

A GEOGRAPHICAL ANALYSIS OF THE  
1993 NCAA GRADUATION RATES

By

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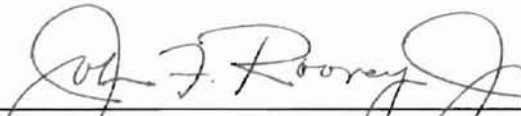
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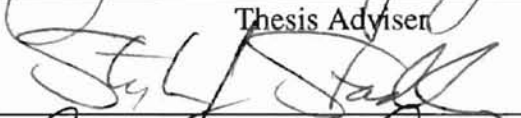
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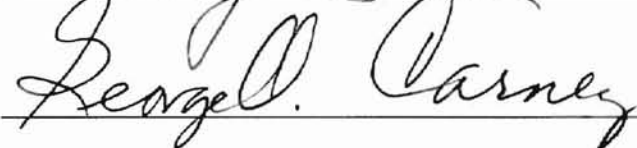
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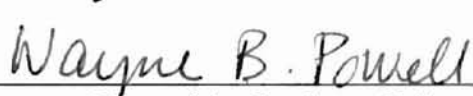
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## CHAPTER I

### INTRODUCTION

In 1852, the earliest known collegiate competition was a rowing contest between Harvard and Yale (Leonard, 1980). From this event, a new facet of American culture emerged, one whose future impact its participants could have never predicted. Seventeen years later, the first intercollegiate football game was played between Rutgers and Princeton (Leonard, 1980). When football became reputed as a dangerous sport, by running plays that “resulted in unacceptable injury and mortality rates” (Rooney, 1974:39), President Theodore Roosevelt initiated discussion to reform intercollegiate athletics. As a result, the Intercollegiate Athletic Association of the United States (IAAUS) evolved in 1905 from a charter group of 62 members. In 1910, the IAAUS became the National Collegiate Athletic Association (NCAA) (NCAA, 1998).

In the 1920's, players were paid by schools, similar to the manner which professional baseball players were recruited and paid. A call for amateurism in college athletics was made in the 1930's but after World War II, football recruiting reemerged along with an increased number of programs driven by entertainment (Rooney, 1990). Near this time, the NCAA developed specifications for the awarding of financial aid to and the recruiting of student-athletes in an attempt to reduce those abuses within intercollegiate athletics. Walter Byers was named executive director of this body in 1951,



a position he held until his retirement in 1987. This position was created as a result of increased membership and championships plus the aforementioned problems in athletics at the collegiate level. With the new NCAA national headquarters located in Kansas City, Missouri, a program was developed to regulate television coverage of college football, enforcement powers were granted to the Association's Council by vote of the annual Convention and the governance of post-season football bowl games was outlined. Divisions I, II, and III were developed in 1973 and Division I was further divided into classifications of I-A and I-AA in 1978 (NCAA, 1998). For Division II or III affiliation, institutions must offer at least four sports. Division III does not offer athletic aid.

Parallel to the growth of the NCAA, intercollegiate athletics evolved from a rowing competition to become a major source of entertainment. Michener states,

...the United States is the only nation in the world, so far as I know, which demands that its schools like Harvard, Ohio State, and Claremont assume responsibility for providing the public with sports entertainment. It would be unthinkable for the University of Bologna, a most ancient and honorable school, to provide scholarships to illiterate soccer players so that they could entertain the other cities of northern Italy...(Michener, 1976:237).

Financial data indicates the "big business" of sports at the college level. For 1997-98, the NCAA budget, based on total operating revenue, was \$267 million. CBS Sports, which broadcasts the NCAA Men's Division I basketball tournament (in the fourth of an eight-year contract with the NCAA), paid a \$210.9 million rights fee to the NCAA in 1998. In this budget, \$181.1 million was devoted to Division I distributions and championships, while \$15.25 million was allocated to academic-enhancement funds (NCAA, 1998).

More than a century after the inaugural intercollegiate contests, young men and women have opportunities to utilize their physical talent competing in athletic programs

governed by the NCAA, thereby financing their pursuit of higher education. In 1991-92, more than 280,000 collegians participated in more than 13,000 NCAA-sponsored sports at the Division I, II, and III levels (NCAA, 1997). Of those participants, more than 58,000 Division I participants (sixty-seven percent men) received athletic grants-in-aid (NCAA, 1998). Today, the NCAA sponsors a yearly total of eighty National Collegiate Championships among its three divisions, including ten for which all divisions are eligible. Division I is eligible for twenty-three championships, thirteen for men and eleven for women (NCAA, 1998).

### Purpose of the Study

Benjamin Franklin once said, "If a man empties his purse into his head, no man can take it away from him. An investment in knowledge always pays the best interest". What price are student-athletes paying in the classroom to ensure successful teams are on the playing field? Are student-athletes investing their athletic scholarships into their education?

A general measure of student-athletes' academic success is their graduation rates. In July 1992, the NCAA released the first Division I Graduation-Rates Report by institution, in response to a federal law requiring the public disclosure of similar data. After receiving data from all Division I institutions, the NCAA reported overall graduation rates of student-athletes and all students. Additionally, graduation rates of student-athletes were reported by gender, race and sport. A mandatory rule was adopted by the NCAA at its 1990 convention, requiring each member institution to distribute their graduation reports data to prospective student-athletes and their parents (NCAA, 1993).

Student-athletes included were those which received any type of athletic aid upon initial enrollment, or were offered but did not qualify for it under NCAA rules. Overall student population included only undergraduate students maintaining full-time enrollment towards a degree. A graduation rate (percent) was based on a comparison of the number (N) of students who entered a college or university and the number of those who graduated within six years (NCAA, 1993).

The purpose of this study was to geographically analyze, by sports regions and conferences, regional patterns and variations that result from the student-athlete graduation rates. Possible explanations of the phenomena were offered.

Student-athlete graduation rates were compared to those of all-students by sports region and by conference. Additionally, student-athlete graduation rates were compared within respective sports regions and conferences. Finally, football and men's basketball graduation rates were compared to student-athlete graduation rates within sports regions and conferences. Data utilized for this study were acquired from the 1993 NCAA Division I Graduation-Rates Report, more specifically, the freshman cohort rates for the class which entered during the 1986-87 academic year.

The purpose was achieved by examining the six pairs of hypotheses (to represent both random samples utilized in this study) (Table I).

#### Athletic Conferences

Within the NCAA divisions, the spatial organization of institutions sponsoring intercollegiate athletics in the United States is a result of several factors. Most individual public state universities exist as a result of a political organization which has traditionally

TABLE I  
HYPOTHESES

1a.	Overall by sports regions, student-athletes graduate at a higher rate than all-students.
1b.	Overall by conferences, student-athletes graduate at a higher rate than all-students.
2a.	Within each sports region, student-athletes graduate at a higher rate than all-students.
2b.	Within each conference, student-athletes graduate at a higher rate than all-students.
3a.	There is a significant difference between student-athlete graduation rate within each sports region and the overall student-athlete graduation rate.
3b.	There is a significant difference between student-athlete graduation rate within each conference and the overall student-athlete graduation rate.
4a.	Across the sports regions, there is a significant difference between the number of student-athletes graduating and the number of student-athletes not graduating.
4b.	Across the conferences, there is a significant difference between the number of student-athletes graduating and the number of student-athletes not graduating.
5a.	Across the institutions within each sports region, there is a significant difference between the number of student-athletes graduating and the number not graduating.
5b.	Across the institutions within each conference, there is a significant difference between the number of student-athletes graduating and the number not graduating.
6a.	There is a significant difference between student-athletes graduation rates in revenue sports, within each sports region and the overall student-athlete graduation rate.
6b.	There is a significant difference between student-athletes graduation rates in revenue sports, within each conference and the overall student-athlete graduation rate.

placed a high value on them. All states have at least one major public institution and some even two or more. Often states, in order to serve their various regions, locate additional institutions accordingly. Regardless of population or location, virtually every state has elected to support "big time" (Division I) collegiate athletics programs in at least one of their institutions (Rooney, 1974). Private institutions, though not methodically distributed, are typically located in areas of longer settlement. Religious affiliations and their cultural regions determine sites of denominational schools (Rooney, 1974). A majority of the Division I-A football institutions in this study are located east of the Mississippi River (Table II), (Figure 1). This is primarily because of the clustering of population within the United States.

Nearly all institutions are members of athletic conferences, that is an association of

colleges and universities that conduct conference competition and determine a champion in one or more sports (in which the Association conducts championships or for which it is responsible for providing playing rules for intercollegiate competition) (NCAA, 1986:33).

Rooney further clarifies the purpose of an athletic conference as

an organization geared to increase the level of competition between universities located in the same region. The conference or league is also a major vehicle by which post-season contestants are selected for participation in national championship events and bowl games (Rooney, 1974:89).

Currently, there are forty-two NCAA Division I conferences (NCAA, 1997). Those conferences participating at the Division I-A football level, whose paid attendance requirements for this sport must average more than 17,000 per NCAA mandate (NCAA 1986), are included in this study.

According to Rooney, many of the major intercollegiate athletic conferences

TABLE II

## 1992 NCAA DIVISION I-A FOOTBALL INSTITUTIONS\*

1.	Akron	37.	Kansas State	73.	Purdue
2.	Alabama	38.	Kent	74.	Rice
3.	Air Force	39.	Kentucky	75.	Rutgers
4.	Army	40.	Louisiana State	76.	San Diego State
5.	Arizona	41.	Louisiana Tech	77.	San Jose State
6.	Arizona State	42.	Louisville	78.	South Carolina
7.	Arkansas	43.	Maryland	79.	Southern California
8.	Arkansas State	44.	Memphis State	80.	Southern Methodist
9.	Auburn	45.	Miami (Fla.)	81.	Southern Mississippi
10.	Ball State	46.	Miami (Ohio)	82.	Southwestern Louisiana
11.	Baylor	47.	Michigan	83.	Stanford
12.	Boston College	48.	Michigan State	84.	Syracuse
13.	Bowling Green	49.	Minnesota	85.	Temple
14.	Brigham Young	50.	Mississippi	86.	Tennessee
15.	Cal. State-Fullerton	51.	Mississippi State	87.	Texas
16.	California	52.	Missouri	88.	Texas A&M
17.	Central Michigan	53.	Navy	89.	Texas Christian
18.	Cincinnati	54.	Nebraska	90.	Texas Tech
19.	Clemson	55.	Nev.-Las Vegas	91.	Toledo
20.	Colorado	56.	Nevada	92.	Tulane
21.	Colorado State	57.	New Mexico	93.	Tulsa
22.	Duke	58.	New Mexico State	94.	UCLA
23.	East Carolina	59.	North Carolina	95.	Utah
24.	Eastern Michigan	60.	North Carolina State	96.	Utah State
25.	Florida	61.	Northern Illinois	97.	UTEP
26.	Florida State	62.	Northwestern	98.	Vanderbilt
27.	Fresno State	63.	Notre Dame	99.	Virginia
28.	Georgia	64.	Ohio	100.	Virginia Tech
29.	Georgia Tech	65.	Ohio State	101.	Wake Forest
30.	Hawaii	66.	Oklahoma	102.	Washington
31.	Houston	67.	Oklahoma State	103.	Washington State
32.	Illinois	68.	Oregon	104.	West Virginia
33.	Indiana	69.	Oregon State	105.	Western Michigan
34.	Iowa	70.	Pacific (Cal.)	106.	Wisconsin
35.	Iowa State	71.	Penn State	107.	Wyoming
36.	Kansas	72.	Pittsburgh		

\*Source: 1993 Official NCAA Football (NCAA, 1993).

