of 1.7. After their first year, they must earn a minimum of 48 hours a year and maintain a minimum cumulative point hour ratio of 2.0. These standards will limit the amount of interaction in the variables which are used to measure progress in the study.

CHAPTER IV: PRESENTATION AND ANALYSIS OF DATA

The data collected in the study will be analyzed in Chapter 4. The chapter begins with descriptive data, primarily, regarding grants-in-aid and the sex-revenue combinations (female non-revenue, male non-revenue, and male revenue). The data for other defining variables (i.e. upper class/ freshmen, team sport/individual sport, academic major, and minority status) will then be examined.

Descriptive Data for Grant-In-Aid Athletes and Sex-Revenue Combinations

The National Collegiate Athletic Association (NCAA) sets limits on the number of full grants-in-aid which can be offered in men's sports. These maximum limits are 95 in football, 15 in men's basketball, and, in the year of this study, 1980-81, 80 in the remaining men's sports. (This limit was reduced to 70 for the year 1982-83). The Association for Intercollegiate Athletics for Women (AIAW) also sets limits for the awarding of grants-in-aid in each sport. The distribution of grants-in-aid for each of the men's and women's sports at Ohio State University is delineated in Table 1.

Football, the largest revenue producer, awards 95 grants-in-aid, or 33.3% of the total O.S.U. athletic grants awarded. This one third of the available aid is awarded to 13% of the total athletic population. Men's basketball, the other revenue producer, awards 15 grants or 5.3% of the available O.S.U. awards. The other men's sports, except Ice Hockey (at 16

TABLE 1

DISTRIBUTION OF GRANTS-IN-AID BY SPORT

Sport	Full Grants Available	Athletes receiving Fulls or Partials[a]	% of total Full Grants Available	Team Members	% of total O.S.U. Athletes on team
Baseball	10	27	3.5%	36	5.2%
Basketball-M	15	15	5.3	15	2.2
-W	12	8	4.2	15	2.2
Fencing-M	0	0	0.0	10	1.5
-W	3	4	1.1	6	0.9
Field Hockey	8	12	2.8	41	6.0
Football	95	95	33.3	89[b]	13.0
Golf-M	5	7	1.7	12	1.7
-W	5	6	1.7	13	1.9
Gymnastics-M	7	11	2.5	25	3.6
-W	8	9	2.8	20	2.9
Ice Hockey	16	21	5.6	26	4.0
LaCrosse	0	0	0.0	39	5.7
Pistol	0	0	0.0	10	1.5
Rifle	0	0	0.0	10	1.5
Soccer	0	0	0.0	26	4.0
Softball	7	14	2.5	16	2.3
Swimming-M	11	17	3.8	36	5.2
-W	14	11	4.9	32	4.7
Sync. Swim	10	11	3.5	21	3.1
Tennis-M	5	8	1.7	14	2.0
-W	5	7	1.7	14	2.0
Track & Field-M	12	18	4.2	48	7.0
-W	15	13	5.3	44	6.4
Volleyball-M	2	13	0.1	13	1.9
-W	8	8	2.8	11	1.6
Wrestling	11	13	3.8	44	6.4
Totals	285	348	100.0%	686	100.0%

[a]If full grants are awarded as partials, a greater number of athletes may actually receive aid. Some grants may go unused, so the number aided may be fewer than the number of grants available. The total cash value of the grants in aid may also be divided and split among members of a team, as in the case of men's volleyball, which splits the cash value of 2 grants 13 ways, so that everyone on the team receives some support.

[b]All 95 grants in football may not be awarded Autumn Quarter. Some grants may be held, and issued mid-year.

grants) award 15 or fewer athletic grants each, with 5 men's sports awarding no financial aid at all. Women's track and field awards the largest number of grants-in-aid in women's athletics at 15. Each of the other women's sports, however, does at least award some, if only a few grants.

Table 2 presents this grant-in-aid information by sex-revenue categories. A total of 233 female athletes (or 34.0% of the total student-athlete population) receive 95 grants-in-aid (or 33.3% of the total grants awarded). Male non-revenue athletes who comprise 50.9% of the total athletic population receive 80 grants (or 28.1% of the athletic aid awarded). The male revenue athletes (who make up 15.1% of the population) receive 110 or 38.6% of the aid available through the athletic department. The male non-revenue athletes, then, appear to be the most cheated by the high proportion of revenue athletes who are aided. Maximum limits on the number of grants-in-aid available are set by the N.C.A.A. The Ohio State University awards the maximum amount of aid in both the revenue and non-revenue areas. In the last two years, the N.C.A.A. has increased its emphasis on the revenue sports to 70 in the 1981-82 academic year, and then to 60 in the following year. Thus, in two years, if the size of the athletic population remains the same, male non-revenue athletes will receive an even smaller percentage of the available aid.

The data presented in Table 3 include ten of the measures of academic aptitude, achievement, and progress for the sex-revenue combinations. In all of the measures of academic achievement, the differences are significant for all three sex-revenue combinations. The female athletes perform significantly higher than both the male non-revenue and revenue athletes,

TABLE 2

DISTRIBUTION OF GRANTS-IN-AID BY SEX-REVENUE STATUS

	Number participating	No. being aided	% of total grants	% of O.S.U. athletes
Female Non-Revenue	233	103	33.3%	34.0%
Male Non-Revenue	329	135	28.1	50.9
Male Revenue	104	104	38.6	15.1
Totals	666	342	100.0%	100.0%

TABLE 3

MEASURES OF ACADEMIC APTITUDE, ACHIEVEMENT AND PROGRESS BY SEX-REVENUE STATUS

	CPHR	BERPHR	Pred.PHR	Av.hrs/Q	BERPHR/ QCOMP	Hrs./ QCOMP	BERhrs./ QCOMP	Diff. from Pred.	Diff. QCOMP	%BERs
Female										
Mean	2.87	2.82	2.64	15.8	2.85	15.2	12.6	+0.23	+0.03	87.1%
S.D.	.52	.56	.33	1.4	.60	2.1	2.7	.39	.25	9.4
n=100										
Male Non-Rev										
Mean	2.47	2.39	2.35	14.9	2.35	14.5	12.1	+0.14	-0.06	85.5
S.D.	.52	.56	.41	1.0	.68	1.6	2.2	.48	.34	8.9
n=100										
Male Rev										
Mean	2.25	2.08	2.16	15.0	1.90	15.9	12.7	+0.09	-0.28	78.3
S.D.	.50	.56	.41	1.2	.74	1.3	1.9	.45	.43	7.4
n=50										

* Significant at .05 level
**Significant at .01 level
Using Scheffe test

and the male non-revenue athletes perform significantly higher than the male revenue athletes. For example, in overall cumulative point hour ratio, the women average 2.87, the male non-revenue 2.47, and the male revenue 2.25. During the quarter of competition, the women's mean point hour ratio drops slightly to 2.85, the male non-revenue athletes' to 2.35, and the mean male revenue athletes' average drops sharply to 1.90. As illustrated in the difference/quarter of competition data, this drop is significant for the revenue sports, who drop on the average 0.3 from their cumulative mean during their off season.

The female athletes tend to attempt more hours per quarter than either of the male samples, averaging 15.8 hours per quarter, while the male non-revenue sample averages 14.9 hours and the male revenue sample averages 15.0. However, during the season of competition, it is the male revenue combination which averages 15.9 hours compared to 15.2 hours for the females and 14.5 hours for the male non-revenue athletes. There is no difference in the number of BER hours attempted by each of the 3 combinations in the quarter of competition. Yet, the overall percentage of BER courses completed in the first two years is significantly lower for the male revenue sample (78.4%) than both the female (87.1%) and the male non-revenue sample (85.5%).

While the predicted point hours for each of the three combinations are significantly different, it is interesting to note that the actually achieved differences from the prediction for each sample are not significantly different. Each combination achieves higher than predicted, with the females achieving +0.23 from the predicted 2.64, the male non-revenue athletes achieving +0.13 from the predicted 2.35, and the male revenue athletes achieving +0.09 from the predicted 2.16.

When the data are presented according to grant-in-aid status for all athletes, as shown in Table 4, there appears to be no difference in cumulative point hour ratio or BER point hour ratio. During the quarter of competition, however, there is a significant difference favoring non-grant-in-aid athletes over grant-in-aid athletes on the mean BER point hour ratio. Grant-in-aid athletes, it would appear, also attempt a significantly lower percentage of BER courses, 83.8% in their first two years, as opposed to the non-grant-in-aid athletes with a mean of 86.1%.

When the grant-in-aid/non-grant-in-aid data are examined in combination with sex-revenue status, as in Table 5, the non-revenue grant-in-aid males and females perform higher in cumulative point hour ratio than their non-grant-in-aid counterparts. The male revenue sample performs significantly lower in all measures of academic achievement than both the grant-in-aid and non-grant-in-aid non-revenue males and females. The one exception to this occurs in overall cumulative point hour ratio, where the male non-revenue non-grant-in-aid athletes achieve higher, but not significantly higher, than the revenue athletes.

The range in overall cumulative point ratio between the highest achieving combination at 2.91 (female grant-in-aid athletes) and the lowest achieving combination at 2.25 (male revenue athletes) is 0.66. The range between the same two samples in BER point hour ratio, 2.88 and 2.08 respectively is 0.80. During the season of competition, however, the range in BER point hour ratio between these two samples increases from 2.84 to 1.90, or 0.94, almost a whole point.

TABLE 4

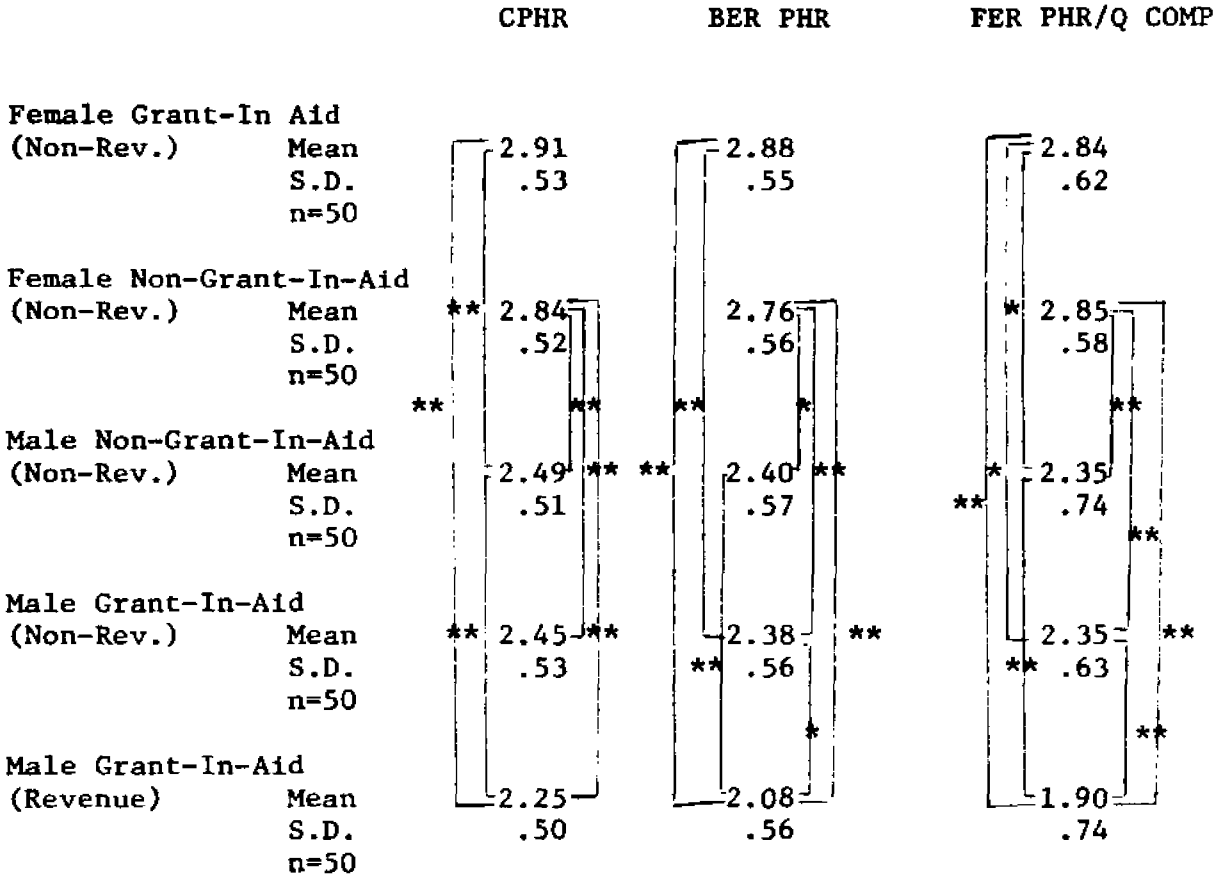
BASIC EDUCATION REQUIREMENT VARIABLES BY GRANT-IN-AID STATUS

	CPHR	BER PHR	BER PHR/Q COMP	%BER Courses
Grant-In-Aid				
Mean	2.55	2.45	2.36	83.8%
S.D.	.58	.65	.80	9.2
n=150				
			*	*
Non-Grant-In-Aid				
Mean	2.64	2.57	2.60	86.1%
S.D.	.55	.59	.65	9.5
n=100				

* Significant at .05
Using Scheffe test

TABLE 5

ACADEMIC ACHIEVEMENT VARIABLES BY SEX-REVENUE AND GRANT-IN-AID STATUS



* Significant at .05
** Significant at .01
Using Tukey test

An examination of the hours attempted by sex revenue status and grant-in-aid/non-grant-in-aid status yields the results illustrated in Table 6. In average hours attempted per quarter, female grant-in-aid and non-grant-in-aid athletes attempt more hours than either their male non-revenue or male revenue counterparts. Yet, during the quarter of competition the male revenue athletes attempt more hours than either male or female non-revenue athletes.