# 1992 NCAA Division I-A Football Institutions

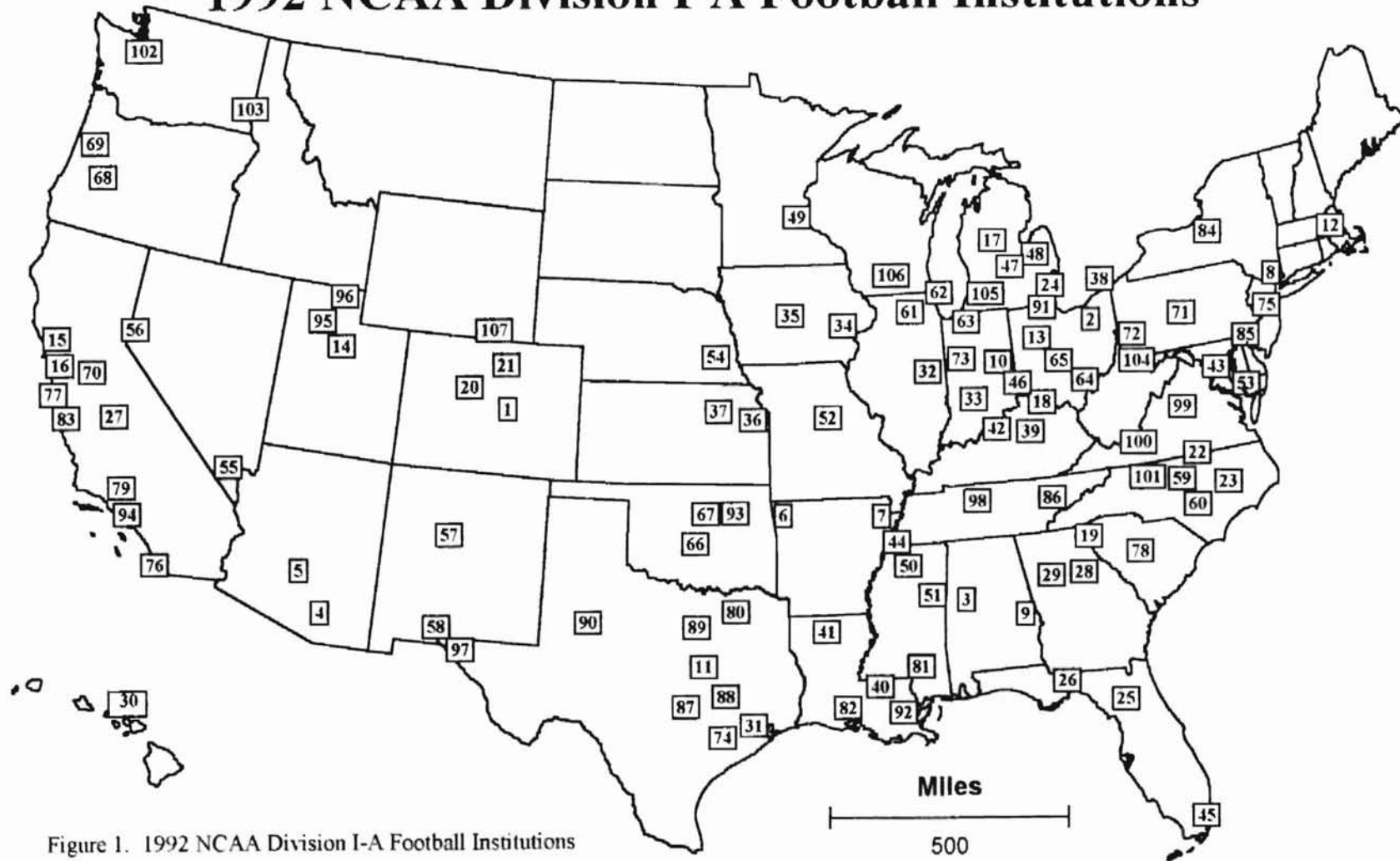


Figure 1. 1992 NCAA Division I-A Football Institutions

Source: NCAA, 1993 (2)

mirror the major regions of the United States and their traditional geographic concepts. For example, the Big Ten Conference is very similar to its physical region of the Corn Belt or Agricultural Midwest. The Great Plains region is home to the Big Eight Conference (now the Big XII) institutions while the Southeastern Conference (SEC) is concentrated within the Deep South (Rooney, 1974). Other conferences included in this study, Atlantic Coast (ACC), Southwestern (SWC), Pacific-10 (Pac-10), Western Athletic (WAC), Mid- American Athletic (MAAC) and Big West; are named such to reflect their physical locations.

### Sports Regions

In the Atlas of American Sport, Rooney and Pillsbury examine the impact of sport, from children's league to professional level organizations, and its role in American life. They divided the United States into ten major and a few minor distinctive sports regions, (Figure 2) each which result from the regionality of American culture. Distinctiveness is determined on the basis of the combination of the sports that are played, the quality and intensity of their play, their spectator preferences, and the role of sport generally in the host communities (Rooney and Pillsbury, 1992). The following eight major sports regions and one minor sports region were included in this examination.

1. Eastern Cradle – Located in the extreme northeastern portion of the United States, this region is responsible for the evolution of America's "Trinity" sports of football, basketball and baseball. This area is home to five major league baseball team: New York Yankees, New York Mets, Boston Red Sox, Baltimore Orioles, and



# Sports Regions



Figure 2. Sports Regions

Philadelphia Phillies. Basketball, which originated in Springfield, Massachusetts, is the only major collegiate sport in most of this sports region. Home to members of the Big East and Atlantic-Ten Conferences, several Eastern Cradle institutions compete in the men's NCAA basketball tournament each year. Although football at the college level is no longer important in this region, it does have five National Football League teams (New York Giants, New York Jets, Philadelphia Eagles, New England Patriots and Baltimore Ravens) within its boundaries (Rooney and Pillsbury, 1992).

Minor team and individual sports including soccer, lacrosse, rowing and sailing, are abundant. Winter sports such as hockey, ice boating and figure skating, thrive in the northern section. A concentration of wealth explains a high interest in equestrian sports such as polo, steeplechase, fox hunting, racing and horse shows. Due to the intense urban character and industrial employment in this region, urban sports such as basketball, billiards, and martial arts are found in decaying city neighborhoods (Rooney and Pillsbury, 1992).

2. Carolina Sub-Region – While the authors have denoted this as a sub-region, it was considered a major sports region for this study because several NCAA Division I-A institutions are located there. This area, with roots in both the Eastern Cradle and Pigskin Cult sports regions, represents a distinct cultural and social entity in its location between them. Basketball is easily recognized as the region's most important college sport. This region supports many scholastic and collegiate sports also, but they receive less fan support. Football and baseball, while quite competitive, are always considered after basketball (Rooney and Pillsbury, 1992).

Other sports such as gymnastics, rowing, and track and field, are of growing

importance but still receive little spectatorship. Auto racing is of great interest in this region as reflected by the Winton Cup Grand National Races and NASCAR Radio Network's broadcasts. Golf is favored in both the Southern Pines section (a favorite of wealthy Northerners) located in south central North Carolina, and the Carolina Coast. Individual recreation sports, specifically whitewater canoeing and rafting, are more visible in the Smoky and Blue Ridge Mountains (Rooney and Pillsbury, 1992).

3. Mines and Mills – This region was once the heart of America's Industrial Revolution. It was the early home of professional football and as recently as the 1960's, it was the nation's most prominent center of scholastic football player production. The sports image of Mines and Mills, more than any other, was influenced by the cultural and economic history within its boundaries. Those working in steel and related industries molded a male-dominated society with sports such as boxing, football and auto racing to provide energy outlets.

Currently, four professional franchises of the Trinity sports are located here. They are the Pittsburgh Steelers (football), Pittsburgh Pirates, Cleveland Indians (baseball); and Cleveland Cavaliers (basketball). After the Cleveland Browns (football) became the Baltimore Ravens, a new Cleveland Browns franchise has been approved by the National Football League (NFL).

Because the region's high school participation is greatest in the area between Pittsburgh and Cleveland, major universities within this section remain competitive by importing athletes from the Northeast and South. Only the Trinity sports are supported well, while girls' athletics receives little recognition (Rooney and Pillsbury, 1992).

4. American Heartland – This region is perceived to be the most-balanced of all. Participation rates in the Trinity sports as well as minor sports are above average. Illinois, Indiana, and Kentucky (known as IllInKy) enjoy a major emphasis on high school basketball and produce an abundance of talent. This importance transcends the college level as many institutions in this region, such as Indiana, Michigan, Illinois and Kentucky are frequent invitees to the NCAA men’s basketball tournament. Emphasis continues to the professional level as four National Basketball Association (NBA) franchises (Chicago Bulls, Detroit Pistons, Indiana Pacers, and Milwaukee Bucks) are found in this area. Football is again well-represented at both the college level (Notre Dame, Michigan, Michigan State) and professional level (Chicago Bears, Green Bay Packers, Indianapolis Colts, Detroit Lions, and St. Louis Rams). Six major league baseball teams represent the American Heartland: Cincinnati Reds, St. Louis Cardinals, Chicago Cubs, Chicago White Sox, and Milwaukee Brewers. This area also sees baseball participation at the high-school level exceeding the national norm (Rooney and Pillsbury, 1992).

Minor team sports, especially soccer, and individual sports thrive here. Of mechanical interests, this sports region is home to the Indianapolis 500 auto race in addition to other motor sports. Equine delights are also piqued by thoroughbred breeding and racing, as this area is home of the Kentucky Derby in Louisville, and Keeneland racetrack in Lexington (Rooney and Pillsbury, 1992).

5. Sport For Sport’s Sake – Present in fifteen states, this sports region is established on the premise of participation. It consists mostly of small towns distributed across a landscape of large ranches and farms. High school sports serve as recreational outlets for players and spectators, while small enrollment provides opportunity for any

student to participate (though quality of play is judged as lower than average). The Trinity sports are represented throughout, baseball on a more recreational basis and both football and basketball are deemed major games. Nebraska football is the most recognizable collegiate program in this region, where three states rank above the national norm for collegiate football player production. Participation rates in basketball are very high in every state except Minnesota, where hockey is the sport of choice (Rooney and Pillsbury, 1992).

Individual sports such as wrestling, track and field, and golf are all extremely popular. Girls' high school athletics receive overwhelming support, especially in basketball. Adults participate in many sports such as volleyball, softball, hunting, fishing and water sports. Horse activities, including rodeos and breeding, are also of adult interest. Northern areas enjoy winter sports such as skiing and snowmobiling. Colorado Springs is host to the United States Olympic Training Center, one of the most intensive sporting environments anywhere. Perhaps this feature is the best indicator of the personality of the region. Professional sports are sparse as the major teams are located on the edges of this district (Rooney and Pillsbury, 1992). They include Minnesota Vikings, Kansas City Chiefs, Denver Broncos (football); Denver Nuggets, Minnesota Timberwolves (basketball); Kansas City Royals, Minnesota Twins, and Colorado Rockies (baseball).