Each of the four non-revenue combinations schedule fewer hours during their season of competition than their average hours attempted during the off quarter. The male revenue athletes, on the other hand, attempt more hours during their season of competition than during their off quarters. This may be due to the fact that the male revenue athletes are on the average, closer to the 2.0 eligibility average, and achieve significantly lower during their season of competition. Enrollment in more hours would enable an athlete to drop hours and still remain eligible at the 12 hour minimum if he encountered academic difficulty in any one class.

Revenue athletes are not attempting fewer BER hours during their season of competition. They are scheduling more hours than their counterparts, but they appear to be scheduling about the same number of BER hours as their counterparts. They attempt on the average 12.76 BER hours in the quarter of competition, second only to female non-grant-in-aid athletes at 13.25. The male revenue athletes are attempting more BER hours during the season of competition than the male non-revenue non-grant-in-aid athletes at 12.33, female grant-in-aid athletes at 12.04, and male non-revenue grant-in-aid athletes at 11.93. Here too, eligibility requirements demand athletes be making "normal progress toward a degree", meaning they

TABLE 6

ACADEMIC PROGRESS VARIABLES BY SEX-REVENUE AND GRANT-IN-AID STATUS

		Av. hrs/ Qtr.	Hrs./Q Comp.	BER Hrs./ Q Comp.	% BER Courses
Female Grant-In-Aid (Non-Rev.)	Mean	15.96	14.93	12.04	90.3%
	S.D.	1.52	2.05	2.87	6.5
	n=50				
Female Non-Grant-In-Aid					
	Mean	15.63	15.61	13.25	83.8
	S.D.	1.40	2.03	2.28	10.6
	n=50				
Male Grant-In-Aid (Non-Rev.)	Mean	15.08	14.79	11.93	82.7
	S.D.	.86	1.69	2.41	9.2
	n=50				
Male Non-Grant-In-Aid (Non-Rev.)	Mean	14.76	14.33	12.33	88.3
	S.D.	1.15	1.40	2.04	7.8
	n=50				
Male Grant-In-Aid (Revenue)	Mean	15.07	15.96	12.76	78.3
	S.D.	1.25	1.38	1.99	7.4
	n=50				

* Significant at .05
** Significant at .01
Using Tukey test

making "normal progress toward a degree", meaning they must earn a minimum number of hours of BER courses or courses which meet degree requirements, each year.

The percentage of BER courses attempted in the first two years, falls back into the pattern of the cumulative point hour data. Female grant-in-aid athletes attempt 90.3% BER courses in their first two years, followed by male non-revenue non-grant-in-aid athletes at 88.3% BERs, female non-grant-in-aid athletes at 83.8% BERs, male non-revenue grant-in-aid athletes at 82.7% BERs, and male revenue athletes at 78.3%. The significant differences here are illustrated in Table 6.

Measures of academic aptitude and achievement used in this study include rank in high school graduating class, and ACT and SAT scores. For each student-athlete only one test score is usually recorded, either the ACT or SAT score. These data are presented in Table 7. The mean rank in high school graduating class drops from 82nd percentile for female athletes, to 63rd percentile for male non-revenue athletes, and to the 58th percentile for male revenue athletes. The differences between the female athletes and both the revenue and non-revenue male athletes are significant at the .05 level. The difference between the males is not significant. Scores on the ACT exam also drop from the female athletes with a mean ACT score of 22.0, to male non-revenue athletes with a mean score of 19.2, and then to male revenue athletes with a mean score of 16.5. All three of these relationships show significant differences. The SAT scores are different, with male non-revenue athletes averaging 909, followed by the female athletes averaging 895 (a difference which is not significant), and the

TABLE 7

PREDICTIVE MEASURES BY SEX-REVENUE STATUS

	High School Rank (percentile)	ACT Score	SAT Score
Female Non-Revenue			
Mean	.820	22.04	895
S.D.	.147	4.80	116
n=100			
Male Non-Revenue			
Mean	.630	19.23	909
S.D.	.237	4.76	184
n=100			
Male Revenue			
Mean	.578	16.50	795
S.D.	.239	5.71	173
n=50			

* Significant at .05
** Significant at .01
Using Scheffe test

male revenue athletes averaging 795. This male revenue mean score is significantly lower than both the female mean score and the male non-revenue mean score.

The data defined by whether an athlete receives a full grant-in-aid, a partial grant-in-aid, or no grant-in-aid at all, are found in Table 8. A comparison of the three samples in cumulative point hour ratio and BER point hour ratio finds that athletes on partial grants-in-aid achieve higher academically than those receiving no grants; and that athletes on full grants-in-aid achieve significantly lower than both those groups. The BER point hour ratios during the quarter of competition and the percent of BER courses attempted in the first two years of college follow the same pattern. The partial grant athletes and the athletes receiving no aid achieve significantly higher than the full grant athletes.

These results may be attributed to the fact that all of the revenue athletes (whom we have already noted achieve lower academically) receive full grants, while partial grants are used heavily in the non-revenue sports. Table 9 presents the same data as in Table 8, but omitting the revenue sports.

When the revenue athletes are omitted there are no significant differences among the samples. The partial grant athletes still achieve highest in cumulative point hour ratio and BER point hour ratio, but the full grant athletes achieve higher than the athletes not receiving aid. During the quarter of competition the full grant athletes do achieve academically lower than both the partial grant athletes and the athletes receiving no aid, but these differences are not significant.

TABLE 8

ACADEMIC ACHIEVEMENT VARIABLES BY GRANT-IN-AID STATUS FOR ALL SPORTS

	CPHR	BER PHR	BER PHR/Q COMP	%BER COURSES
Full Grant-In-Aid				
Mean	2.44	2.31	2.18	81.7%
S.D.	.55	.63	.77	9.0
n=89				
	**	**	**	**
Partial Grant-In-Aid				
Mean	2.71	2.67	2.62	86.8
S.D.	.59	.61	.77	8.7
n=61				
	*	**	**	**
No Grant-In-Aid				
Mean	2.64	2.57	2.60	86.1
S.D.	.55	.59	.65	9.5
n=100				

* Significant at .05
** Significant at .01
Using Scheffe test

TABLE 9

ACADEMIC ACHIEVEMENT VARIABLES BY GRANT-IN-AID STATUS FOR NON-REVENUE SPORTS

		CPHR	BER PHR	BER PHR/Q COMP	%BER COURSES
Full Grant-In-Aid					
	Mean	2.68	2.60	2.53	86.1%
	S.D.	.52	.59	.68	8.5
	n=39				
Partial Grant-In-Aid					
	Mean	2.71	2.67	2.62	86.8
	S.D.	.59	.61	.77	8.7
	n=61				
No Grant-In-Aid					
	Mean	2.64	2.57	2.60	86.1
	S.D.	.55	.59	.65	9.5
	n=100				

No significant differences indicated using Scheffe test.

In summary, the first two hypotheses to be tested by this study, have been supported by the data presented in this section. The first hypothesis stated that female athletes would demonstrate greater academic aptitude and achievement than their male counterparts. Female athletes do achieve significantly higher academically than male athletes in both revenue and non-revenue sports. They also demonstrate significantly higher academic aptitude in the form of high school class rank and test scores. Also supported was the second hypothesis which stated that athletes in non-revenue sports would demonstrate greater academic aptitude and achievement than their counterparts in revenue producing sports. The differences in academic achievement and test scores and high school class rank for the revenue versus non-revenue sports were significant, with male and female non-revenue athletes achieving higher and demonstrating greater aptitude.

The third hypothesis which stated, "Non-grant-in-aid athletes will demonstrate greater academic achievement than their grant-in-aid counterparts", was not supported as stated. Male revenue athletes on full grants achieve significantly lower academically than all other athletes. Athletes in the non-revenue producing sports demonstrate no significant differences in academic achievement whether they are on full grant-in-aid, partial grant-in-aid, or receiving no aid at all.

Descriptive Data for Freshmen/Upperclassmen

Most of the arguments among athletic administrators and coaches regarding whether or not freshmen athletes should be eligible for competition stress that freshmen need an "adjustment period" in order to achieve academic stability in college. A comparison of point hour data and BER data between freshmen and upperclassmen (sophomores, juniors and seniors)

shows no significant differences in their academic achievement (see Table 10). The upperclassmen have a slightly higher cumulative point hour ratio, 2.61 as compared with 2.56, although this difference is not significant. The same is true of the BER point hour ratio, 2.51 as compared to 2.49. This difference is also not significant. The BER point hour ratio during the quarter of competition is slightly higher for the freshmen, 2.50 compared to 2.41, another non-significant difference. The freshmen also average a higher percentage of BER courses, 86% to 84% though this is not significant.

The fourth hypothesis to be tested in this study suggested that upperclassmen who have had time to adjust to college life, would demonstrate greater academic achievement than their freshman counterparts. The data presented in Table 10 do not indicate any significance between freshmen and upperclassmen.

Descriptive Data for Individual and Team Sports

Table 11 presents the data comparing individual and team sports. The size of both groups is comparable (n = 123 and 127 respectively), but it should be remembered that the revenue sport athletes, whom we have already seen achieve academically lower than other athletes, are included in the team sport data.

Comparing the point hour ratio and BER data, those athletes participating in individual sports do achieve academically and significantly higher. The average cumulative point hour ratio for individual athletes compared to team sport athletes is 2.70 to 2.47. (a difference significant at the .01 level). The BER point hour ratio for individual versus team

TABLE 10

ACADEMIC ACHIEVEMENT VARIABLES AND CLASS STANDING

	CPHR	BERPHR	BER PHR Q/COMP	%BER COURSES
Freshmen				
Mean	2.56	2.49	2.50	85.6%
S.D.	.61	.65	.81	7.7
n=125				
Upperclassmen				
Mean	2.61	2.51	2.41	83.8
S.D.	.53	.60	.69	10.7
n=125				

No significant differences indicated using Tukey test.

TABLE 11

ACADEMIC ACHIEVEMENT VARIABLES BY SPORT TYPE

		CPHR	BER PHR	BER PHR/Q COMP	%BER COURSES
Individual Sports					
	Mean	2.70	2.63	2.61	86.4%
	S.D.	.57	.62	.69	9.3
	n=123				
		**	**	**	**
Team Sports					
	Mean	2.47	2.38	2.31	83.1
	S.D.	.56	.61	.78	9.2
	n=127				

* Significant at .05
** Significant at .01
Using Scheffe test

sports is 2.63 to 2.38 (also significant at .01). Individual sport athletes also achieve significantly higher during the quarter of competition as indicated by the BER point hour ratio/Quarter or competition data: 2.61 to 2.31. And those athletes participating in individual sports also attempt a significantly higher percentage of BER courses (86.4%) than do those athletes participating as members of teams (83.1%).

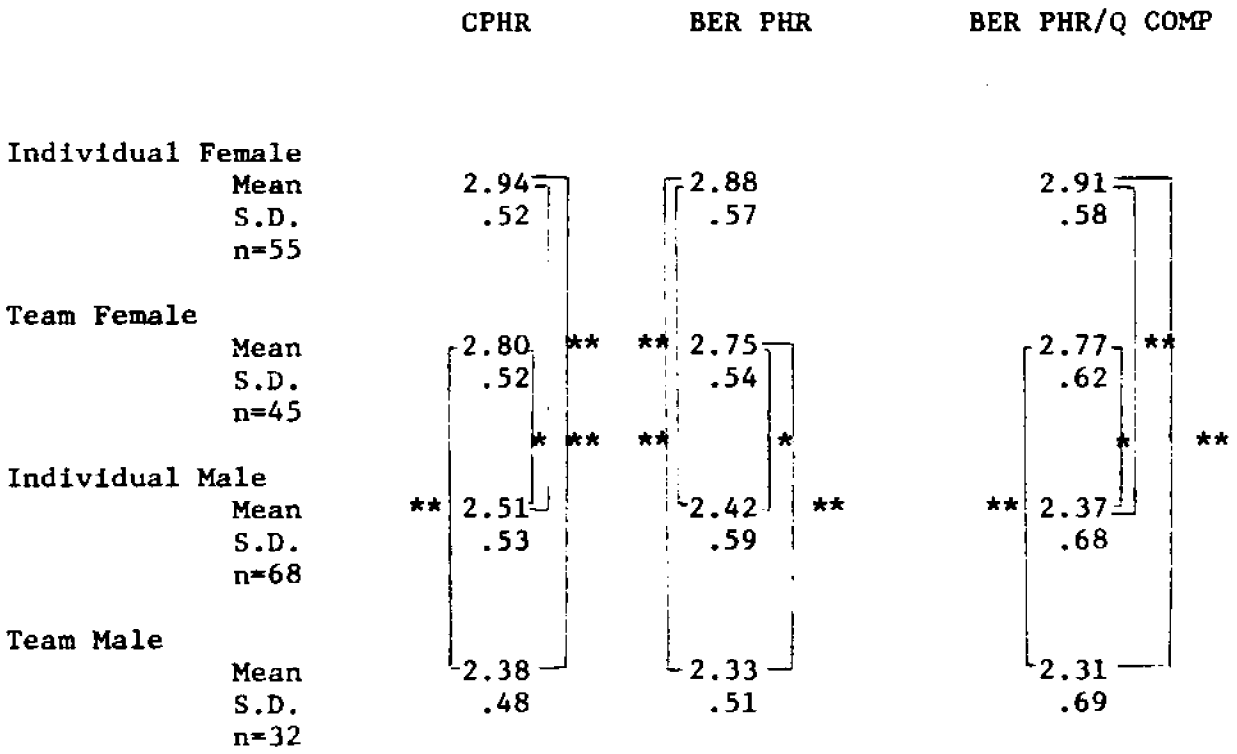
The data for team/individual non-revenue sports is presented in Table 12. Female athletes, whether participating as individuals or on teams, achieve higher academically than male non-revenue athletes in either category. There are no significant differences between females competing as individuals or on teams, or between non-revenue males competing as individuals or on teams. But, in both cases, the individual competitors achieve academically higher than the team members of their own sex.

The data presented in Tables 11 and 12 support the fifth hypothesis to be tested in this study, which suggested that individuals competing on teams would achieve academically lower than individuals competing as individuals. Examining revenue and non-revenue athletes in combination, as in Table 11, individual competitors do achieve significantly higher academically than team competitors. And even after the revenue sports (whom we have noted achieve academically lower) are controlled for, and sex differences are accounted for, as in Table 12, individual competitors do achieve academically higher, although not significantly, than team competitors.

TABLE 12

ACADEMIC ACHIEVEMENT VARIABLES BY SPORT TYPE

AND SEX FOR NON-REVENUE SPORTS



* Significant at .05
** Significant at .01
Using Scheffe test

Quarter of Competition Data

Data presented earlier in this chapter related to the academic performance of athletes during the quarter of competition. Table 3 showed the BER point hour ratio during the quarter of competition of female athletes (2.85) to be significantly higher than that of both combinations of male athletes (revenue and non-revenue), and the BER point hour ratio during the quarter of competition of male non-revenue athletes (2.35) to be significantly higher than that of male revenue athletes (1.90). The difference in point hour ratio in the quarter of competition as compared to the off season, was significantly lower for the male revenue athletes, but not significantly lower for the female and male non-revenue athletes. The male revenue athletes attempted a significantly higher number of hours quarter of competition than either the female athletes or the male non-revenue athletes.

Table 4, which presented data on grant-in-aid versus non-grant-in-aid athletes, demonstrated that non-grant-in-aid athletes achieve higher in the BER point hour ratio during the quarter of competition than do grant-in-aid athletes. In Table 8, it was noted that athletes on partial grant achieved higher in BER point hour during the quarter of competition compared to those receiving no grant-in-aid and those on full grants. However, as was illustrated in Table 9, these results were influenced by controlling for the revenue sports which resulted in no significant differences between grant-in-aid athletes and non-grant-in-aid athletes.

The comparison of BER point hour ratio during the quarter of competition for individual versus team sports was presented in Table 11. Athletes in individual sports achieve a significantly higher BER point hour ratio during the quarter of competition than team sport athletes.

These results, too, were affected by revenue sport athletes, who are all team sport athletes, and who have previously been noted to achieve academically lower (see Table 12).

Table 13 includes data on academic success in the quarter of competition as compared with the off season for the sex-revenue combinations. A larger number of female athletes achieved higher grades in their BER courses attempted during the quarter of competition than the number who achieved higher grades in their off quarter. This difference, however, was not significant at the .05 level. The male athletes, however, both revenue and non-revenue, achieved significantly higher in BER courses in their off quarters. A total of 37 of the non-revenue males acheived better grades in their quarter of competition, while 62 achieved better grades in their off quarters. Only 19 male revenue athletes achieved higher in their quarter of competition, while 31 male revenue athletes achieved higher in their off quarters.

Earlier in this study, it was hypothesized that during the quarter of competition, athletes in revenue producing sports would achieve less academic success than their counterparts in the non-revenue producing sports. In most of the data presented thus far in this study, this hypothesis was supported. The data examined in Table 13, also demonstrated, however, that a greater number of male athletes in the non-revenue sports also achieve less academic success in their quarter of competition.

Descriptive Data for Academic Majors

The data describing choice of academic major by sex-revenue status and grant-in-aid/non-grant-in-aid status are presented in Table 14. The chi-square test for significance determined a significant interaction between

TABLE 13

BER GRADES DURING QUARTER OF COMPETITION

	Better BER Grades Quarter of Comp.	Better BER Grades Off-Season
Female Non-Revenue n-100[a]	52	47
Male Non-Revenue n=100	37	62
Male Revenue n=50	19	31

Mann Whitney Test for Significance: Both groups of males demonstrate significantly lower grades during quarter of competition ($p. < .05$) For females there is no significant difference.

[a] One female non-revenue athlete and one male non-revenue athlete demonstrated no difference in BER grades quarter of competition as compared with off-season.

choice of major and sex-revenue and grant-in-aid combination at the .01 level. It is interesting to note initially, that the largest number of physical education, recreation, and communication majors occur in all of the grant-in-aid categories: female grant-in-aid (17), male non-revenue grant-in-aid (18), and male revenue (20). This may be explained by sincere interest and compatibility of an academic major which relates directly to an athlete's primary interests, or to the fact that these are sometimes perceived to be "less demanding" majors.

While only 28% of the female athletes decide on a physical education/recreation or communication major, 45% of all male athletes choose one of these majors. A higher percentage of the male athletes (24%) are undecided about a major than the female athletes (8%). The figures for administrative science majors are fairly equal among the samples. Of the women, 28% major in business as compared with 24% of the male non-revenue athletes and 26% of the male revenue athletes. The sciences, engineering, and pre-med draw 24% of the females, 29% of the male non-revenue athletes, and only 12% of the male revenue athletes. Of the female athletes, 22% major in other areas (i.e. social work, education, home economics) as compared to only 5% and 8% respectively for male non-revenue and male revenue athletes.

Table 15 presents the data on academic major choice by minority status in the revenue sports. The numbers of undecided majors are about equal: 3 non-minority and 4 minority students. However, in the physical education/recreation or communication majors, the difference is apparent. 16 (or 64%) of the minority athletes chose to major in physical education/recreation or communications in comparison with 4 (16%) of the non-minority athletes.

TABLE 14

DISTRIBUTION OF ATHLETES IN ACADEMIC MAJORS
BY SEX-REVENUE AND GRANT-IN-AID STATUS

	Undecided	Phys.Ed/Recreation/ Communication	Administrative Science	Science/ Engineering/ Pre-Med	Other
Female Grant-In-Aid n=50	5	17	4	9	15
Female Non-Grant-In-Aid n=50	3	11	14	15	7
Male Non-Revenue Grant-In-Aid n=50	7	18	14	10	1
Male Non-Revenue Non-Grant-In-Aid n=50	10	7	10	19	4
Male Revenue Grant-In-Aid n=50	7	20	13	6	4

Chi-square test indicates significant interaction at .01 level.

TABLE 15

DISTRIBUTION OF REVENUE ATHLETES IN ACADEMIC MAJORS BY MINORITY STATUS
BY N

	Undecided	Physical Education/Recreation/ Communications	Administrative Science	Science/ Engineering/ Pre-Med	Other
White n=25	3	4	8	6	4
Minority n=25	4	16*[a]	5	0*	0*

n=50

* Indicates trends, but sample is too small to apply chi-square test.

[a] None of the minority athletes in this group were majoring in Physical Education. All 16 were majoring in either Recreation or Communications.

Majoring in the administrative science area were 8 white revenue athletes and 5 black revenue athletes. No minority athletes were majoring in the sciences, engineering and pre-med, compared to 6 non-minority athletes. And, no (0) minority athletes chose other majors, though 4 non-minority athletes did.

The data for choice of academic major by sex for the non-revenue sports are presented in Table 16. These data indicate a higher percentage of male athletes (17%) are undecided about a major, in comparison with 8% of the females. The physical education/recreation or communication majors are chosen by about the same percentage of males and females, 25% and 28%. Males choose business administration majors 24%, to 18% for the females. In the sciences, engineering and pre-med area, 29% of the males choose these majors, compared with 24% of the females. And only 5% of the males choose other majors (i.e. social work, education, home economics or agricultrue) compared to 22% of the women.

The college board, or ACT and SAT test scores of student-athletes by choice of academic major are presented in Table 17. A majority of the student-athletes sampled in this study had taken the American College Test (ACT) rather than the Scholastic Aptitude Test (SAT), so the number of athletes in the SAT column is too small to apply any test for significance. In the ACT column, however, there are some interesting results. Those students choosing to major in physical education, recreation and communications have an average ACT score of 16.1, well below the O.S.U. average of 20.7. Students who have not year decided upon an academic major have an average ACT score of 18.9. Business administration majors average 21.2. Students choosing "other" majors (i.e. social work, agriculture, education, etc.) average 21.9 on the ACT. And the average ACT score for those students

TABLE 16

DISTRIBUTION OF NON-REVENUE ATHLETES IN ACADEMIC MAJORS BY SEX BY N

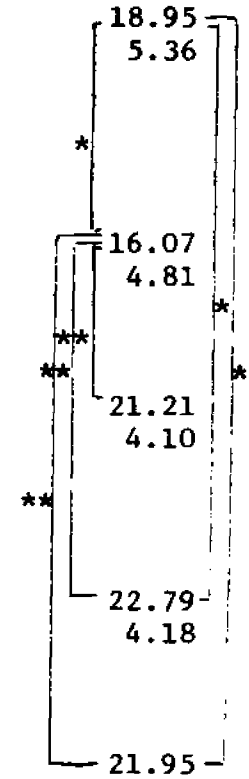
	Undecided	Phys.Ed./Recreation/ Communication	Administrative Science	Science/ Engineering/ Pre-Med	Other
Male n=100	17	25	24	29	5
Female n=100	8	28	18	24	22

Chi-square indicated interaction at .01 level of significance.