6. Pigskin Cult – Located in the Deep South, football dominates this sports region. Collegiate programs in this area have been increasing in power since the Ivy League de-emphasized the game in 1951. At the scholastic level, football players are often repeat a grade level in junior high to ensure greater physical maturity for sports

participation at the high school level. This region's obsession is comparable to basketball fever of the IllInKy area. Football mirrors the communities' values and serves to relive a gloried past that never existed. Men's and women's collegiate basketball are of increasing importance to this region. Both football and basketball playing opportunities have crossed racial lines (Rooney and Pillsbury, 1992).

Baseball, with the Atlanta Braves as the sole professional franchise, is of waning importance in this area (Rooney and Pillsbury, 1992). Within the last five years, collegiate baseball, especially SEC teams, have been very competitive at the championship level. Other sports such as soccer, lacrosse, rugby and volleyball are rarely found outside the larger cities. As sports funding at the scholastic level is so heavily weighted for football, few other sports are offered (Rooney and Pillsbury, 1992).

Fascination with football and basketball has inhibited adult athletic participatory behavior. Stock car racing ranks third behind these two sports in spectatorship. Adult participant sports focus on the outdoors with hunting and fishing (Rooney and Pillsbury, 1992). Professional football franchises include the Atlanta Falcons, Jacksonville Jaguars, New Orleans Saints, and Tennessee Oilers.

7. Texas Southwest – Encompassing all of Texas and Oklahoma and parts of New Mexico, Louisiana, and Arkansas, this region is the link between the Pigskin Cult and Pacific Cornucopia. High school football fever affects this region also, especially in Texas. Baseball carries a strong tradition in Oklahoma, which has often placed in the top five per capita producers. Collegiate basketball has improved mostly because of imported talent (Rooney and Pillsbury, 1992).

Professionally, Oklahoma supports double-A and triple-A baseball teams while Texas is home to the major league teams including the Texas Rangers and the Houston Astros. Professional football has only the one franchise, the Dallas Cowboys, in this region. The Houston Rockets is the region's only professional basketball team.

Individual sports such as wrestling (Oklahoma), track (Texas), golf and tennis are well-supported. This region separates itself from the Pigskin Cult because of its strong emphasis on women's sport. Quarter horse breeding and racing plus rodeo are vital to the region's economy and have high adult participation. Other adult pursuits include softball, fishing, and water sports (Rooney and Pillsbury, 1992).

8. Cowboys and Mormons – This western region, consisting of few cities and long distances, lies in the heart of the traditional Church of the Latter Day Saints dominated desert region. Two of the Trinity sports, football and basketball, thrive here largely due to highly concentrated resources. However, only one professional franchise, NBA's Utah Jazz, calls this region home. Three Division I-A football programs, Utah, Utah State, and Brigham Young University; are in Utah alone, resulting in the highest rate per capita emphasis in the United States. Intercollegiate basketball, with most players imported from other areas, is also stressed in this area (Rooney and Pillsbury, 1992).

In sections of this region with relatively high rates of church membership, many churches participate in sport leagues playing volleyball, basketball and baseball. Regional adults are involved in sports of rodeo, hunting, fishing and trap and skeet shooting (Rooney and Pillsbury, 1992).

9. Pacific Cornucopia – All of the west-coast states (plus portions of Arizona and Nevada) form this active region, which reflects a California laid-back lifestyle. Its warm

climate coupled with outdoor orientation encourages year-round participation chances. Focus on physical education at the scholastic level plus Young Men's Christian Association (YMCA), Amateur Athletic Union (AAU), and recreational districts, provides a wide-variety of participation opportunities from which to choose. Adult sports of surfing, horse events, water sports and golf are among the most recognizable, though nearly any sport can be identified in this region (Rooney and Pillsbury, 1992).

A perennially high level of major league baseball production is synonymous with California. It also, along with Hawaii and Arizona, produces football players at a higher rate than the national average. Basketball is of less importance in this region, despite the dominance of UCLA in the 1970's (Rooney and Pillsbury, 1992).

Individual and minor team sports thrive in this unique region, yet many sports are abundant and none dominate the region. High school major sports participation is among the lowest in the nation because minor sports are well-supported both in and out of the school systems (Rooney and Pillsbury, 1992).

Sporting events always generate large crowds because of this region's dense population. As a result, this region does not have a dominant event receiving national attention, such as the Indianapolis 500 or Kentucky Derby (Rooney and Pillsbury, 1992). Professional franchises serve the population well with the Seattle Seahawks, Oakland Raiders, Arizona Cardinals, San Diego Chargers, and San Francisco 49'ers football teams. Professional basketball teams include the Los Angeles Lakers, Seattle Supersonics, and Portland Trailblazers. Baseball's importance is again realized in number of teams including the Los Angeles Dodgers, California Angels, San Francisco Giants, San Diego Padres and Seattle Mariners.



## CHAPTER II

### LITERATURE REVIEW

Geography encompasses fundamental themes including location (absolute and relative), place, human/environmental relationships, movement and regions. Sports geography, a young sub-discipline of geography, provides a means of applying any combination of the geographical themes to analyze sport in our culture. According to sociologist Robert Boyle,

Sport permeates any number of levels of contemporary society and it touches upon and deeply influences such disparate elements as status, race relations, business life, automotive design, clothing styles, the concept of the hero, language, and ethical values. For better or worse, it gives form and substance to much in American life...(Boyle, 1963).

Given the ever growing importance of sport in America's society at all conceivable levels, this focal area is a natural extension of the discipline of geography.

Sports geography, as described by John Bale in his book Sports Geography, was concerned with the exploration of (a) sports activity on the earth's surface and how the spatial distribution of sport has changed over time; (b) the changing character of the sports landscape and the symbiosis between the sports environment and those who participate in it; and (c) the making of prescriptions for spatial and environmental change in the sports environment. Such explorations were undertaken at a variety of geographic scales, ranging from that of a sports stadium and the streets immediately around it to that

of the world itself (Bale, 1989).

John F. Rooney is a pioneer in this area of academe as indicated by his book, A Geography of American Sport, published in 1974. He surveyed the geography of sport within the United States, which is home to a diverse sporting scene filled with games and activities. Per Rooney, "geographic analysis can produce a better understanding of the significance of sport to society and the manner in which the role of sport has changed. The geography of sport is conceptually very great because the combinations of games and places are immense and ever changing," (Rooney, 1974:4). Major subdivisions within sports geography included spatial variation in games, spatial organization of sport, origin and diffusion of games and players, sport regions, the effect of sport on landscape and sports and national character (Rooney, 1974).

Rooney's work provided a historical perspective on the origin and diffusion patterns of several American sports, including the "Trinity" sports of football, basketball, and baseball. Trinity members were further examined individually based on regional production of sports participants, and possible explanations for variations among these are provided. Collegiate athletics and recruiting were also discussed, specifically men's basketball and football, and analyzed on a regional basis. Rooney also analyzed geographical variations of women's sports and several other sports, both team and individual.

Another significant application of sports geography combined with more in-depth investigation of recruiting was presented by Rooney in his book, The Recruiting Game (Rooney, 1987). This work offered both positive and negative aspects of this collegiate activity, specifically football and men's basketball programs, from a historical perspective

to current problems and approaches. He observed attributes for geographical variation in recruiting and evaluated several big-time conferences. Finally, a potential solution supported by explanation for its implementation was offered. Originally circulated in 1980, The Recruiting Game was revised and a second edition was published in 1987 as a result of the concern of NCAA graduation rates and a lack of a complete study of them. Rooney included an eleven-point strategic plan to guide collegiate athletics towards an amateur level and returning the order of student first and athlete second. He also offered suggestions of new playoff formats for both conference and post-season play.

In 1992, the Atlas of American Sport was authored by John F. Rooney and Richard Pillsbury. This first-of-its kind text provided a detailed examination of sports in the American society, covered nearly every type of sport from the aforementioned trinity national sports to regional rarities that are hardly recognized by the overall population. Source data representing the sporting activities were depicted on maps displaying participation and/or popularity of nearly every sport discussed. One section exclusively portrayed ten major sports regions plus minor sub-regions within the United States. Each region is a part of the whole, yet is distinguishable on the basis of the combinations of the sports that are played, the quality and intensity of their play, their spectator preferences, and the role of sport generally in the host communities (Rooney and Pillsbury, 1992). These regions served as one of two geographical divisions for purposes of this thesis.

An unpublished thesis by Barton Mullins, "The Geographical Origins and Graduation Rates of National Football League Players: 1981", examined graduation rates of professional football players from the 1981 NFL season. His study revealed a mere thirty-three percent graduation rate of these players. Although only a five percent sample

of collegiate football players was represented in this study, it provided a solid framework for suggested future studies of graduation rates.

### Studies of Student-Athlete Graduation Rates

Numerous studies of graduation rates have been conducted outside the discipline of geography. However, only the NCAA Division I Academic Reporting Compilation contained a regional analysis of student-athlete graduation rates. This report was the precursor to the annual publication of NCAA Division I Graduation Reports, which began in 1992. It resulted from an NCAA mandate, which was adopted in 1985 for all Division I institutions, which would allow the comparison of academic records, performance and graduation rates of both student-athletes and students at an institution and with other Division I institutions. However, this information was provided only in summary form to protect the confidentiality of the reporting institutions. (NCAA, 1987). In this study, providing size of group (N values) would be beneficial to those evaluating the resulting percentages.

Included within this 1986 NCAA report were statistical tables that grouped institutions by several different criteria, one of which was geographical region. The four regions delineated by the NCAA are: Region I – Northeastern (Districts 1 and 2), Region 2 – Southern (District 3), Region 3 – Midwestern (Districts 4 and 5) and Region 4 – Western (Districts 6, 7, and 8) (NCAA, 1987). According to the 1997-98 NCAA Directory, 66 institutions were classified as active members of Region I, 83 as Region II, 64 as Region III, and 83 as Region IV (NCAA, 1997).

It was noted in the report that,

due to the fact that more than half of the reporting Division I institutions indicated an inability to gather accurately information necessary to calculate graduation rates for students generally, the data for institutional graduation rates were compiled on the basis of statistics provided by 127 institutions (NCAA , 1987:1).

Perhaps this inability to supply data contributed to the association's 1990 mandate, which could penalize those institutions not submitting annual data. Additionally, it could have led to the development by the NCAA, of standardized graduation-rates reporting forms, with detailed, step-by-step instructions, provided to all member institutions. This form ensured accurate and consistent data was submitted in a timely manner. It was further noted that,

the information concerning graduation rates for the 127 is valid and tends to support other data that show a graduation rate for recruited student-athletes roughly equivalent to, or perhaps better than, the rate for students generally (NCAA, 1987:1).

Graduation rates were calculated according the NCAA Bylaw 5-6-(e)-4 which stated,

The institutions graduation rate for recruited student-athletes in each sport and the graduation rate for students generally for the entering freshman class that began attendance as full-time, regularly matriculated, degree-seeking students at the institution six years prior to the regular fall term that includes the October 1 deadline established in paragraph (e). For purposes of this legislation, the "graduation rate" shall be based upon the number of students who entered the member institution with no previous collegiate attendance and graduated within five academic years of the date of initial enrollment (NCAA, 1986:113-114).