TABLE 17

TEST SCORES BY ACADEMIC MAJOR

Major	ACT	SAT
Undecided	18.95	870
Mean	5.36	152
S.D.		
n=32		
Physical Education, Recreation, Communication		
Mean	16.07	770
S.D.	4.81	167
n=73		
Administrative Science		
Mean	21.21	867
S.D.	4.10	149
n=55		
Pre-med, Engineering, Sciences		
Mean	22.79	1013
S.D.	4.18	117
n=59		
Other		
Mean	21.95	861
S.D.	5.34	136
n=31		



* Significant at .05
** Significant at .01
Using Scheffe test

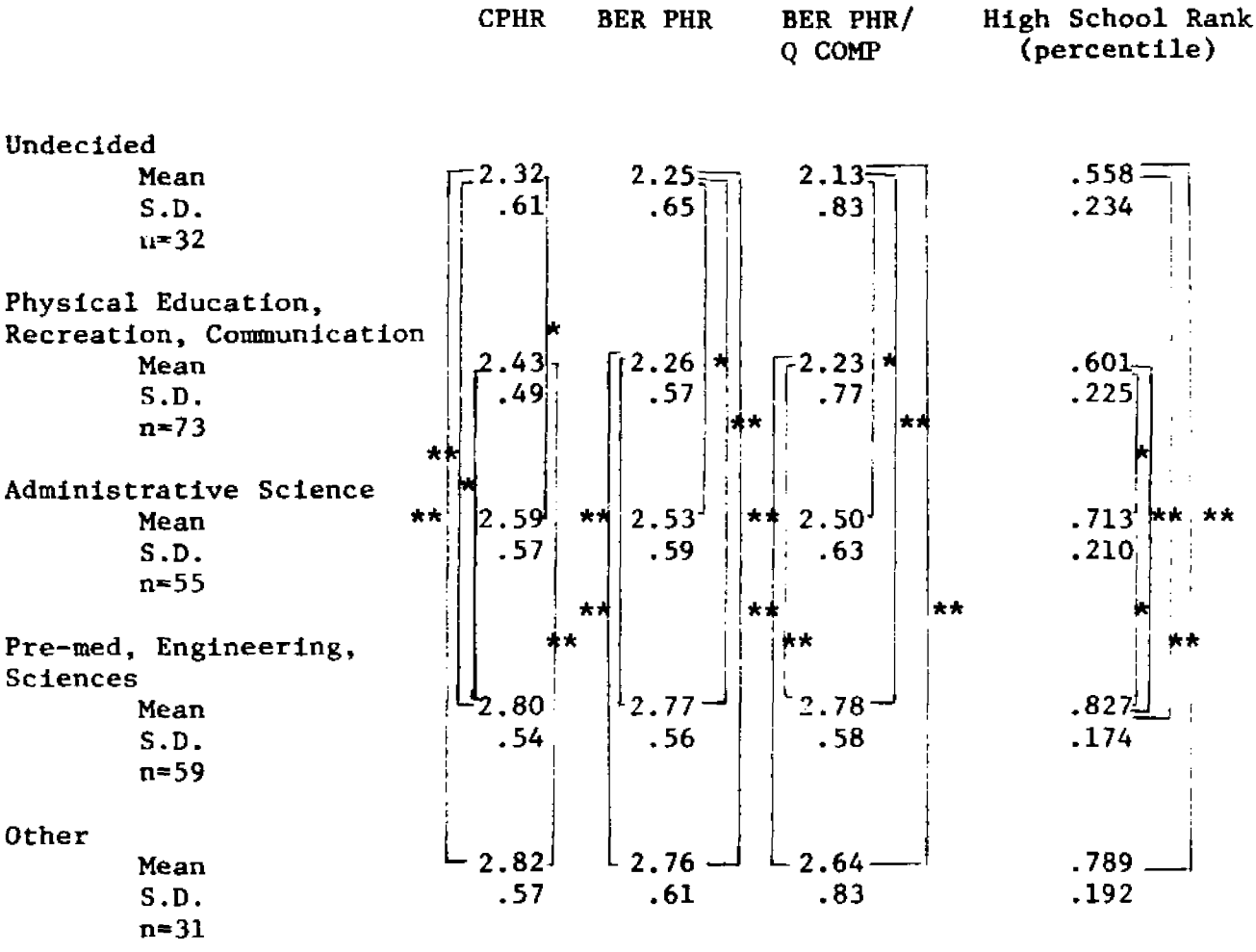
choosing pre-med, engineering, or any of the sciences as majors is 22.8. It would appear that students with lower test scores are either undecided about major or choose to major in physical education, recreation or communications.

While comparison of these test scores has been made with the O.S.U. average, it should be noted that the athlete population may not be comparable to that average. Athletes are recruited according to different academic criteria than regular students and in some cases, athletes on one team, may be recruited according to different criteria than athletes on another team. For instance, one coach might recruit an athlete based purely on his or her athletic ability with little regard for academic potential. Another coach might ignore that athlete and recruit another athlete with slightly less athletic ability, but a great deal more academic potential. It is difficult, then, to compare this population directly with the entire student body.

The point hour and high school rank data provide an interesting comparison with the test score data. These data are presented in Table 18. The average cumulative point hour ratios for student-athletes majoring in the pre-med, science and engineering areas and in the "other" areas are 2.8 and 2.8, respectively. The average cumulative point hour ratio for business administration majors is 2.6. Physical education/recreation and communication majors average 2.4 overall. And, it is the undecided majors who present the lowest overall cumulative point hour ratio, 2.3. One interesting factor here is that the undecided majors demonstrate greater aptitude than students majoring in Physical Education, Recreation, or Communications, yet their achievement is lower than those majoring in those areas. Undecided majors have often been thought to lack educational goals

TABLE 18

POINT HOUR RATIOS AND HIGH SCHOOL RANK BY ACADEMIC MAJOR



* Significant at .05
** Significant at .01
Using Scheffe test

and therefore have less motivation for academic achievement; these data would strengthen that position.

The BER point hour ratio for all five academic major choice areas follows the same pattern. Pre-med, engineering and the sciences, and the "other" majors, average 2.8 and 2.8 respectively in the Basic Education Requirements. 2.5 is the average BER point hour ratio for the administative science majors. The physical education, communication and recreation majors achieve a BER point hour ratio of 2.3 followed by the undecided majors achieving 2.2.

The BER point hour ratio during the quarter of competition also follows a pattern that is identical. Pre-med, engineering and sciences majors achieve an average BER point hour ratio of 2.8 during the quarter of competition. The "other" majors group achieves at 2.6 in this category, followed by the administrative science majors who earn a 2.5. Physical Education, Recreation and Communications majors earn a 2.2 BER point hour ratio during the quarter of competition, the undecided majors achieve at an average of 2.1.

Analyzing the high school rank of those students choosing certain major areas of study is also interesting. Student-athletes choosing the sciences, pre-med, and engineering average in the 83rd percentile of their high school classes. Students who choose "other" major areas of study (i.e. social work, agriculture, education, etc.) average in the 79th percentile. Administrative science majors average in the 71st percentile; while the physical education, recreation, and communication majors average in the 60th percentile of their high school graduating class. Undecided majors average in the 56th percentile of their high school graduating class.

Perhaps the lack of an educational goal orientation, as epitomized through choice of major, effects high school performance also.

Thus, as hypothesized earlier in this study, those students who are undecided about a choice of academic major do appear to be weaker students, who perform and achieve at a lower level academically. The possibility also exists that a lack of motivation towards academic achievement is more likely to be present in those students who have not yet decided what area of study to pursue. It also appears that students who are less prepared out of high school and who demonstrate less academic aptitude chose majors that are more compatible to their athletic goals or which are perceived as "less demanding" academically, whether in reality they are or are not.

Descriptive Data for Athletes by Minority Status

Table 19 presents a quick review of a portion of Table 1 which presented the total data for sex-revenue status and the complete data for 10 variables. It is important and helpful to review these data before examining the data relating to minority status.

The average cumulative point hour ratio for female athletes was 2.87, followed by male non-revenue athletes averaging 2.47, and male revenue athletes at 2.25. The average BER point hour ratio of the three samples respectively, was 2.82, 2.39, and 2.08. BER point hour ratio in the quarter of competition ranged from the female athletes at 2.85, to the male non-revenue athletes at 2.35, to the male revenue athletes at 1.90. In all instances, the revenue athletes achieved significantly lower than both combinations of non-revenue athletes.

TABLE 19

ACADEMIC ACHIEVEMENT VARIABLES BY SEX-REVENUE STATUS

(REVIEW FROM TABLE 1)

	CPHR	BER PHR	BER PHR/Q COMP
Female Non-Revenue			
Mean	2.87	2.82	2.85
S.D.	.52	.56	.60
n=100			
	**	**	**
Male Non-Revenue			
Mean	2.47 **	2.39 **	2.35 **
S.D.	.52	.56	.68
n=100			
	*	**	**
Male Revenue			
Mean	2.25	2.08	1.90
S.D.	.50	.56	.74
n=50			

* Significant at .05
** Significant at .01
Using Scheffe Test

For descriptive purposes, Table 20 examines the minority distribution in the total Ohio State University athletic population, by sex-revenue status. It is clear from the table that there is a greater distribution of minorities in the revenue sports than in either the male or female non-revenue sports. The total O.S.U. minority enrollment is estimated at 6%.

Table 19 illustrated significant differences between revenue athletes and male and female non-revenue athletes. Yet, Table 20 illustrated differences in the distribtuion of minorities in the sex-revenue combinations. Therefore, it might be appropriate to categorize the different sex-revenue categories by minority status, as in Table 21. In average cumulative point hour ratio, there was no significant difference between white male non-revenue athletes and white male revenue athletes; while the black athletes in revenue sports achieved significantly lower than both those combinations. For cumulative point hour ratio, BER point hour ratio and BER point hour ratio during the quarter of competition there were no significant differences between the white male non-revenue athletes and the white male revenue athletes. However, in all of the above variables, the black revenue athletes achieved significantly lower than either of those combinations. Also, the white non-revenue athletes attempt 85% of their coursework in BER courses during the first two years, compared to 81% for the white revenue athletes. The black revenue athletes attempt a significantly lower 75% of BER courses during their first two years.

The predictive data for minority and non-minority athletes by sex-revenue status are presented in Table 22. Prediction tables normed on students entering college ten years ago, tend to underestimate the actual achievement of students today, due to grade inflation over the past

TABLE 20

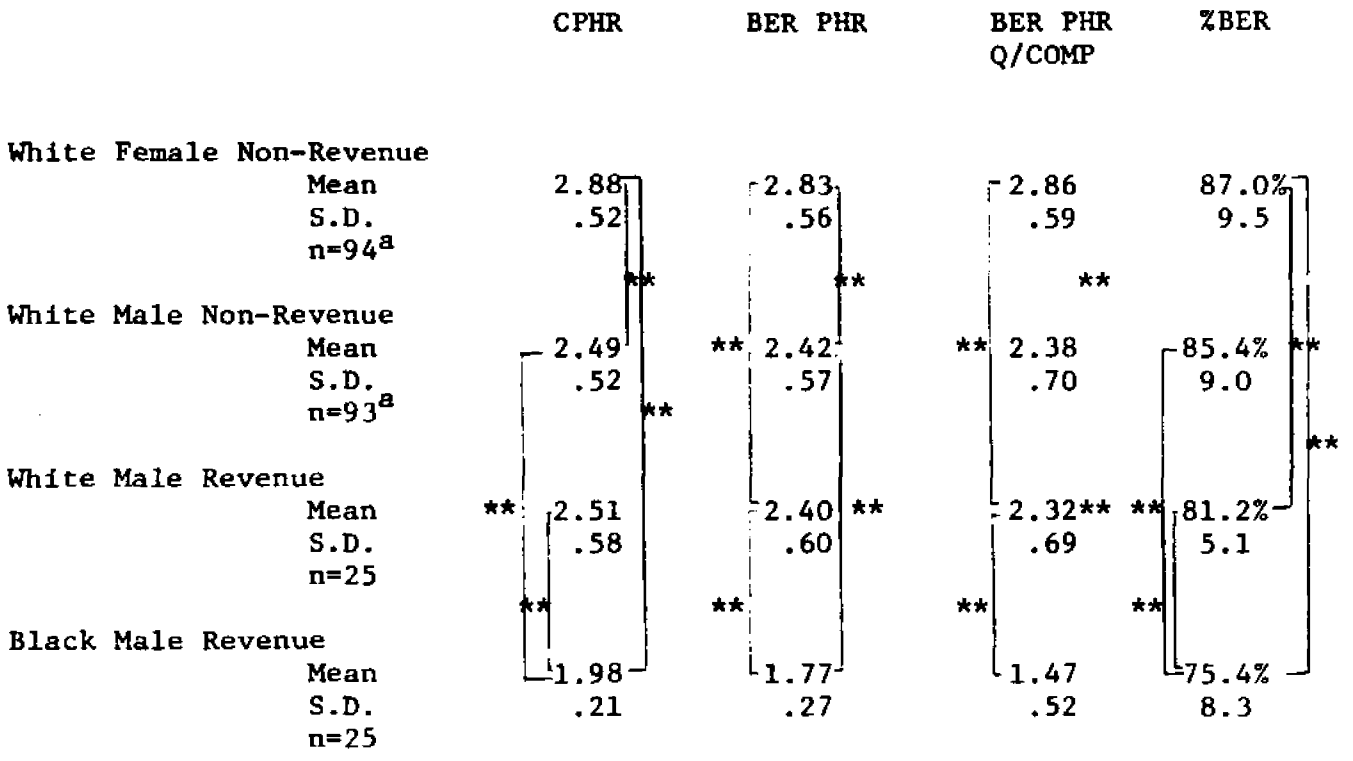
MINORITY DISTRIBUTION IN TOTAL ATHLETIC POPULATION

BY SEX-REVENUE STATUS

	Minority	Non-Minority	%Minority
Male Revenue n=104	43	61	41%
Female Non-Revenue n=237	11	226	4%
Male Non-Revenue n=216	16	313	5%

TABLE 21

ACADEMIC ACHIEVEMENT VARIABLES BY SEX-REVENUE AND MINORITY STATUS



* Significant at .05
** Significant at .01
Using Scheffe test

a Black Female Non-Revenue Athletes and Black Male Non-Revenue Athletes were omitted from this analysis as the numbers in each cell (6 and 7, respectively) are too small to apply any tests for significance.