Results of this report, calculated median totals, demonstrated that in Division I-A, recruited student-athletes graduated at rates (62.6 percent) slightly lower than all-students (64.7 percent). This was also true for three of the four geographic regions as only in Region 1 did student-athletes, 83.8 percent graduating, better all-students, 81.5 percent graduating. All-students in Region 2 graduated at 62.9 percent while student-athletes

maintained a 60.0 percent graduation rate. The largest difference was in Region 3 as the all-students graduation rate of 70.7 percent, was 6.8 percent greater than the student-athlete rate of 63.9 percent. Finally, in Region 4 all-students again displayed higher graduation rates (58.6 percent) over student-athletes (54.8 percent) (NCAA, 1987). When supplying the graduation rates information, only the total number of reporting institutions was supplied while the total number of students and student-athletes was not provided.

As noted earlier, many studies have examined student-athlete graduation rates but not from a geographical perspective. Due to the large amount of information available, one review of each of the following levels of graduation-rates studies was conducted: national, state, sport, and institutional.

In March 1991, the Chronicle of Higher Education (CHE) published a national survey it conducted of the graduation rates (both median and average totals) of recruited student-athletes and other students, entering as freshman in the fall of 1984 and their graduation status as of August 1989. A recruited student-athlete may or may not receive athletic aid. The data were reported by individual institution and included group size (N values), both which were beneficial to anyone utilizing this information to compare institutions' graduation rates. At the time, this study was the most comprehensive, in terms of number of institutions reporting and amount of data gathered and published, of any graduation rate report of student-athletes at Division I institutions.

Of the 295 NCAA Division I members institutions, 262 participated in the survey. Resulting data included, by institution and totals, number of entering freshman and percent graduating. Additionally, number of recruited student-athletes entering as

freshman and percent graduating, an analysis of student-athletes by gender, and information regarding football and men's basketball student-athletes were provided. Moreover, graduation rates of all students, all athletes, football players and men's basketball players, by conference affiliation were furnished (CHE, 1991).

Its results indicated recruited freshman student-athletes graduated within five years at a 56 percent rate, versus a 48 percent rate of the all-students category. Within NCAA Division I-A, student-athletes (51.1 percent) edged their all-student counterparts (50.3 percent). Division I-A football graduation rates (42.5 percent) and men's basketball rates (31.9 percent) were much lower than all-students rates. Division I-AA and I-AAA students graduated at rates of 46.8 percent and 40.7 percent, respectively, both lower than all-students at the Division I-A level of 50.3 percent. However, student-athletes graduation rates at the Division I-AA (61.4 percent) and Division I-AAA (56.0 percent) levels bettered their Division I-A counterpart (51.1 percent) (CHE, 1991).

Statistics by conference displayed that, in general, student-athlete graduation rates were very similar to the all students rate (Table III). The ACC set the pace with an all-students graduation rate of 65.6 percent and a student-athlete graduation rate of 66.2 percent. While seven other conference graduation rates, for both all-students and student-athletes, were near the 50 percent mark, two conferences displayed graduation rates near or below 40 percent. The WAC reported an all-student graduation rate of 34.0 percent and a student-athlete graduation rate of 40.7 percent. All-students in the Big West Conference graduated at a rate of 38.3 percent while student-athletes attained a 39.4 percent graduation rate. Also provided in the conference totals were graduation rates for football and men's basketball players (CHE, 1991).

TABLE III

CHRONICLE OF HIGHER EDUCATION GRADUATION RATES REPORT  
DIVISION I-A GRADUATION RATES BY CONFERENCE

Conference	Graduation Rates Percentage			
	All-Students	Student-Athletes	Football	Men's Basketball
ACC	65.6	68.2	55.4	32.0
Big Eight	46.0	42.3	39.4	34.8
Big Ten	59.1	58.0	50.0	43.9
Big West	38.3	39.4	23.8	18.9
MAAC	46.6	54.4	42.9	40.0
Pac-10	50.1	52.9	46.6	40.6
SEC	46.0	36.4	32.2	14.0
SWC	49.3	40.6	32.5	23.5
WAC	34.0	40.7	43.1	17.6
Independents	51.4	59.0	51.7	33.3

Source: CHE, 1991.



Another study, which examined higher education graduation rates within a state, was published in 1991, by the Oklahoma State Regents for Higher Education (OSRHE) titled "Comparison of Graduation Rates for Scholarship Athletes and All-Students by Sport, Race and Gender". This was published due to a 1990 mandate, from Oklahoma House Bill 1965, Section 2, requiring the annual compilation and distribution of this information (OSRHE, 1991).

Data contained in the report included graduation rates for institutions, for tiers, and for the state by sport, race and gender. Of the 15,236 students included, 434 (2.8 percent) were scholarship student-athletes. For inclusion in the study, students must have, as first-time-entering freshman, enrolled in twelve credit hours (thus meeting "full-time" requirements) and declared themselves degree-seeking students. Students pursuing bachelors' degrees at four-year or comprehensive universities were analyzed on a six-year time period, beginning in fall 1984 as first-time-entering freshmen. Students seeking associates' degrees at two-year colleges were analyzed on a three-year time period, beginning in fall 1987 as first-time-entering freshmen (OSRHE, 1991).

Data were supplied in categories:

1 – Within the Institution: Percentage of students obtaining bachelors' or associates' degrees from original institution within the study's time period.

2 – Within the System – Percentage indicates the number of students obtaining bachelors' or associates' degrees from any public or private institution in the state within time period of study (OSRHE, 1991).

Findings of this report indicated that scholarship student-athletes graduated at

higher rates (35.1 percent) than students (34 percent) "Within the Institution" but at lower rates (37.6 percent) than students (38.3 percent) "Within the System". By tier, student-athletes at comprehensive institutions graduated at 31.1 percent, much lower than the students at 46.3 percent. However, student-athletes at four-year institutions graduated at 43.9 percent, much higher than students at 30.2 percent. Perhaps the most interesting statistic was student-athletes at two-year institutions graduated at 43.2 percent, over twice the rate of students at 18.6 percent (OSHRE, 1991).

The College Football Association (CFA) was, according to Rooney, "a public relations and television marketing consortium," (Rooney, 1987). In 1993, the CFA announced the results of their survey of graduation rates within this sport. For the sixty-one CFA member institutions, an overall graduation rate of 59.1 percent was demonstrated. Compared to graduation rates for the previous twelve years, 1993 was deemed the best ever (CFA, 1993). Of this group, twenty CFA institutions were recognized for achieving a graduation rate of seventy percent or greater among football student-athletes (Table IV).

Football student athletes included in this study of the CFA's membership were those who received football-related financial aid from the institution they originally attended. Also reported were those who enrolled in college in 1987 but did not receive financial aid until after their initial year. Student-athletes who enrolled in college in 1987 and subsequently transferred to a CFA member institution, and received aid as a result of their participation in football were a part of the study group. Those who transferred, in good academic standing, from the certifying CFA member to another institution, were excluded from the computations (CFA, 1993).

TABLE IV

CFA INSTITUTIONS ACHIEVING A GRADUATION RATE  
OF 70 PERCENT OR GREATER

Boston College	Penn State
Cincinnati	Rice
Georgia Tech	Rutgers
Hawaii	Syracuse
Kentucky	Tennessee
Miami	Tulane
Mississippi	Tulsa
Mississippi State	Vanderbilt
North Carolina	Virginia
Notre Dame	Wake Forest

Source: CFA, 1993.

Results of this survey indicated that CFA member institutions' football players graduated at a higher rate (59.1 percent) than the reporting Division I-A graduation rate for men only (54 percent). An average of 22.5 grants per institution, were awarded for a total of 1,375, to football players who initially enrolled at a CFA member institution in fall 1987. Of this group, an average of 13.3 football student-athletes per institution graduated, for a total of 813 (CFA, 1993).

The CFA obtained additional statistics regarding many of those who did not graduate, including those who completed eligibility and departed before completing degree requirements, left the institution prior to exhausting their eligibility or obtaining their degree, discontinued athletic participation prior to completing eligibility, or were not in good academic standing upon transfer to another institution. Still others were currently enrolled, had completed their athletic eligibility but were planning to re-enroll, or discontinued participation in athletics but were enrolled (CFA, 1993). One obvious benefit of sport-specific surveying is organizations can further examine the status of student-athletes who have not graduated and reasons why. A possibility of bias also exists when an organization surveys its own product.

In 1985, Sport and Higher Education was published and included the chapter, "Are Athletes Also Students? The Educational Attainment of College Athletes". It was devoted to examining the educational pursuit and graduation rates of student-athletes at the institutional level. Authors Dean A. Purdy, D. Stanley Eitzen and Rick Hufnagel researched the graduation rates of 2,091 Colorado State University student-athletes over a ten-year period (fall 1970-spring 1980), specifically to assess the degree to which college athletes were disadvantaged educationally by their sports participation (Purdy, Eitzen, and

Hufnagel, 1985). They compared student-athletes graduation rates with those of all students and evaluated the academic preparation of the two groups to explain differences in the rates. Comparisons were also made to among student-athletes to identify any variations. To be included in this study, student-athletes must have completed one academic term and receive grant-in-aid from the athletics department (Purdy, Eitzen, and Hufnagel, 1985).

Results from this study indicated student-athletes scored lower than non-athletes on the measures most commonly used to assess educational attainment: they entered with poorer academic backgrounds, they received lower grades than their non-athlete peers, and fewer of them graduated. Two specific findings were: "1) Scholarship athletes fared worse than non-scholarship or partial-scholarship athletes in academic achievement and, 2) There is evidence that athletes in the male revenue sports of football and basketball have a relatively low probability of receiving an education compared to non-athletes or athletes in the other sports," (Purdy, Eitzen, and Hufnagel, 1985:231).

Educational attainment factors, such as high school grade point average, Scholastic Aptitude Test (SAT) and American College Testing (ACT) scores, and high school class standing, which were included in this study, may have been the most tangible indicators of graduation rates. While this study was restricted to one institution, its framework was ideal for future studies of student-athlete and student educational success.

In the various types of studies concerning graduation rates of student-athletes, several methods have been utilized. Disparity existed in the criteria for sample inclusion from determining if only student-athletes receiving aid or if all student-athletes should be included in evaluations of graduation rates. Other discrepancies were visible in

determining a fair time frame allowed for a student to complete degree requirements, which may not be realistic in both rural and urban institutional settings. It seemed difficult to compare pure graduation rate statistics of institutions without factoring the weight of educational variables such as institution type, admissions policies, academic programs, student retention, degrees offered and minimum academic requirements. In addition, when comparing the educational success of all students and specific populations within, there were infinite factors that could be considered for these groups. More specific studies, such as by sport or state, may have been investigated from a biased view thus creating a skewed study to appear more successful.

This investigation of the graduation rates of student-athletes from a sport geography perspective was viable because one phenomenon geographers seek to explain is human spatial behavior. Analysis of the spatial organization of institutions sampled was yet another geographic theme to be explored. Viewing student-athlete and all-students graduation rates, both by sports regions and conferences, provided a platform to analyze potential patterns that may result from the data. State educational and economic characteristics such as educational attainment, higher education expenditures and per capita income were examples of geographical data that could account for differences in graduation rates. In addition, factors such as institutional characteristics, could explain variations of student-athlete graduation rates among sports regions and conferences.

## CHAPTER III

### METHODOLOGY

The 1993 NCAA Division I Graduation-Rates Report provided data for 298 Division I institutions. For institutions to be included in this study, they must have met two criteria: 1) sponsored a Division-I football team beginning in 1986, and 2) provided complete information for the data represented. According to the 1986-87 NCAA Manual, to qualify as a Division I-A football institution, the university must sponsor at least seven varsity intercollegiate sports, including football, involving all-male teams or mixed teams of males and females, and at least six all-female sports, at the Division I level. Stadium capacity and paid attendance requirements for football must meet NCAA minimums. Additionally, these teams must compete a specified number of times against other Division I opponents (NCAA, 1986).

Only those student-athletes who received any amount of athletics aid are included in the graduation-rates report. Athletics aid was considered all unearned, non-repayable financial aid awarded and administered by the institution's department of athletics (or upon the recommendation of the department of athletics) and based on athletics ability (e.g., athletics scholarship). Such aid would include any tuition waiver or room waiver (state or institutional waivers) administered at the institution's discretion based on the student-athlete's athletic ability (NCAA, 1993).

While data are published by institution, NCAA division affiliation was not indicated. Therefore, the 107 Division I-A football institutions were identified based upon a list provided by the NCAA (NCAA, 1994). Because the United States service academies (Air Force, Army, and Navy) compete at the Division I-A level, but do not grant athletics aid, they are exempt from the mandatory reporting of graduation-rates data and were excluded from this study. Additionally, due to previous NCAA sanctions for violation of rules in association with their football program, Southern Methodist University's graduation rates data were incomplete and eliminated from this study. After these deductions, 103 NCAA Division I-A institutions were included in this study.

To allow the NCAA to compile the 1993 NCAA Division I Graduation-Rates Report, institutions submitted data using a thirty-three page, standardized, 1993 NCAA Division I Graduation-Rates Disclosure Form (Form 96-3) (NCAA, 1993). Detailed information to ensure accurate, consistent reporting was supplied in the Instructions-1993 NCAA Division I Graduation-Rates Disclosure Form (Form 96-3) (NCAA, 1993). Figures presented included (for students and student-athletes) enrollment data, freshman-cohort graduation rates, and time spent to graduate. For student-athletes only, the report provided information regarding average admission data, degree programs, standards for transfer student-athletes, and transfer-cohort graduation rate.

Only the freshman-cohort graduation rates for students and student-athletes were analyzed geographically. The freshman-cohort graduation rates compared the number of students who graduated from an institution within six years of their entrance to the number who were in the original freshman cohort for the given year. The rate did not account for transfers; it divided the number graduated by the number initially enrolled



(NCAA, 1993). Thus, the 1993 freshman-cohort rates represented those freshman who entered the institution during the fall term 1986, and included those who first enrolled at the institution or any other institution during the summer term 1986; and graduated within six academic years, through the 1992 summer terms. Student-athlete graduation rates data were also included within the all-students graduation rates.

### Sampling

Geographic analysis of this group was conducted by sports regions location, according to the previously described nine major American sports regions delineated by Rooney and Pillsbury in The Atlas of American Sport (Rooney and Pillsbury, 1992) and by conference affiliation. In some cases, institutions were not members of the same conference for every sport sponsored. To eliminate confusion, these institutions were studied according to their football conference affiliation as of the 1992 season (NCAA, 1993). Eleven conferences, including the major independents (grouped together), were represented. To generate a stratified random sample, institutions were ordered alphabetically by name within each conference. Then, utilizing a random number table, fifty percent of each conference's institutions were selected. If the total membership within a conference was an odd number, greater than fifty percent of the membership were selected (Table V). A total of fifty-four institutions were selected for the study of conference patterns, the total not equal to fifty percent of total institutions due to five conferences containing an odd number of member institutions (Figure 3), (Table VI).

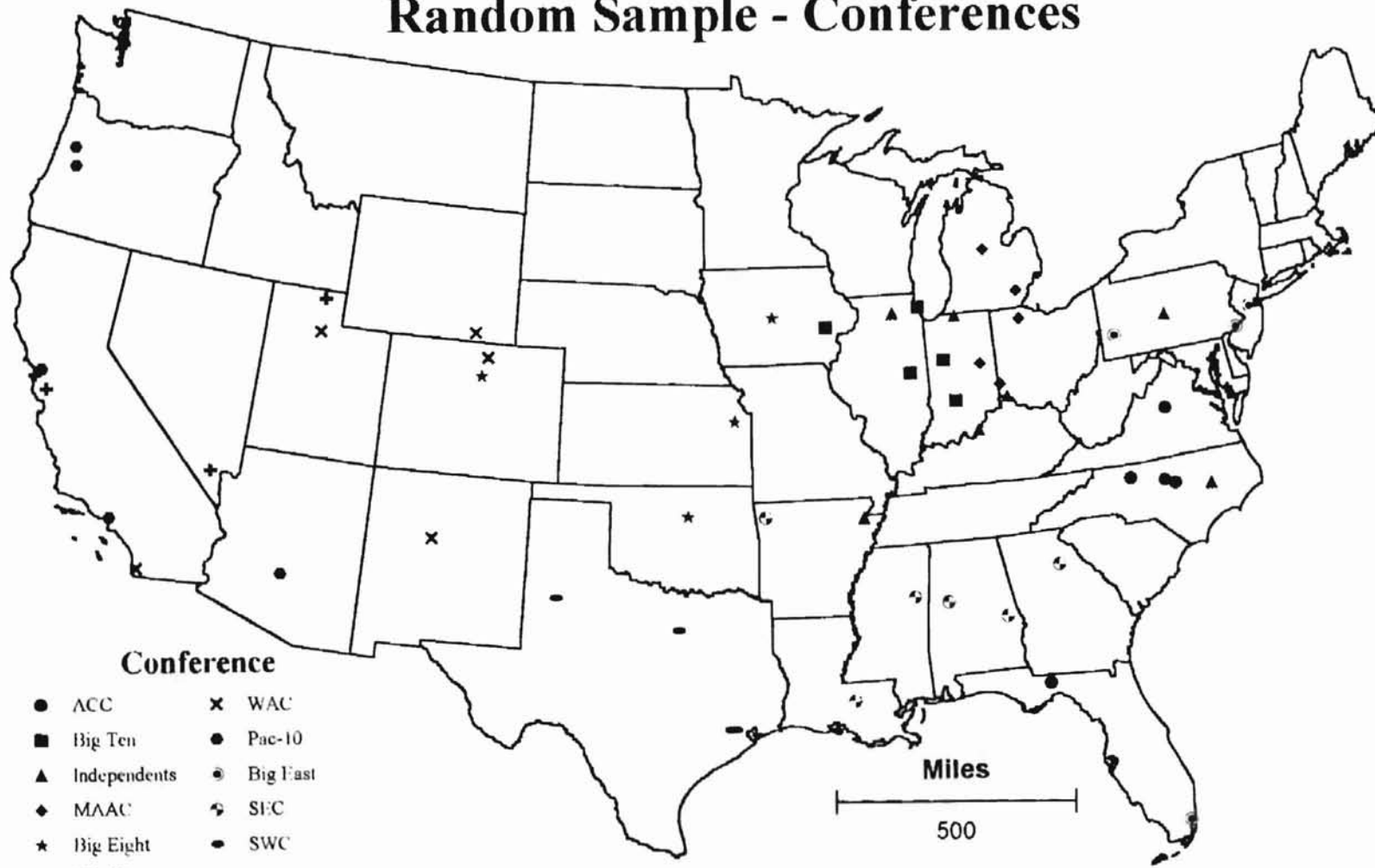
Second, the institutions were sorted based upon their location within the Rooney and Pillsbury geographic sports regions. Likewise, the stratified random sample

TABLE V

## RANDOM SAMPLE (CONFERENCES)

Conferences		Total Member Institutions	Total Randomly Selected
1.	Atlantic Coast (ACC)	09	05
2.	Big East	08	04
3.	Big Eight	08	04
4.	Big Ten	10	05
5.	Big West	07	04
6.	Major Independents	13	07
7.	Mid-American Athletic (MAAC)	10	05
8.	Pacific-Ten (Pac-10)	10	05
9.	Southeastern (SEC)	12	06
10.	Southwest Athletic (SWC)	07	04
11.	Western Athletic (WAC)	09	05
Total	11	103	54

# Random Sample - Conferences



## Conference

- ACC
- Big Ten
- ▲ Independents
- ◆ MAAC
- ★ Big Eight
- ✦ Big West
- ✕ WAC
- Pac-10
- ⊙ Big East
- ⊕ SEC
- SWC

Miles

500

Figure 3. Random Sample - Conferences

Source: NCAA, 1993 (2)

TABLE VI

INSTITUTIONS-RANDOM SAMPLE (CONFERENCES)

<b><u>ACC</u></b>	<b><u>Big East</u></b>	<b><u>Big Eight</u></b>	<b><u>Big Ten</u></b>	<b><u>Big West</u></b>	<b><u>Major Independents</u></b>
Florida State	Miami (Fla.)	Colorado	Illinois	Cal State Fullerton	Arkansas State
North Carolina	Pittsburgh	Iowa State	Indiana	Nev.-Las Vegas	Cincinnati
North Carolina State	Rutgers	Kansas	Iowa	San Jose State	East Carolina
Virginia	Temple	Oklahoma State	Northwestern	Utah State	Louisville
Wake Forest			Purdue		Northern Illinois
					Notre Dame
					Penn State
<b><u>MAAC</u></b>	<b><u>Pac-10</u></b>	<b><u>SEC</u></b>	<b><u>SWC</u></b>	<b><u>WAC</u></b>	
Ball State	Arizona State	Alabama	Houston	Colorado State	
Bowling Green	California	Arkansas	Rice	New Mexico	
Central Michigan	Oregon	Auburn	Texas Christian	San Diego State	
Eastern Michigan	Oregon State	Georgia	Texas Tech	Utah	
Miami (Ohio)	UCLA	Louisiana State		Wyoming	
		Mississippi			
		State			

for institutions by sports regions was generated by sorting the institutions by name within each sports region. Then, using a random number table, fifty percent of each region's institutions were selected (Table VII). If the total membership within a sports region, as with the conference selection, was an odd number, greater than fifty percent of the membership were selected. A total of 54 institutions were selected for the study of sports regions, the total not equal to fifty percent of total institutions due to five sport regions also containing an odd number of institutions (Figure 4), (Table VIII).

Note: Two random samples were drawn as institutions randomly selected by region may have over-represented or under-represented a conference.

#### Statistical Tests

For hypotheses 1a, 1b, 2a, and 2b, one-tailed z-tests were selected (based on the size of the samples,  $N > 30$ ) to test whether or not there was a significant difference between proportions. Scores were significant at the level  $\alpha = .05$  ( $z_{.05} = 1.64$ ).

Two-tailed z-tests were selected (based on the size of the samples,  $N > 30$ ) to test whether or not there was a significant difference between proportions for hypotheses 3a, 3b, 6a, and 6b. Scores were significant at the level  $\alpha = .05$  ( $z_{.025} = \pm 1.96$ ).

Chi-square tests were selected to examine the variation among two or more groups for hypotheses 4a, 4b, 5a and 5b. Scores were significant at the  $\alpha = .05$  level.

To protect the identity of individuals, data for the football and men's basketball student athletes were represented the following categories: a = 1-5, b = 6-10, c = 11-15, d = 16-20, and e = >20. For purposes of this study, the following midpoint values were assumed: a = 3, b = 8, c = 13, d = 18, and e = 25.