TABLE 22

PREDICTIVE VARIABLES BY SEX-REVENUE AND MINORITY STATUS

		PRED. PHR	CPHR	DIFFERENCE
White Female Non-Revenue				
	Mean	2.64	2.88	+0.243
	S.D.	.34	.52	
	n=94			
White Male Non-Revenue				
	Mean	2.36	2.50	+0.138
	S.D.	.42	.53	
	n=93			
White Male Revenue				
	Mean	2.35	2.51	+0.162
	S.D.	.38	.58	
	n=25			
Black Male Revenue				
	Mean	1.984	1.989	+0.005
	S.D.	.38	.21	
	n=25			

few years. Therefore, it is not the actual difference figures which are important for each category of athlete, but the differences among the categories. White athletes in all three of the sex-revenue categories achieve on the average at least one tenth of a grade point higher than predicted. Black male revenue athletes achieve on the average .005 higher than predicted. The important fact here is that the actually attained grades of black male revenue athletes, relative to the rest of the population, are lower than predicted. Not only do the black male revenue athletes predict lower achievement than the rest of the population, they actually achieve lower than should be expected by the prediction formula.

The significant differences in academic aptitude and achievement among minority and non-minority athletes as hypothesized earlier, are important in reviewing the data presented in this chapter. It would appear from the data presented in Table 20 that many of the differences previously noted between revenue and non-revenue sports may be accounted for by the heavy distribution of minorities in the revenue sports. This may hold true for the team versus individual sport data also.

Summary

In Chapter 4, selected variables of academic aptitude, achievement, and progress have been examined as they relate to the different categories of student-athletes defined in this study (revenue vs. non-revenue, male vs. female, grant-in-aid vs. non-grant-in-aid, freshmen vs. upperclassmen, individual vs. team sport, and minority vs. non-minority).

Data were presented in Table 3 which indicated significant differences in academic achievement and progress between female non-revenue athletes

who achieved highest, followed by male non-revenue athletes, and then male revenue athletes who achieved significantly lower than both the non-revenue combinations. Non-grant-in-aid athletes achieved higher academically and significantly higher during the quarter of competition than did grant-in-aid athletes as illustrated in Table 4. However, when sex-revenue status was controlled for, as in Table 5, the grant-in-aid non-revenue athletes achieved higher than their non-grant-in-aid counterparts. It was the revenue athletes, all on grant-in-aid, who achieved significantly lower. The hours attempted data, presented in Table 6, indicated that male revenue athletes attempt as many hours on the average as their male non-revenue counterparts. Female athletes schedule significantly more course hours per quarter. Predictive measures were presented in Table 7 and indicated significant differences in measures of academic aptitude between the three sex-revenue combinations. The data in Table 8 indicated that partial grant-in-aid athletes achieved significantly higher than athletes receiving no grant-in-aid, and that both these groups performed significantly higher than full grant-in-aid athletes. When the revenue sports were eliminated from the sample, as in Table 9, there were no significant differences indicated between the grant-in-aid combinations.

Any differences in academic achievement between freshmen and upperclassmen were not significant, as the data in Table 10 indicate.

Differences between athletes competing as individuals and athletes competing as members of a team did appear to be significant, as presented in Table 11. However, again when the revenue sports were controlled for as in Table 12, individual sports achieved higher, but not significantly higher than team sports.

Both non-revenue males and revenue males achieved significantly better grades in BER courses in their off season. More female athletes achieved better grades in BER courses during their quarter of competition. These data were presented in Table 13.

The distribution of athletes in academic majors indicated significant interaction between sex-revenue and grant-in-aid status and major choice (as in Table 14). Table 15 indicated heavy minority involvement in physical education, recreation and communications majors. The data in Table 16 showed significant interaction in the distribution of athletes in majors by sex and indicated more men were undecided about major choice than women.

The data presented in Table 17 indicated students with lower ACT scores were majoring in physical education, recreation and communications or were undecided about major choice. Student athletes with significantly higher test scores majored in business administration, pre-med, engineering, the sciences, and other majors, including social work, and education. Table 18 indicated that although the undecided majors had higher test scores than the physical education, recreation and communication majors, they achieved lower academically. Students majoring in these areas achieved lower academically than students majoring in business, pre-med, engineering, the sciences, or the "other majors".

The distribution of minorities in the total athletic population, presented in Table 20, indicated their heavy minority involvement in the revenue producing sports. Data presented in Table 21 indicated that previously noted differences in achievement of revenue sport athletes probably should be attributed to the heavy distribution of minorities (who achieve significantly lower academically than the non-minorities in the sample)

in the revenue sports. Data presented in Table 22 indicated that not only do black male revenue athletes predict lower levels of academic achievement than other athletes, they actually attain grades, which relative to the rest of the athletic population, are lower than could be expected.

Chapter 5 will draw some conclusions from these data, and will make recommendations for further research. Some recommendations for practice in the provision of athletic support services as they address the issues presented in this study will also be presented.

CHAPTER V: CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Throughout the history of intercollegiate sport, problems with performer exploitation, illegal recruiting practices, and academic misconduct have emerged periodically. Recent scandals have once again brought the public's attention to the relationship between collegiate athletics and higher education. Further, the role of athletics in many of our institutions of higher learning is being questioned.

The purpose of this study was to examine the academic aptitude, progress and achievement of five categories of athletes (male and female, grant-in-aid and non-grant-in-aid, revenue and non-revenue sports, athletes in team and individual sports, and white and black athletes) in an attempt to ascertain if there were differences among these athlete groupings. The measures of academic aptitude, achievement, and progress used in this study include rank in high school graduating class, college board test scores, hours attempted, predicted point hour ratio, and point hour ratios calculated several ways. Data from quarters of competition as compared with off-quarters were also examined.

Should differences among the athletes be noted, an attempt would be made to use this information in order to determine where the academic problems in athletics might exist and to suggest some possible solutions to the problems. Such is the purpose of this chapter.

This study was not an attempt to compare athletes with their non-athlete counterparts. However, when comparative normative data on the entire student body were available, they were presented. What this study attempted was to identify those in the athletic population who are weak in academic aptitude and achievement, and to suggest corrective measures.

Eight basic hypotheses were proposed. The contention of all eight hypotheses was that there would be differences in academic aptitude and achievement among different elements of the athletic population.

Chapter 1 presented the current issues and the format of the study. Chapter 2 established the need for the study by examining the literature and prior research in the area. Chapter 3 outlined the methodology to be used in the study, the purpose of the study, the hypotheses to be tested, and the procedures and limitations. The findings of the study were presented in Chapter 4 in narrative form and by the use of tables which presented consolidated or summarized data.

The subjects in the study were 250 male and female varsity athletes enrolled at The Ohio State University in the academic year 1980-81. These athletes were grant-in-aid and non-grant-in-aid recipients in all sports, both male and female, and black and white. Data used in the comparative analysis of academic aptitude, progress, and achievement were gathered from the academic eligibility files of the O.S.U. Department of Intercollegiate Athletics.

The results of the study served to confirm all but one of the originally stated hypotheses, providing evidence that there are significant differences within the athletic population, and that some of the problems in athletics may be inherent to specific athletes, rather than in athletics as a whole.

The first hypothesis to be tested suggested that female athletes possess greater academic aptitude and achieve greater academic success than their male counterparts. This hypothesis was confirmed, as female athletes achieved significantly higher in a majority of measures of academic aptitude and achievement than their male counterparts in both the revenue and non-revenue sports.

Female athletes come to Ohio State University with significantly higher test scores than their male counterparts, and are in a significantly higher percentile of their high school graduating class. Thus, they predict greater academic success in college.

Comparing the quarter of competition with the off season, there appeared to be no significant difference in the academic achievement of female athletes in one quarter as compared with another. The male athletes, however, performed significantly lower during the quarter of competition. And the grant-in-aid status of female athletes did not effect academic achievement. Both categories of female athletes, grant-in-aid and non-grant-in-aid, achieved significantly higher than all male athletes.

The reasons for these results may be simple or very complex. The first basic argument is that women college students at O.S.U. generally achieve higher than men, averaging 2.59 as compared with the male average of 2.39

Female athletes may or may not feel the "pressure" of competition, as do some of the male athletes, because the possibilities for a professional career do not exist. Female athletes may also possess a higher motivation for academic achievement because of the absence of these professional opportunities. And, as the academic aptitude measures for female athletes

were found to be higher than those of the male athletes, it may be possible that coaches of women's sports are using different academic criteria in recruiting potential female athletes.

A second hypothesis supported by this study suggested that athletes in the non-revenue producing sports would achieve academically higher than their counterparts in the revenue producing sports. This hypothesis was supported by significant differences in a majority of the academic achievement variables.

The examination of high school rank and college baord scores showed athletes in the revenue sports to score significantly lower on the ACT test and to rank in a lower percentile of their high school graduating class. Thus, they predicted a significantly lower level of achievement in college at their date of matriculation from high school.

Athletes in the revenue producing sports achieved significantly lower than both male and female athletes in non-revenue sports in a majority of the variables measured. The one area in which a significant difference was not detected was in the number of BER courses scheduled each quarter. Because of the need for athletes to make "normal progress toward a degree", they must schedule a minimum number of required courses, or be ruled ineligible to compete. This probably accounts for the similarities between the revenue sports and the non-revenue sports in most of the progress variables measured. It should be noted here that overall, revenue athletes tended to schedule significantly lower percentages of BER courses during their first two years, filling their schedules out with other types of courses.

Revenue athletes also achieved significantly lower than both non-revenue males and females during their quarter of competition; and BER

point hour ratio during the quarter of competition for revenue athletes was, on the average, significantly lower.

Differences in academic achievement between grant-in-aid and non-grant-in-aid athletes were hypothesized. These differences initially appeared to be significant. However, when the revenue sports were controlled for, the differences in academic achievement between grant-in-aid athletes and non-grant-in-aid athletes were not significant.

These grant-in-aid data, classified further by sex, demonstrated that female athletes, whether on grant-in-aid or not receiving grant-in-aid, achieved significantly higher than male athletes in both the revenue and non-revenue sports. Male grant-in-aid athletes in the non-revenue sports achieved significantly higher than male revenue athletes on full grants, as did the male non-grant-in-aid athletes.

The progress variables examined in this study would serve to suggest that quantitative eligibility requirements and "normal progress" requirements serve to keep athletes scheduled in a fairly high number of credit hours each quarter, whether they be grant-in-aid athletes or non-grant-in-aid athletes. It is the male non-grant-in-aid non-revenue athletes who attempt fewer hours on the average each quarter and during the quarter of competition. Male revenue athletes schedule a high number of hours each quarter and during the quarter of competition; but this scheduling may have been informed by the need for athletes to withdraw from a course should they get into academic difficulty, and still have the minimum number of hours required to remain eligible for competition. Although there are few differences in the number of BER courses scheduled during the quarter of competition, the male revenue athletes do achieve significantly lower in those courses scheduled, and they attempt overall a

significantly lower percentage of BER courses. The male grant-in-aid athletes in the revenue sports, it would seem, schedule about the same number of BER courses as other athletes during the quarter of competition and then fill out their schedules with additional hours of coursework in other areas.