TABLE VII  
RANDOM SAMPLE (SPORTS REGIONS)

	Sports Regions	Total Member Institutions	Total Randomly Selected
1.	American Heartland	19	10
2.	Carolina*	07	04
3.	Cowboys and Mormons	08	04
4.	Eastern Cradle	05	03
5.	Mills and Mines	06	03
6.	Pacific Cornucopia	14	07
7.	Pigskin Cult	20	10
8.	Rocky Mountain High**		
9.	South Florida**		
10.	Sport for Sport's Sake	13	07
11.	Texas Southwest	11	06
Total	9	103	54

\* Rooney and Pillsbury (1992) designate Carolina as a subregion, but because this region is home to seven Division I-A football institutions, it is considered a region within this analysis.

\*\* Because the sports regions of South Florida and Rocky Mountain high each contained only one representative, these institutions were grouped with the nearest neighbor region of Pigskin Cult and Sports for Sports Sake, respectively.

# Random Sample - Sports Regions

40

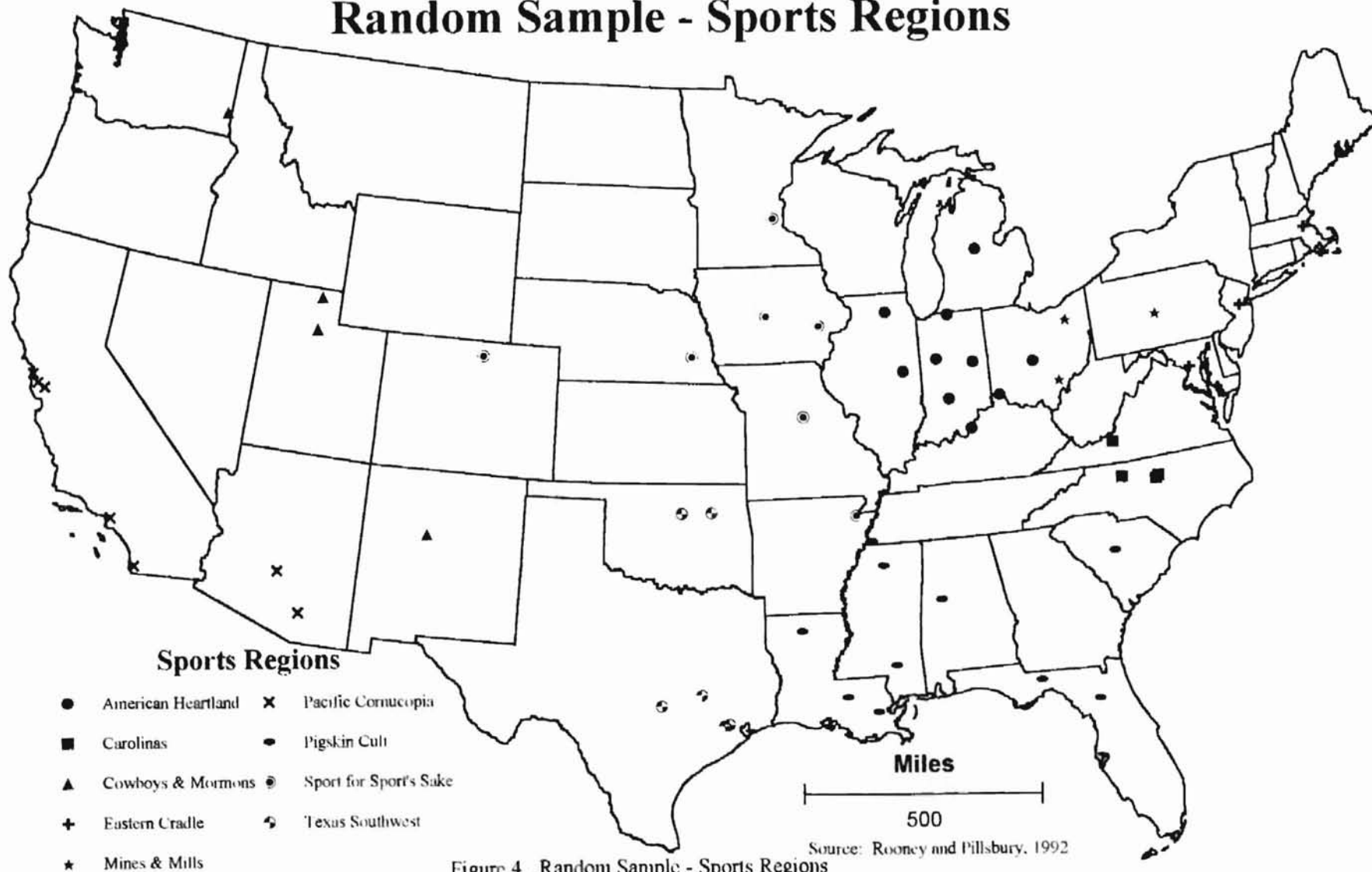


Figure 4. Random Sample - Sports Regions

TABLE VIII

INSTITUTIONS-RANDOM SAMPLE (SPORTS REGIONS)

<u>American Heartland</u>	<u>Carolina</u>	<u>Cowboys and Mormons</u>	<u>Eastern Cradle</u>	<u>Mines and Mills</u>
Ball St.	Duke	New Mexico	Boston College	Akron
Central Michigan	North Carolina	Utah	Maryland	Ohio
Cincinnati	Virginia Tech	Utah St.	Rutgers	Penn State
Illinois	Wake Forest	Washington St.		
Indiana				
Louisville				
Northern Illinois				
Notre Dame				
Ohio St.				
Purdue				
<u>Pacific Cornucopia</u>	<u>Pigskin Cult</u>	<u>Sports for Sport's Sake</u>	<u>Texas Southwest</u>	
Arizona	Alabama	Arkansas St.	Houston	
Arizona St.	Florida	Colorado St.	Oklahoma St.	
Cal St. Fullerton	Florida St.	Iowa	Rice	
San Diego St.	Louisiana St.	Iowa St.	Texas	
San Jose St.	Louisiana Tech	Minnesota	Texas A&M	
Southern California	Memphis St.	Missouri	Tulsa	
Stanford	Mississippi	Nebraska		
	South Carolina			
	Southern Miss.			
	Tulane			



## CHAPTER IV

### ANALYSIS OF VARIABLES

The hypotheses were always stated in pairs to represent each random sample utilized in this study. The first set of hypotheses were stated to compare the overall academic attainment of student-athletes and all-students.

- 1a. Overall by sports regions, student-athletes graduate at a higher rate than all-students.

Sports Regions (all) z-score = 1.17

- 1b. Overall by conferences, student-athletes graduate at a higher rate than all-students.

Conferences (all) z-score = -1.17

In observing z-values for both samples, no significant difference in the student-athlete graduation rates and all-student graduation rates, occurs overall (by sports regions and by conferences). Therefore, the null hypotheses that student-athlete graduation rates and all-students graduation rates are equal are not rejected.

Since the original hypotheses, which stated student-athletes graduate at higher rates than all-students, were not found statistically significant, the next set of hypotheses sought to establish where (in sports regions and conferences) student-athletes graduate at higher rates than all-students.

- 2a. Within each sports region, student-athletes graduate at a higher rate than all-students.

In six sports regions, the resulting z-score (Table IX) indicated the student-athlete graduation rate was not significantly higher than the all-student graduation rate, so the null hypothesis was not rejected. In the Mines and Mills, Pacific Cornucopia and Sports for Sport's Sake regions, the student-athlete graduation rate was significantly higher than the all-student graduation rate, and the null hypothesis was rejected.

- 2b. Within each conference, student-athletes graduate at a higher rate than all-students.

The z-score for eight conferences (Table X), indicated the student-athlete graduation rate was not significantly higher than the all-students graduation rate and the null hypothesis was not rejected. A significant difference was identified between these two groups in the MAAC, SWC, and WAC and as a result, the null hypothesis was rejected for each conference.

- 3a. There is a significant difference between the student-athlete graduation rates within each sports region and the overall student-athlete graduation rates.

Two sports regions had a z-score (Table XI) which indicated there was no significant difference between the student-athlete graduation rate in their region versus the overall student-athlete graduation rate. For these sports regions, the null hypothesis was not rejected. Seven sports regions' had a z-score which indicated a significant difference between their student-athlete graduation rate and the overall student-athlete graduation rate. The null hypothesis was rejected for each of these sports regions.

TABLE IX

Z-SCORE, BY SPORTS REGION: STUDENT-ATHLETE GRADUATION RATE  
VERSUS ALL-STUDENT GRADUATION RATE

<b>Region</b>	<b>Value</b>	<b>Significant Difference <math>\alpha = .05</math> (<math>z_{.05} = 1.64</math>)</b>
American Heartland	1.26	No
Carolinas	-3.18	No
Cowboys and Mormons	.66	No
Eastern Cradle	-1.57	No
Mines and Mills	1.76	Yes
Pacific Cornucopia	1.90	Yes
Pigskin Cult	1.44	Yes
Sport for Sport's Sake	2.64	Yes
Texas Southwest	-1.85	No

TABLE X

Z-SCORE, BY CONFERENCE: STUDENT-ATHLETE GRADUATION RATE  
VERSUS ALL-STUDENT GRADUATION RATE

Conference	Value	Significant Difference $\alpha = .05$ ( $z_{.05} = 1.64$ )
ACC	-1.21	No
Big East	-.65	No
Big Eight	-1.60	No
Big Ten	-1.19	No
Big West	-1.31	No
Independents	.40	No
MAAC	1.97	Yes
Pac-10	-1.48	No
SEC	0	No
SWC	2.43	Yes
WAC	1.70	Yes

TABLE XI

Z-SCORE, EACH SPORTS REGION: STUDENT-ATHLETE GRADUATION RATE  
VERSUS OVERALL STUDENT-ATHLETE GRADUATION RATE

<b>Region</b>	<b>Value</b>	<b>Significant Difference <math>\alpha = .05</math> (<math>z_{.025} = \pm 1.96</math>)</b>
American Heartland	2.5	Yes
Carolinas	4.06	Yes
Cowboys and Mormons	-4.27	Yes
Eastern Cradle	3.06	Yes
Mines and Mills	3.17	Yes
Pacific Cornucopia	-1.10	No
Pigskin Cult	-3.15	Yes
Sport for Sport's Sake	-.83	No
Texas Southwest	-3.22	Yes

- 3b. There is a significant difference between the student-athlete graduation rate within each conference and the overall student-athlete graduation rate.

Six conferences had a resulting z-score (Table XII) which revealed no significant difference between the student-athlete graduation rate in their conference, and the overall student-athlete graduation rate. The null hypothesis for each conference was not rejected.

However, the z-score for each of the five remaining conferences reflected significant differences between their student-athlete graduation rate and the overall student-athlete graduation rate and the null hypothesis was rejected.

- 4a. Across the sports regions, there is a significant difference between the number of student-athletes graduating and the number of student-athletes not graduating.

- 4b. Across the conferences, there is a significant difference between the number of student-athletes graduating and the number of student-athletes not graduating.

For both chi square statistics,  $p < .05$ , which revealed a significant difference between the number of student-athlete graduates and student-athlete non-graduates across all sports regions, and all conferences, in the respective samples (Table XIII). As a result, the null hypothesis for each was rejected.

- 5a. Across the institutions within each sports region, there is a significant difference between the number of student-athletes graduating and the number not graduating.

Four of the regions revealed no significant difference (Table XIV) between the number of student-athlete graduates and non-graduates among their institutions, and

TABLE XII

Z-SCORE, EACH CONFERENCE: STUDENT-ATHLETE GRADUATION RATE  
VERSUS OVERALL STUDENT-ATHLETE GRADUATION RATE

Conference	Value	Significant Difference $\alpha = .05$ ( $z_{.025} = \pm 1.96$ )
ACC	3.87	Yes
Big East	.95	No
Big Eight	-1.25	No
Big Ten	3.78	Yes
Big West	-5.43	Yes
Independents	1.17	No
MAAC	2.27	Yes
Pac-10	0.00	No
SEC	-2.30	No
SWC	-.80	No
WAC	-3.31	Yes

TABLE XIII

CHI-SQUARE VALUES, ACROSS THE SAMPLES: COMPARING NUMBER  
OF STUDENT-ATHLETES GRADUATING AND NUMBER  
OF STUDENT-ATHLETES NOT GRADUATING

Sample	Chi-Square Value	Degrees of Freedom	Significant Difference $\alpha = .05$
Sports Regions	89.378	8	P value $< .05$ , reject $H_0$
Conferences	99.232	10	P value $< .05$ , reject $H_0$



TABLE XIV

CHI-SQUARE VALUES, ACROSS THE INSTITUTIONS  
 WITHIN EACH SPORTS REGION: COMPARING THE  
 NUMBER OF STUDENT-ATHLETES GRADUATING  
 AND NUMBER OF STUDENT-ATHLETES  
 NOT GRADUATING

Region	Chi-Square Value	Degrees of Freedom	Significant Difference $\alpha = .05$
American Heartland	30.312	9	P value < .05, reject $H_0$
Carolina	17.242	3	P value < .05, reject $H_0$
Cowboys and Mormons	4.672	3	P value > .05, do not reject $H_0$
Eastern Cradle	22.441	2	P value < .05, reject $H_0$
Mills and Mines	5.333	2	P value > .05, do not reject $H_0$
Pacific Cornucopia	42.386	6	P value < .05, reject $H_0$
Pigskin Cult	16.404	9	P value > .05, do not reject $H_0$
Sport for Sport's Sake	11.798	6	P value > .05, do not reject $H_0$
Texas Southwest	49.355	5	P value < .05, reject $H_0$

the null hypothesis was rejected. Five of the sports' regions chi-square values displayed significant differences between the number of student-athlete graduates and non-graduates among their institutions. For those sports regions, the null hypothesis was rejected.

- 5b. Across the institutions within each conference, there is a significant difference between the number of student-athletes graduating and the number not graduating.

Six conferences revealed no significant difference (Table XV) between student-athlete graduates and non-graduates among institutions within each conference, therefore do not reject the null hypothesis. A significant difference between these two groups was indicated at five conferences thus rejecting the null hypothesis.

- 6a. There is a significant difference between student-athletes graduation rates in revenue sports, within each sports region and the overall student-athlete graduation rate.

Eight sports regions had a z-score which indicated no significant difference between student-athlete graduation rates for football and the overall student-athlete graduation rate, and the null hypothesis for each was not rejected. The Carolinas, Cowboys and Mormons, and Sport for Sport's Sake regions each demonstrated a significant difference between the graduation rates for their football student-athletes and the overall student-athlete graduation rate, as per their respective z-score. In this case, the null hypothesis for each was rejected (Table XVI).

When men's basketball graduation rates were compared to overall student-athlete graduation rates, three sports regions (Carolinas, Cowboys and Mormons, and Eastern

TABLE XV

CHI-SQUARE VALUES, ACROSS THE INSTITUTIONS  
 WITHIN EACH SPORTS CONFERENCE: COMPARING  
 NUMBER OF STUDENT-ATHLETES GRADUATING  
 AND NUMBER OF STUDENT-ATHLETES  
 NOT GRADUATING

Conference	Chi-Square Value	Degrees of Freedom	Significant Difference $\alpha = .05$
ACC	30.436	4	P value <.05, reject $H_0$
Big East	5.014	3	P value >.05, do not reject $H_0$
Big Eight	20.255	3	P value <.05, reject $H_0$
Big Ten	5.627	4	P value >.05, do not reject $H_0$
Big West	.777	3	P value >.05, do not reject $H_0$
Independents	38.815	6	P value <.05, reject $H_0$
MAAC	14.570	4	P value <.05, reject $H_0$
Pac-10	6.142	4	P value >.05, do not reject $H_0$
SEC	10.351	5	P value >.05, do not reject $H_0$
SWC	37.781	3	P value <.05, reject $H_0$
WAC	3.049	4	P value >.05, do not reject $H_0$

TABLE XVI

Z-SCORE, EACH SPORTS REGION: FOOTBALL GRADUATION RATE  
VERSUS OVERALL STUDENT-ATHLETE GRADUATION RATE

Region	Value	Significant Difference $\alpha = .05$ ( $z_{.025} = \pm 1.96$ )
American Heartland	-1.18	No
Carolinas	2.05	Yes
Cowboys and Mormons	-2.40	Yes
Eastern Cradle	1.57	No
Mines and Mills	0.30	No
Pacific Cornucopia	-1.90	No
Pigskin Cult	-1.73	No
Sport for Sport's Sake	-3.23	Yes
Texas Southwest	-1.88	No

Cradle) indicated no significant difference between the two groups, and the null hypothesis, for each, was not rejected. However, the other six sports regions' z-scores indicated a significant difference between men's basketball graduation rates and overall student-graduation rates. The null hypothesis for each of these conferences was rejected (Table XVII).

6b. There is a significant difference between student-athletes graduation rates in revenue sports, within each conference and the overall student-athlete graduation rate.

Seven conferences each had a z-score which reflected no significant difference between the graduation rate for football and the overall student-athlete graduation rate. As a result, the null hypothesis for each was not rejected. Yet, the Big Eight, Big West, SEC, and WAC all had a z-score which reflected a significant difference, between the football graduation rate and the overall student-athlete graduation rate, and the null hypothesis for each was rejected (Table XVIII).

Six conferences indicated no significant difference, between the graduation rate for men's basketball and the overall graduation rate for student-athletes, and the null hypothesis for each was not rejected. The Big West, MAAC, SEC, SWC, and WAC each had a z-score which indicated a significant difference between the men's basketball graduation rate and the overall student-athlete graduation rate and the null hypothesis for each was rejected (Table XIX).

TABLE XVII

Z-SCORE, EACH SPORTS REGION: MEN'S BASKETBALL  
GRADUATION RATE VERSUS THE OVERALL  
STUDENT-ATHLETE GRADUATION RATE

Region	Value	Significant Difference $\alpha = .05$ ( $z_{.025} = \pm 1.96$ )
American Heartland	-3.47	Yes
Carolinas	-0.07	No
Cowboys and Mormons	-0.62	No
Eastern Cradle	-0.24	No
Mines and Mills	-2.67	Yes
Pacific Cornucopia	-5.91	Yes
Pigskin Cult	-2.86	Yes
Sport for Sport's Sake	-3.66	Yes
Texas Southwest	-3.48	Yes

TABLE XVIII

Z-SCORE, EACH CONFERENCE: FOOTBALL GRADUATION RATE  
VERSUS OVERALL STUDENT-ATHLETE GRADUATION RATE

Conference	Value	Significant Difference $\alpha = .05$ ( $z_{.025} = \pm 1.96$ )
ACC	0.65	No
Big East	-1.19	No
Big Eight	-2.70	Yes
Big Ten	0.97	No
Big West	-4.28	Yes
Independents	-1.40	No
MAAC	-1.00	No
Pac-10	-1.21	No
SEC	-3.26	Yes
SWC	0.17	No
WAC	-2.91	Yes

TABLE XIX

Z-SCORE, EACH CONFERENCE: MEN'S BASKETBALL  
GRADUATION RATE VERSUS THE OVERALL  
STUDENT-ATHLETE GRADUATION RATE

Conference	Value	Significant Difference $\alpha = .05$ ( $z_{.025} = \pm 1.96$ )
ACC	-0.30	No
Big East	-0.11	No
Big Eight	-1.33	No
Big Ten	-1.34	No
Big West	-3.67	Yes
Independents	-1.12	No
MAAC	-2.05	Yes
Pac-10	1.76	No
SEC	-3.57	Yes
SWC	-2.55	Yes
WAC	-2.80	Yes



## CHAPTER V

### RESULTS

When comparing overall student-athlete graduation rates and overall all-student graduation rates, the z-score for the sports regions sample indicated no significant difference between these two groups. For the conference comparison of these same groups, the z-score also indicated no significant difference between them. As a result, the null hypothesis for each sample was not rejected.

More specifically, it was then decided to determine if student-athletes graduated at rates significantly higher than all students, within each sports region. Three regions, Mines and Mills, Pacific Cornucopia and Sport for Sport's Sake; each had a z-score that indicated a significant difference between these two groups.

Student-athletes in the Mines and Mills region graduated at a 70 percent rate compared to all-students, who graduated at a 64 percent rate. Over 82 percent of freshmen in this area, which consisted mainly of Ohio, Pennsylvania and West Virginia, stayed in their home state when selecting a college (CHE, 1992). Yet, educational attainment (bachelor's degree) for adults, in all three states, was below the national average (CHE, 1998). Traditionally a blue-collar area, the graduation rate in this region may be indicative of a new focus after the decline of the steel industry.

Four states in the Pacific Cornucopia (California, Oregon, Washington and

Arizona) had adult education attainment levels (bachelor's degree) above the national norm (CHE, 1998). California alone is home to four (California Institute of Technology, Stanford, UCLA, and Berkeley) of the top twenty-five national universities (U.S. News and World Report, 1992) academically. Additionally, over 92 percent of each state's freshmen stayed in state to pursue a college degree (CHE, 1992). This region, which supports a wide variety of sports participation opportunities, appears to be providing many educational opportunities as well.

Student-athletes in the Sport for Sport's Sake region graduated at a 58 percent rate while all-students attained a 52 percent rate. In all states within this sports region, except for Alaska and Montana, at least 80 percent of all freshmen attended college in their home state (CHE, 1992). Educational attainment (bachelor's degree) for adults in eight of this sports region's states was above the national average, which is reflective of education's value in this area (CHE, 1998). Rooney and Pillsbury stated "play quality is often forsaken for the larger goal of increasing participation levels" in this region (Rooney and Pillsbury, 1992). For this reason, student-athletes may be able to enjoy participation opportunities while realizing educational achievement.

Similarly, three conferences, MAAC, SWC, WAC; emerged from the conference sample, with z-scores that reflected student-athletes graduated at significantly higher rates than all-students.

The MAAC student-athletes graduated at a 63 percent rate, 5 percentage points higher than the all-students rate of 58 percent. Two states in this region, Ohio and Indiana, had over 87 percent of their respective resident freshmen attend college in-state. The third state in this region, Michigan, realized 81 percent of their freshmen stayed in

their home state to pursue a degree. However, education attainment levels in all three states, for adults, were below the national norm.