Another hypothesis suggested that upperclassmen, who had had time to adjust to the academic envirnoment, would achieve higher than their freshmen counterparts. This hypothesis was not supported. No significant differences were found in measures of academic achievement among the freshmen and the upperclassmen. The upperclassmen achieved slightly higher in overall cumulative point hour ratio and in BER point hour ratio, but the freshmen actually achieved slightly higher during the quarter of competition. The proponents of a rule in the N.C.A.A. to do away with freshmen eligibility would find no support for that decision in this portion of the study. Later in this chapter, however, a more specific solution to the freshmen eligibility question will be addressed.

The data on team sports versus individual sports supports the hypothesis that athletes competing as individuals achieve higher academically than athletes competing as members of teams. In every variable measured, the athletes competing as individuals achieved greater success than those athletes competing as members of teams. When these team/individual data were presented by sex and the revenue sports were controlled for, female individual competitors still achieved greater success than female team members, and male non-revenue individual competitors achieved greater success than their team member counterparts. There are two arguments for why these differences occur. One is that brighter students choose individual sports which they may carry into their futures as lifetime

avocations. The other argument is that the increased mental discipline necessary for competition in individual sports, adds to one's mental discipline and academic success. Regardless, athletes competing as individuals do achieve greater success than athletes competing as members of teams.

Another hypothesis supported by this study, suggested that there would be differences in academic achievement and progress during the quarter of competition among different combinations of athletes. Initially, it was determined that female athletes achieve significantly higher academically during the quarter of competition than male non-revenue athletes, and that both of these combinations achieve significantly higher than male revenue athletes in the quarter of competition. As far as progress was concerned, male revenue athletes actually attempted a significantly greater number of credit hours during the quarter of competition than both male and female non-revenue athletes. When the data were presented by grant-in-aid status, non-grant-in-aid athletes achieved significantly higher academically during the quarter of competition than athletes receiving grant-in-aid. Further analysis showed no differences in academic achievement during the quarter of competition among female athletes whether receiving grant-in-aid or not receiving grant-in-aid, or between male non-revenue athletes, whether receiving grant-in-aid or not. It was the male revenue athletes who achieved at a singificantly lower level than all other athletes during the quarter of competition. Factors which could account for this poor performance during the quarter of competition include: time commitment required for practice, travel, and competition; concern with athletic success during competition; and lack of motivation due to absence of non-athletic goals.

The examination of BER grades during the quarter of competition demonstrated that more females, although not significantly more, actually achieved better grades in their BER coursework during the quarter of competition. A significantly higher number of both the male revenue and male non-revenue athletes, however, achieved better grades in BER coursework during their off seasons.

It was conjectured that students who were undecided about an academic major would achieve less success academically than those who had decided upon a major; and that athletes with less academic aptitude would choose those majors that were perceived either to be more compatible with their athletic goals or were less intimidating academically. This hypothesis was confirmed.

More grant-in-aid athletes in each of the sex-revenue combinations chose a major in physical education, recreation or communications than in any other major area of study. Greater numbers of non-grant-in-aid athletes chose majors in administrative science, pre-med, engineering, the sciences, or other areas. The distribution of minority revenue athletes in physical education, recreation and communications majors compared to other areas of study indicated that these athletes choose these majors in greater numbers than other athletes. Also, a greater number of males in the non-revenue sports were undecided about choice of academic major when compared with females in non-revenue sports.

Test scores indicated that those with significantly lower academic aptitude did choose to major in the physical education, recreation and communications areas, for whatever reasons. Academic achievement data, however, demonstrated that undecided majors, whose academic aptitude was significantly higher than the physical education, recreation, and

communications majors, actually achieved lower than those athletes. Undecided majors achieved significantly lower than athletes in all majors addressed in this study.

The data for athletes by minority status supports the last hypothesis which stated that minority athletes would achieve with less success academically than their non-minority counterparts. An examination of the distribution of minorities in the total athletic population by sex-revenue status indicated a high percentage of minorities (41%) in the revenue sports, as compared with a small percentage of minorities, 4% and 5% respectively in the female and male non-revenue sports. The data presented by sex-revenue and minority status indicated that black male revenue athletes performed significantly lower in cumulative point hour ratio than both white male revenue and non-revenue athletes. White male revenue athletes, on the other hand, did not perform significantly lower academically than white male non-revenue athletes, but in fact, achieved slightly (but not significantly) higher. During the quarter of competition the black male revenue athletes again performed significantly lower academically than all other male athletes; and the white male revenue athletes achieved lower (but not significantly lower) than the white male non-revenue athletes. Black male revenue athletes also predicted lower academic achievement than other parts of the athletic population, and relative to the rest of the sample, they actually achieved lower than could be expected from the prediction table.

After analysis of the data, two portions of the athletic population emerge as having significant problems in academic aptitude and achievement. Those athletes who are undecided about choice of academic major and who

may not have non-athletic goals, and black revenue athletes demonstrate significantly lower academic aptitude and achievement than other student-athletes.

Recommendations for Further Research

Further research is indicated by the data presented in this study. The data presented in this study are specific to the Ohio State University and to its athletic program. The initial recommendation of this study is that comparative data on other institutions with major athletic programs be assembled. Such a large-scale study would assemble a larger pool of minority athletes and enable an examination of male and female minorities in the non-revenue sports. This would aid in determining if those other minority athletes had the same academic problems as the revenue athletes, or if this problem is specific to revenue sports and aided by the myth of the black professional athlete. In addition, a comparison of similar data with data on athletes from institutions with smaller athletic programs might determine if these problems are specific to black athletes, or to the programs that place heavier emphasis on their revenue sports.

The data in this study indicated no differences in the achievement of freshmen as compared with upperclassmen. These data, however, did not address specifically the question of freshmen in the revenue sports. Further study in this area would be indicated.

Additional research into the choice of academic majors by student-athletes is also recommended. A survey of student-athletes' reasons for making decisions about academic majors and their plans for the future use

of those majors would seem to be indicated. In addition, a survey of athletes' attitudes regarding their college education and experience would be of value.

Further comparison of athletes with their non-athlete counterparts would seem without value. What is indicated are further studies which would serve to isolate areas of weakness in the total athletic population. That is what this study has attempted to do.

Recommendations for Practice

The data presented in this study would indicate some recommendations for the presentation of academic support services to student-athletes.

Traditionally, academic support services for student-athletes have consisted of tutoring and study-table. The data presented in this study would indicate that such assistance, while probably valuable, is not enough, and often, may be too late.

The data presented in this study indicate two specific problem areas within the athletic population. Black revenue athletes and athletes who are undecided about their academic goals demonstrate low academic achievement at O.S.U. Other types of athletes may have problems which effect their academic achievement, but they appear to be, on the average, succeeding at college work.

The Ohio State University adheres to a philosophy of open admissions and most black athletes admitted to O.S.U. meet the basic minimum requirements for admission to the university. Basic eligibility requirements for freshmen at O.S.U. require a 2.0 grade point average out of high school and graduation. As long as these athletes are admissable to the university, are eligible to compete, and are of exceptional athletic ability, it

is unrealistic, and perhaps even unfair, to expect that they would not be recruited by an athletic program. Thus, if we are to continue recruiting black athletes in the revenue sports, who predict and achieve lower than the other portions of the athletic population, it is time to acknowledge and accept the responsibility.

Such responsibility should begin with initial recruitment of the student-athlete. The cost of a full grant-in-aid at O.S.U. for the academic year 1981-82 ranged from $3851 for an in-state student-athlete to $5981 for an out-of-state student-athlete. This could amount to more than $24,000 for one student-athlete for four years. The monetary cost alone, should warrant measures which would insure that any student-athlete recruited by an institution should be capable of and motivated toward achieving academically.

In the process of recruitment of any football and basketball player, the coach makes at least one visit to the athlete's home. An initial recommendation is to send an academic counselor into the home with the coach. This would serve two purposes. First, it would impress upon the athlete and his parents the importance of academics within the athletic program and stress that the athlete is being recruited for more than his athletic ability. Second, the academic counselor could begin to assess the student's motivation and his parents' motivation for college attendance. Then, as recruiting decisions are being made, the academic counselor could have input on not only the athlete's academic potential, but also on his academic motivation or lack of it, and his parental support.

Additional recommendations for coaches in recruiting require realistically assessing athletes for academic as well as athletic ability. If athletes who meet basic requirements for admission and eligibility are not strong enough to make it academically, perhaps the coaching staff and the department should set their own minimal standards for success at O.S.U., such as a baseline predictive measure of at least 2.0. And, once the athlete is in attendance at the institution, the coaching staff needs to remember that even during an intense (and perhaps, winning) season of competition, that that athlete is still a student with academic pressures. The data which were presented on academic achievement in the quarter of competition, indicate a severe problem in the revenue sports during the competitive season. Academic studies need to be stressed as much as practice. When the team is traveling, time for studying has to be not only allocated, but enforced.

Once the athlete has signed his Letter of Intent to attend the institution on an athletic-grant-in-aid, the assessment process should not stop. Football players report to training weeks before classes begin in the Autumn. This time can be invaluable for initial assessment of athletes' academic abilities, attitudes towards education, basic study skills, and career interests.

Early targeting of educationally disadvantaged student-athletes, as Gurney and Robinson (1981) suggest, early identification of athletes undecided about academic major and early identification of athletes hoping to major in professional sports should be attempted. Career guidance might be useful in suggesting alternatives to student-athletes who may be unaware of other opportunities available to them. Such counseling should

also aim at realistic career decision-making, and include a realistic examination of opportunities in professional sports.

Prior to the beginning of scheduled courses, various types of assessment are also suggested by Yuna (1981) and Gurney and Robinson (1981). A battery of tests which might identify learning disabilities, reading levels, comprehension rate and vocabulary proficiency, scholastic aptitude, previous development of study habits, and occupational interests, is suggested. If remedial work is necessary, it can then be scheduled. The results of all tests might also be available to counselors throughout the athlete's academic career.

The support services available to the athlete after enrollment should stem from this initial assessment. In addition to tutorial support and study table, Yuna and Gurney and Robinson suggest additional basic skill development, which may not be provided by other areas of the university. These include reading and vocabulary skills and academic learning skills such as time management, study methods, note taking, and test anxiety and stress management. During this time of cutbacks in critical remedial services provided by other areas of the university, the athletic department, if it continues to recruit the types of athletes it has in the past, will be forced to provide these remedial and basic services itself.

Career guidance and personal counseling also remain critical in assisting student-athletes who lack non-athletic goals or are undecided about choice of academic major. This may require the addition to the staff of individuals trained in these areas of counseling. If this is not economically feasible, a close working relationship with an individual or individuals at the counseling center, who are interested in the problems

of athletes, would be necessary. Under any economic circumstances, the athletic department should take more advantage of and work more closely with other areas of the university offering services which could be valuable to these student-athletes.

If study table attendance is representative of the total athletic population at Ohio State, it would appear to be succeeding as a basic support mechanism. If that level of support maintenance is to be continued for all athletes, then perhaps additional maintenance ought to be provided for revenue, and especially black revenue athletes. This might be in the form of additional hours spent at study table, or individual or group sessions providing more intense work in weak areas of study and skill.

The primary results of this study demonstrate that there are specific problem areas within the O.S.U. athletic population. An awareness of the problem is an important first step. Black athletes come to O.S.U. for four years. It may be impossible to undo 18 or 19 years of socialization and cultural beliefs in that short a period of time. It is possible to do some things which will have an impact on a specific athlete, but it is not realistic to believe one can turn the problem around entirely. There is not a simple answer to the problem of black athletes in revenue sports. To a large extent, the problem is beyond the control of any one institution. The best one can do is to attempt to reduce, step by step, the amount of difference which exists between the academic performance of different types of athletes, by bringing up those who perform at the lower levels.

This study has examined different portions of the athletic population in an effort to isolate the problem areas in the relationship between athletics and academics on the collegiate level. Problems in academic achievement were noted in two areas of the population, those athletes who were undecided about academic major, and black male revenue athletes. Further research with both of these types of athletes should be more detailed. This additional research could provide institutions with data to assist them in the provision of better academic support services for athletes and to realistically assess the academic problems in their athletic programs. This study should provide a firm basis, upon which, it is hoped, others will build.

APPENDIX A

COURSES MEETING BASIC EDUCATION REQUIREMENTS*

HUMANITIES:

Literature taught in English
Arabic 271,272,273,274
Chinese 251,252
Classics H124,H125,220,221,501,502,503
Comparative Studies in the Humanities 101,102,103,203,205,207, 208,215.01,215.02,234,239,301,305
English 160,220,260,261,262,270,272,273,275,280,281,283,284,285, 290,H296,H299
French 271,272,273
German 260,261,262
Hebrew 271,272,273,274
Italian 271,272,273
Japanese 251,252
Polish 220,221
Portuguese 271
Russian 220,221,222
Serbo-Croatian 220,221
Slavic 219
Spanish 271,272,273

Taught in foreign Language
French 421,422,423
German 221,222
Greek 221,222,223,224,225
Hebrew 421,422
Italian 421,422,423
Latin 104,200,201,202,203,204,205
Russian 551,552,553
Spanish 421,422,423

Other Humanities
Arabic 241
Art 190,290
Arts 160
Black Studies 101,244,251,284,345,376,581
Chinese 230,231,232
Classics 120,121,122,222,223,224,225
Communication 213,330
Dance 290
German 299,361,362,463
Hebrew 241

Other Humanities (contd.)
History of Art 111,210,211,212,213,216,515,520,530
Japanese 231
Linguistics 201,285
Medieval and Renaissance Studies 210,212,213,214,215
Music 141,142,144,145,146,147,148,149,241,242,243,244
Philosophy 101,130,150,210,230,240,250,270,511,512,513,520
Russian 135
Slavic 130
Theatre 100,271,531,532,533
Women's Studies 201

SOCIAL SCIENCES:

Anthropology 201,202,412,421.01,421.03,421.04,421.05,500,
505,510,515,525
Black Studies 248
Communication 209,225
Criminology and Criminal Justice 410
Geography 200,240,400,560
History 100.01,100.02,100.03,140.01,140.02,140.03,150.01,
150.02,150.03,201,203,205,207,209,211,220,233,235,237,
240,251,252,258,260,266,270
International Studies 230,231,235,240,245,250
Labor and Human Resources 211
Political Science 101,105,165,201,202,210,215,300,345,573
Psychology 100,101,210,300,320,330
Rural Sociology 105,542
Sociology 101,212,206,280,407, 410,430,463,464,480,490,545,590

NATURAL SCIENCES:

Anthropology 200
Astronomy 150,155,191,192
Biochemistry 105,211,251
Biology 106,110
Botany 112, 202,210,260,313.01,313.02
Chemistry 101,102,121,122,123,H201,H202,H203,211,212,221,235
Entomology 200.01,200.02,361,460,01,460.02,460.03,500
Geography 220
Geology and Minerology 100.01,100.02,100.03,103,121,122,201,
204,206,212,214
Microbiology 301,509
Physical Sciences 180
Physics 100.01,100.02,101,102,111,112,113,131,132,133,501,503
Zoology 201,232,235,240,313.01,313.02

*From the requirements for the Colleges of Arts and Sciences, Education, Agriculture and Home Economics, Administration, and Allied Medicine.

APPENDIX B

PREDICTION TABLE OF THE BIG TEN CONFERENCE

INTERCOLLEGIATE (BIG TEN) CONFERENCE

Predicted First Year Grade Point Averages
Based Upon Study Approved January 1965

High School Rank																																
SAT-Tyrell	ACT	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	75	78	81	84	87	90	93	96	99
400		.67	.70	.74	.77	.81	.84	.88	.91	.95	.98	1.02	1.05	1.09	1.12	1.16	1.19	1.23	1.26	1.30	1.33	1.37	1.40	1.44	1.47	1.51	1.54	1.57	1.61	1.64	1.68	1.71	1.75	1.78	1.82
420	9	.69	.73	.76	.79	.83	.86	.90	.93	.97	1.00	1.04	1.07	1.11	1.14	1.18	1.21	1.25	1.28	1.32	1.35	1.39	1.42	1.46	1.49	1.53	1.56	1.60	1.63	1.67	1.71	1.74	1.78	1.81	1.85
440		.71	.75	.78	.82	.85	.89	.93	.96	.99	1.03	1.06	1.09	1.13	1.16	1.20	1.23	1.27	1.30	1.34	1.38	1.41	1.44	1.48	1.51	1.55	1.58	1.62	1.65	1.69	1.72	1.76	1.79	1.83	1.86
460	10	.73	.77	.80	.84	.87	.91	.94	.98	1.01	1.05	1.08	1.12	1.15	1.18	1.22	1.25	1.29	1.32	1.36	1.39	1.43	1.46	1.50	1.53	1.57	1.60	1.64	1.67	1.71	1.74	1.78	1.82	1.85	1.89
480		.75	.79	.82	.86	.89	.93	.96	1.00	1.03	1.07	1.10	1.14	1.17	1.21	1.24	1.28	1.31	1.34	1.38	1.41	1.45	1.48	1.52	1.55	1.59	1.62	1.66	1.69	1.73	1.76	1.80	1.83	1.87	1.90
500	11	.77	.81	.84	.88	.91	.95	.98	1.02	1.05	1.09	1.12	1.16	1.19	1.23	1.26	1.30	1.33	1.37	1.40	1.44	1.47	1.50	1.54	1.57	1.61	1.64	1.68	1.71	1.75	1.78	1.82	1.85	1.89	1.92
520		.79	.83	.86	.90	.93	.97	1.00	1.04	1.07	1.11	1.14	1.18	1.21	1.25	1.28	1.32	1.35	1.39	1.42	1.46	1.49	1.53	1.56	1.60	1.63	1.66	1.70	1.73	1.77	1.80	1.84	1.87	1.91	1.94
540	12	.82	.85	.89	.92	.95	.99	1.02	1.06	1.09	1.13	1.16	1.20	1.23	1.27	1.30	1.34	1.37	1.41	1.44	1.48	1.51	1.55	1.58	1.62	1.65	1.69	1.72	1.76	1.79	1.82	1.86	1.89	1.93	1.96
560		.84	.87	.91	.94	.98	1.01	1.05	1.08	1.11	1.15	1.18	1.22	1.25	1.29	1.32	1.36	1.39	1.43	1.46	1.50	1.53	1.57	1.60	1.64	1.67	1.71	1.74	1.78	1.81	1.85	1.88	1.92	1.95	1.99
580	13	.86	.89	.93	.96	1.00	1.03	1.07	1.10	1.14	1.17	1.21	1.24	1.27	1.31	1.34	1.38	1.41	1.45	1.48	1.52	1.55	1.59	1.62	1.66	1.69	1.73	1.76	1.80	1.83	1.87	1.90	1.94	1.97	2.01
600	14	.88	.91	.95	.98	1.02	1.05	1.09	1.12	1.16	1.19	1.22	1.26	1.30	1.33	1.37	1.40	1.44	1.47	1.50	1.54	1.57	1.61	1.64	1.68	1.71	1.75	1.78	1.82	1.85	1.89	1.92	1.96	1.99	2.03
620		.90	.93	.97	1.00	1.04	1.07	1.11	1.14	1.18	1.21	1.25	1.28	1.32	1.35	1.39	1.42	1.46	1.49	1.53	1.56	1.60	1.63	1.66	1.70	1.73	1.77	1.80	1.84	1.87	1.91	1.94	1.98	2.01	2.05
640	15	.92	.95	.99	1.02	1.06	1.09	1.13	1.16	1.20	1.23	1.27	1.30	1.34	1.37	1.41	1.44	1.48	1.51	1.55	1.58	1.62	1.65	1.69	1.72	1.76	1.79	1.82	1.86	1.89	1.93	1.96	2.00	2.03	2.07
660		.94	.98	1.01	1.05	1.08	1.11	1.15	1.18	1.22	1.25	1.29	1.32	1.36	1.39	1.43	1.46	1.50	1.53	1.57	1.60	1.64	1.67	1.71	1.74	1.78	1.81	1.85	1.88	1.92	1.95	1.99	2.02	2.06	2.09
680	16	.96	1.00	1.03	1.07	1.10	1.14	1.17	1.21	1.24	1.27	1.31	1.34	1.38	1.41	1.45	1.48	1.52	1.55	1.59	1.62	1.66	1.69	1.73	1.76	1.80	1.83	1.87	1.90	1.94	1.97	2.01	2.04	2.08	2.11
700		.98	1.02	1.05	1.09	1.12	1.16	1.19	1.23	1.26	1.30	1.33	1.37	1.40	1.43	1.47	1.50	1.54	1.57	1.61	1.64	1.68	1.71	1.75	1.78	1.82	1.85	1.89	1.92	1.96	1.99	2.03	2.06	2.10	2.13
720		1.00	1.04	1.07	1.11	1.14	1.18	1.21	1.25	1.28	1.32	1.35	1.39	1.42	1.46	1.49	1.53	1.56	1.59	1.63	1.66	1.70	1.73	1.77	1.80	1.84	1.87	1.91	1.94	1.98	2.01	2.05	2.08	2.12	2.15
740		1.02	1.06	1.09	1.13	1.16	1.20	1.23	1.27	1.30	1.34	1.37	1.41	1.44	1.48	1.51	1.55	1.58	1.62	1.65	1.69	1.72	1.75	1.79	1.82	1.86	1.89	1.93	1.96	2.00	2.03	2.07	2.10	2.14	2.17
760	17	1.04	1.08	1.11	1.15	1.18	1.22	1.25	1.29	1.32	1.36	1.39	1.43	1.46	1.50	1.53	1.57	1.60	1.64	1.67	1.71	1.74	1.78	1.81	1.85	1.88	1.92	1.95	1.99	2.02	2.06	2.09	2.12	2.16	2.19
780		1.07	1.10	1.14	1.17	1.20	1.24	1.27	1.31	1.34	1.38	1.41	1.45	1.48	1.52	1.55	1.59	1.62	1.66	1.69	1.73	1.76	1.80	1.83	1.87	1.90	1.94	1.97	2.01	2.04	2.08	2.11	2.14	2.18	2.21
800		1.09	1.12	1.16	1.19	1.23	1.26	1.30	1.33	1.37	1.40	1.43	1.47	1.50	1.54	1.57	1.61	1.64	1.68	1.71	1.75	1.78	1.82	1.85	1.89	1.92	1.96	1.99	2.03	2.06	2.10	2.13	2.17	2.20	2.24
820	18	1.11	1.14	1.18	1.21	1.25	1.28	1.32	1.35	1.39	1.42	1.46	1.49	1.53	1.56	1.59	1.63	1.66	1.70	1.73	1.77	1.80	1.84	1.87	1.91	1.94	1.98	2.01	2.05	2.08	2.12	2.15	2.19	2.22	2.26
840	19	1.13	1.16	1.20	1.23	1.27	1.30	1.34	1.37	1.41	1.44	1.48	1.51	1.55	1.58	1.62	1.65	1.69	1.72	1.75	1.79	1.82	1.86	1.89	1.93	1.96	2.00	2.03	2.07	2.10	2.14	2.17	2.21	2.24	2.28
860		1.15	1.18	1.22	1.25	1.29	1.32	1.36	1.39	1.43	1.46	1.50	1.53	1.57	1.60	1.64	1.67	1.71	1.74	1.78	1.81	1.85	1.88	1.92	1.95	1.99	2.02	2.05	2.09	2.12	2.16	2.19	2.23	2.26	2.30
880		1.17	1.20	1.24	1.27	1.31	1.34	1.38	1.41	1.45	1.48	1.52	1.55	1.59	1.62	1.66	1.69	1.73	1.76	1.80	1.83	1.87	1.90	1.94	1.97	2.01	2.04	2.08	2.11	2.14	2.18	2.21	2.25	2.28	2.32
900	20	1.19	1.23	1.26	1.30	1.33	1.37	1.40	1.43	1.47	1.50	1.54	1.57	1.61	1.64	1.68	1.71	1.75	1.78	1.82	1.85	1.89	1.93	1.96	1.99	2.03	2.06	2.10	2.13	2.17	2.20	2.24	2.27	2.30	2.34
920		1.21	1.25	1.28	1.32	1.35	1.39	1.42	1.46	1.49	1.53	1.56	1.59	1.63	1.66	1.70	1.73	1.77	1.80	1.84	1.87	1.90	1.94	1.98	2.01	2.05	2.08	2.12	2.15	2.19	2.22	2.26	2.29	2.33	2.36
940	21	1.23	1.27	1.30	1.34	1.37	1.41	1.44	1.48	1.51	1.55	1.58	1.62	1.65	1.69	1.72	1.75	1.79	1.82	1.86	1.89	1.93	1.96	2.00	2.03	2.07	2.10	2.14	2.17	2.21	2.24	2.28	2.31	2.35	2.38
960		1.25	1.29	1.32	1.36	1.39	1.43	1.46	1.50	1.53	1.57	1.60	1.64	1.67	1.71	1.74	1.78	1.81	1.85	1.88	1.91	1.95	1.98	2.02	2.05	2.09	2.12	2.16	2.19	2.23	2.26	2.30	2.33	2.37	2.40
980		1.27	1.31	1.34	1.38	1.41	1.45	1.48	1.52	1.55	1.59	1.62	1.66	1.69	1.73	1.76	1.80	1.83	1.87	1.90	1.94	1.97	2.01	2.04	2.07	2.11	2.14	2.18	2.21	2.25	2.28	2.32	2.35	2.39	2.42
1000	22	1.30	1.33	1.36	1.40	1.43	1.47	1.50	1.54	1.57	1.61	1.64	1.68	1.71	1.75	1.78	1.82	1.85	1.89	1.92	1.96	1.99	2.03	2.06	2.10	2.13	2.17	2.20	2.24	2.27	2.31	2.34	2.37	2.41	2.44
1020		1.32	1.35	1.38	1.42	1.46	1.49	1.52	1.56	1.59	1.63	1.66	1.70	1.73	1.77	1.80	1.84	1.87	1.91	1.94	1.98	2.01	2.05	2.08	2.12	2.15	2.19	2.22	2.26	2.29	2.33	2.36	2.40	2.43	2.46
1040	23	1.34	1.37	1.41	1.44	1.48	1.51	1.55	1.58	1.62	1.65	1.68	1.72	1.75	1.79	1.82	1.86	1.89	1.93	1.96	2.00	2.03	2.07	2.10	2.14	2.17	2.21	2.24	2.28	2.31	2.35	2.38	2.42	2.45	2.49
1060		1.36	1.39	1.43	1.46	1.50	1.53	1.57	1.60	1.64	1.67	1.71	1.74	1.78	1.81	1.85	1.88	1.91	1.95	1.98	2.02	2.05	2.09	2.12	2.16	2.19	2.23	2.26	2.30	2.33	2.37	2.40	2.44	2.47	2.51
1080	24	1.38	1.41	1.45	1.48	1.52	1.55	1.59	1.62	1.66	1.69	1.73	1.76	1.80	1.83	1.87	1.90	1.94	1.97	2.01	2.04	2.07	2.11	2.14	2.18	2.21	2.25	2.28	2.32	2.35	2.39	2.42	2.46	2.49	2.53
1100		1.40	1.43	1.47	1.50	1.54	1.57	1.61	1.64	1.68	1.71	1.75	1.78	1.82	1.85	1.89	1.92	1.96	1.99	2.03	2.06	2.10	2.13	2.17	2.20	2.23	2.27	2.30	2.34	2.37	2.41	2.44	2.48	2.51	2.55
1120	25	1.42	1.46	1.49	1.53	1.56	1.59	1.63	1.66	1.70	1.73	1.77	1.80	1.84	1.87	1.91	1.94	1.98	2.01	2.05	2.08	2.12	2.15	2.19	2.22	2.26	2.29	2.33	2.36	2.40	2.43	2.46	2.50	2.53	2.57
1140		1.44	1.48	1.51	1.55	1.58	1.62	1.65	1.69	1.72	1.75	1.79	1.82	1.86	1.89	1.93	1.96	2.00	2.03	2.07	2.10	2.14	2.17	2.21	2.24	2.28	2.31	2.35	2.38	2.42	2.45	2.49	2.52	2.56	2.59
1160		1.46	1.50	1.53	1.57	1.60	1.64	1.67	1.71	1.74	1.78	1.81	1.85	1.88	1.92	1.95	1.99	2.02	2.06	2.09	2.12	2.16	2.19	2.23	2.26	2.30	2.33	2.37	2.40	2.44	2.47	2.51	2.54	2.58	2.61
1180	26	1.48	1.52	1.55	1.59	1.62	1.66	1.69	1.73	1.76	1.80	1.83	1.87	1.90	1.94	1.97	2.01	2.04	2.08	2.11	2.14	2.18	2.21	2.25	2.28	2.32	2.35	2.39	2.42	2.46	2.49	2.53	2.56	2.60	2.63
1200		1.50	1.54	1.57	1.61	1.64	1.68	1.71	1.75	1.78	1.82	1.85	1.89	1.92	1.96	1.99	2.03	2.06	2.10	2.13	2.17	2.20	2.24	2.27	2.30	2.34	2.37	2.41	2.44	2.48	2.51	2.55	2.58	2.62	2.65
1220	27	1.53	1.56	1.59	1.63	1.66	1.70	1.73	1.77	1.80	1.84	1.87	1.91	1.94	1.98	2.01	2.05	2.08	2.12	2.15	2.19	2.22	2.26	2.29	2.33	2.36	2.40	2.43	2.46	2.50	2.53	2.57	2.60	2.64	2.67
1240		1.55	1.58	1.62	1.65	1.69	1.72	1.75	1.79	1.82	1.86	1.89	1.93	1.96	2.00	2.03	2.07	2.10	2.14	2.17	2.21	2.24	2.28	2.31	2.35	2.38	2.42	2.45	2.49	2.52	2.56	2.59	2.63	2.66	2.69
1260	28	1.57	1.60	1.64	1.67	1.71	1.74	1.78	1.81	1.85	1.88	1.91	1.95	1.98	2.02	2.05	2.09	2.12	2.16	2.19	2.23	2.26	2.30	2.33	2.37	2.40	2.44	2.47	2.51	2.54	2.58	2.61	2.65	2.68	2.72
1280		1.59	1.62	1.66	1.69	1.73	1.76	1.80	1.83	1.87	1.90	1.94	1.97	2.01	2.04	2.07	2.11	2.14	2.18	2.21	2.25	2.28	2.32	2.35	2.39	2.42	2.46	2.49	2.53	2.56	2.60	2.63	2.67	2.70	2.74
1300		1.61	1.64	1.68	1.71	1.75	1.78	1.82	1.85	1.89	1.92	1.96	1.99	2.03	2.06	2.10	2.13	2.17	2.20	2.24	2.27	2.31	2.34	2.37	2.41	2.44	2.48	2.51	2.55	2.58	2.62	2.65	2.69	2.72	2.76
1320	29	1.63	1.66	1.70	1.73	1.77	1.80	1.84	1.87	1.91	1.94	1.98	2.01	2.05	2.08	2.12	2.15	2.19	2.22	2.26	2.29	2.33	2.36	2.40	2.43	2.46	2.50	2.53	2.57	2.60	2.64	2.67	2.71	2.74	2.78
1340		1.65	1.68	1.72	1.75	1.79	1.82	1.86	1.89	1.93	1.96	2.00	2.03	2.07	2.10	2.14	2.17	2.21	2.24	2.28	2.31	2.35	2.38	2.42	2.45	2.49	2.52	2.56	2.59	2.63	2.66	2.69	2.73	2.76	2.80
1360		1.67	1.71	1.74	1.78	1.81	1.85	1.88	1.91	1.95	1.98	2.02	2.05	2.09	2.12	2.16	2.19	2.23	2.26	2.30	2.33	2.37	2.40	2.44	2.47	2.51	2.54	2.58	2.61	2.65	2.68	2.72	2.75	2.78	2.82
1380		1.69	1.73	1.76	1.80	1.83	1.87	1.90	1.94	1.97	2.01	2.04	2.07	2.11	2.14	2.18	2.21	2.25	2.28	2.32	2.35	2.39	2.42	2.46	2.49	2.53	2.56	2.60	2.63	2.67	2.70	2.74	2.77	2.81	2.84
1400		1.71	1.75	1.78	1.82	1.85	1.89	1.92	1.96	1.99	2.03	2.06	2.10	2.13	2.17	2.20	2.23	2.27	2.30	2.34	2.37	2.41	2.44	2.48	2.51	2.55	2.58	2.62	2.65	2.69	2.72	2.76	2.79	2.83	2.86
1420		1.73	1.77	1.80	1.84	1.87	1.91	1.94	1.98	2.01	2.05	2.08	2.12	2.15	2.19	2.22	2.26	2.29	2.33	2.36	2.39	2.43	2.46	2.50	2.53	2.57	2.60	2.64	2.67	2.71	2.74	2.78	2.81	2.85	2.88
1440		1.75	1.79	1.82	1.86	1.89	1.93	1.96	2.00	2.03	2.07	2.10	2.14	2.17	2.21	2.24	2.28	2.31	2.35	2.38	2.42	2.45	2.49	2.53	2.56	2.59	2.63	2.66	2.69	2.73	2.76	2.80	2.83	2.87	2.90
1460		1.78	1.81	1.84	1.88	1.91	1.95	1.98	2.02	2.05	2.09	2.12	2.16	2.19	2.23	2.26	2.30	2.33	2.37	2.40	2.44	2.47	2.51	2.54	2.58	2.61	2.65	2.68	2.71	2.75	2.78	2.82	2.85	2.89	2.92
1480		1.80	1.83	1.87	1.90	1.94	1.97	2.00	2.04	2.07	2.11	2.14	2.18	2.21	2.25	2.28	2.32	2.35	2.39	2.42	2.46	2.49	2.53	2.56	2.60	2.63	2.67	2.70	2.74	2.77	2.81	2.84	2.88	2.91	2.94
1500		1.82	1.85	1.89	1.92	1.96	1.99	2.03	2.06	2.10	2.13	2.16	2.20	2.23	2.27	2.30	2.34	2.37	2.41	2.44	2.48	2.51	2.55	2.58	2.62	2.65	2.69	2.72	2.76	2.79	2.83	2.86	2.90	2.93	2.97
1520		1.84	1.87	1.91	1.94	1.98	2.01	2.05	2.08	2.12	2.15	2.19	2.22	2.26	2.29	2.33	2.36	2.39	2.43	2.46	2.50	2.53	2.57	2.60	2.64	2.67	2.71	2.74	2.78	2.81	2.85	2.88	2.92	2.95	2.99
1540		1.86	1.89	1.93	1.96	2.00	2.03	2.07	2.10	2.14	2.17	2.21	2.24	2.28	2.31	2.35	2.38	2.41	2.45	2.48	2.52	2.55	2.59	2.62	2.66	2.69	2.73	2.76	2.80	2.83	2.87	2.90	2.94	2.97	3.01
1560		1.88	1.91	1.95	1.98	2.02	2.05	2.09	2.12	2.16	2.19	2.23	2.26	2.30	2.33	2.37	2.40	2.44	2.47	2.51	2.54	2.57	2.61	2.64	2.68	2.71	2.75	2.78	2.82	2.85	2.89	2.92	2.96	2.99	3.03
1580		1.90	1.93	1.97	2.00	2.04	2.07	2.11	2.14	2.18	2.21	2.25	2.28	2.32	2.35	2.39	2.42	2.46	2.49	2.53	2.56	2.60	2.63	2.67	2.70	2.73	2.77	2.80	2.84	2.87	2.91	2.94	2.98	3.01	3.05
1600		1.92	1.96	1.99	2.02	2.06	2.09	2.13	2.16	2.20	2.23	2.27	2.30	2.34	2.37	2.41	2.44	2.48	2.51	2.55	2.58	2.62	2.65	2.69	2.72	2.76	2.79	2.83	2.86	2.89	2.93	2.96	3.00	3.03	3.07

APPENDIX C

DATA RECORD CARD FOR EACH INDIVIDUAL

Code#_____

Sex-Revenue	G-I-A	SPORT	RANK	MINORITY STATUS
1 F ____	1 FGIA____	1 Indiv____	1 Fr____	1 White ____.
2 M ____	2 PGIA____	2 Team ____	2 Up____	2 Minority____
3 M rev____	3 NGIA____			

MAJOR CPHR _____ BERPHR _____ %BER _____ Av.Hrs./Quarter_____

1_____
2_____
3_____
4_____
5_____

ACT _____ H.S.Rank _____ Pred.G.P.A._____
SAT _____

Diff.(+ or -) _____ Diff./QCOMP(+ or -)_____

%BER/QCOMP_____ Hrs./QCOMP_____ BER hrs./QCOMP_____

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