The graduation rates of SWC student-athletes (54 percent) bettered the SWC all-students rate (45 percent) by 9 percentage points. All members of the SWC were located in Texas, which had an adult educational attainment (bachelor's degree) level of 13.9 percent, that was above the national norm (CHE, 1998). Nearly all freshmen (95 percent) from Texas attended college in their home state (CHE, 1992). Assuming areas of high football emphasis may realize lower educational attainment, the student-athlete graduation rates of the SWC, which was located within and near such an area, contradicted that assumption.

In the WAC conference, student-athletes graduated at a rate 47 percent, while all-students graduated at a 42 percent rate. In Nevada and New Mexico, adult educational attainment levels (bachelor's degree) percentages were below the national norm. At least 82 percent of each state's freshmen opted to stay in their home state to pursue a college degree. Could this be reflective of each state's level of scholastic education?

The analysis was further narrowed by examination of student-athlete graduation rates within sports regions and conferences compared to the overall student-athlete graduation rates, respectively. Z-scores for this two-tailed test exposed a significant difference between these two groups in seven of the nine regions. Four of them, American Heartland, Carolina, Eastern Cradle and Mines and Mills; had positive z-scores that reflected a significant difference between the rates of these two groups. Additionally, their z-scores demonstrated that student-athletes in these regions graduated at higher rates than the overall rate for student-athletes. One might assume that within these areas, a

symmetry of academics and athletics occurs.

Three of the sports regions, Carolina, Eastern Cradle, and Mines and Mills; are a major portion of the eastern United States, where education is a highly regarded aspect of the culture. Eight states within these three regions had adult educational attainment (bachelor's degree) percentages higher than the national norm (CHE, 1998). Fourteen of the top twenty-five national universities (academically) are located within these three sports regions' boundaries (U.S. News and World Report, 1992). While there was a tendency for fewer state residents to stay in their home state to pursue a degree, this densely populated area may have retained the stronger students academically. All of these factors suggest a heavy education emphasis, which is also reflected in the student-athletes graduation rates. One may recall that football is less emphasized in the Eastern Cradle, takes a back seat to basketball in the Carolina, and displays remnants of its former glory in the Mines and Mills district.

The fourth, American Heartland, is located adjacent to the Mines and Mills region. Student-athletes attained a graduation rate of 64 percent compared to the 59 percent all-student graduation rate. This region is home to the Big Ten and most of the MAAC institutions. Student-athletes in these two conferences also graduated at higher rates than student-athletes overall. American Heartland was considered to be the most balanced of the sports regions and this observation may be applicable to education also.

Negative z-scores were posted by the Cowboys and Mormons, Pigskin Cult and Texas Southwest sports regions, which indicated significant differences between the two groups in these regions. Specifically, these scores showed student-athletes in these regions graduated at lower rates than the overall rate for student-athletes. These three

regions encompass a major section of the United States, including the South, Southwest, and extending to the Far West. Again, football emphasis, especially at the college level, is a common denominator that may reflect less educational success, in each sports region. Because three sports regions represent each extreme, one would conclude that they in fact help to balance the graduation rates of student-athletes overall.

The next comparison was the student-athlete graduation rate by conference versus the overall student-athlete graduation rate. It revealed five conferences with z-scores which indicated a significant difference between the graduation rates of these two groups. The ACC, Big Ten, and MAAC all had positive z-scores demonstrating their student-athletes graduate at a significantly higher rate than student-athletes overall. Negative z-scores reflected significantly lower graduation rates by student-athletes in the Big West and WAC conferences.

The Carolina sports region, with a positive z-score of 4.06, was home to five institutional members of the ACC conference. They were Duke, Clemson, North Carolina, North Carolina State and Wake Forest. This athletic affiliation, which also had a high positive z-score of 3.87, also had member institutions in the Eastern Cradle sports region. As expected, this sports region also had a positive z score (3.06). Within these two sports regions, which comprise most of the East Coast, the value of education was again reflected by the higher level of academic attainment.

The American Heartland area is home to the Big Ten and MAAC. All three of these areas had student-athlete graduation rates better than overall student-athlete graduation rates. One of the oldest existing athletic conferences, the Big Ten is also known for its academic similarities among member institutions. Both conferences

realized all-student graduation rates well above average.

The Cowboys and Mormons sports region (with a negative z-score indicating student-athletes graduate at lower rates here than the overall) was home to members of both the WAC and Big West conferences. Each of these conferences also had negative z-scores, again showing significantly lower student-athlete graduation rates as compared to the overall rate.

Comparisons of the number of student-athlete graduates and student-athlete non-graduates were made across the sports regions and across the conferences. The chi-square value for both samples indicated a significant difference in these comparisons and the null hypothesis was rejected.

As a result of these differences, each sports region and conference was examined for variation between the number of student-athlete graduates and non-graduates among the institutions. Five sports regions had significant differences between these two groups, among their universities: American Heartland, Carolina, Eastern Cradle, Pacific Cornucopia, and Texas Southwest.

Nineteen Division I-A institutions were located in the American Heartland, including seven Big Ten institutions, whose student-athletes graduated at higher rates than the overall rate. Considered to be one of the top conferences, the Big Ten could sponsor more NCAA sports, thus increasing the possibility for variation of student-athlete graduates across this sport region's institutions. Eight of the ten MAAC institutions were also located within this sports region's boundaries. Among members of this conference, there was a significant difference between the number of student-athlete graduates and non-graduates. Both conferences were a major portion of this region thus attributing to

some of the variation. Additionally, three states in this region, Michigan, Ohio and Indiana; posted higher-education attainment (bachelor's degree) percentages for adults at rates below the national norm.

The Carolina sports region was one of the smallest with just seven institutions. Two of them, Duke and Virginia, were ranked among the top 25 national universities and one, North Carolina, was listed first-tier in the best of the rest grouping (U.S. News and World Report, 1992). Their successes, however, may offset any possible shortcomings in graduation rates from other universities. The regions mild climate may allow sponsorship of additional sports, thus creating more opportunities for participation.

The Eastern Cradle was also a small region, with just five members located within its boundaries. It demonstrated a consistent level of educational attainment in previous comparisons. Again, this could reflect more successful institutions carrying the weight of those not performing as well, yet the region still has graduation rates above the average.

The Pacific Cornucopia region was home to four institutions ranked in the top 25 academic listing of national universities (U.S. News and World Report, 1992). All of the major states in this region boasted educational attainment (bachelor's degree) for adults at rates above the national norm. The variation could result from a ratio of high graduates and low non-graduates thus reflecting a significant difference. This region was home to fourteen Division I-A members. Located mild climates, the region seems more conducive to year-round participation that may have resulted in increased collegiate sport participation opportunities.

Texas Southwest is often identified as football country. Within this sports region, only in the state of Texas was the educational attainment (bachelor's degree) of adults

higher than the national norm of 13.1 percent. Both Oklahoma and New Mexico were lower than the national average in this survey (CHE, 1998). Ninety-five percent of the state's freshmen stayed in Texas for college and 90 percent did the same in Oklahoma (CHE, 1992). Lower education attainment in these states may have contributed to a lower cultural value and expectation for education. Coupled with football fever, this sports region's culture may be reflected in the variation among student-athletes graduation rates.

Five conferences had significant differences across their institutions in the number of student-athlete graduates and non-graduates. Included in this group is the ACC, Big Eight, Independents, MAAC, and SWC.

Both the Pigskin Cult and Carolina sports regions were represented by members of the ACC. Recall the Pigskin Cult's student-athletes graduated at significantly lower rates than overall student-athletes while Carolina reflected the opposite. Significant differences in student-athlete graduates in the ACC may be indicative of a greater emphasis of football and lower graduation rates within the Pigskin Cult. Less football emphasis and a greater educational attainment appears to be characteristic of the Carolina sports region. A combination of these two observations could attribute to this significant difference among the institutions in the ACC.

Six of the Big Eight members were located in the Sport for Sport's Sake region, while the other two are found in the Texas Southwest. Variation could result from the lower educational attainment of institutions located in the Texas Southwest, again an area where football was greatly emphasized. In general, freshmen from the states in the Big Eight had a tendency to attend college in their home states, but some institutions could be securing football talent from other states.



Those grouped together as Independents were located across a large portion of the United States. Two perennial football powers, Penn State and Notre Dame, with strong academic reputations were included in this group. Others included much smaller athletic programs where football may not be as strong. Because this group was not clustered by general conference methods and covers an enormous geographic area, it was difficult to compare them.

Eight of the MAAC institutions were located within the American Heartland sports region and two, Ohio and Kent, were found in the neighboring Mines and Mills area, which reflects a higher student-athlete academic attainment than student-athletes overall. There was no significant difference between student-athlete graduation rates in the American Heartland versus overall student-athlete graduation rates. However, this region, coupled with Mines and Mills' strong showing, could substantiate the variation that occurred across the universities in the MAAC.

The SWC also reflected variation of student-athlete graduates and non-graduates across its institutions. Recall previous discussion of this conference's significant difference that revealed student-athletes graduated at higher rates than all-students. Strong football emphasis in Texas, where all the SWC universities were located, may again have played a role in this variation. This area has long been recognized for its scholastic and collegiate gridiron successes.

The final portion of this study examined the graduation rates of student-athletes participating in revenue sports of football and men's basketball, compared to the overall student-athlete graduation rates. Both sports will be investigated by sports regions and by conference affiliation.

Three sports regions displayed a significant difference between their football graduation rate compared to the overall student-athlete graduation rate. Only one, Carolina, had a positive z-score, which indicated football student-athletes in this area graduated at a higher rate than overall student-athletes. This region again has demonstrated its strong educational influence that was balanced with a successful collegiate sports environment. In the Cowboys and Mormons and Sport for Sport's Sake sports regions, football players graduated at a rate lower than the overall student-athlete graduation rate.

Four conferences demonstrated significant differences in football graduation rates compared to overall student-athlete graduation rates. They were: Big Eight, Big West, SEC and the WAC. Six of the Big Eight's teams were located in the Sport for Sport's Sake Region. According to Rooney, 52 percent of the conference players were recruited from states within the conference (Rooney, 1987). Historically, the conference has been dominated by Oklahoma and Nebraska (Rooney, 1987) and the other institutions may have been trying to achieve similar success at any cost.

The Big West and WAC member institutions are primarily located in the Cowboys and Mormons region. Rooney discovered the WAC recruited nearly 67 percent of its players from states outside of the conference boundaries (Rooney, 1987). Therefore, they were most likely tapping into the supply after the dominant football institutions had made their selections.

Rooney ranked the SEC as the conference which as demonstrated the most balance between the its best and worst teams. This was based on a points system which accounted for Top 10 (1945-71) and Top 20 (1973-83) finishes (Rooney, 1987). Their

football student-athletes graduated at rates significantly lower than their overall student-athletes rate. This obsession with football transcends all member institutions and is reflected in the lower academic attainment level of this sport.

In six of the sports regions, men's basketball graduation rates were significantly lower than those of student-athletes overall. These areas included: American Heartland, Mines and Mills, Pacific Cornucopia, Pigskin Cult, Sport for Sport's Sake, and Texas Southwest. This was also evident in the following five conferences: Big West, MAAC, SEC, SWC, and WAC.

The MAAC conference member institutions were located within both the American Heartland and the Mines and Mills sports regions. Rooney stated, "many of the best prospects have been recruited great distances from IllInKy at considerable expense to the universities involved-and to the detriment of the area's own collegiate programs," (Rooney, 1987). Institutions may be importing talent from areas of lower educational emphasis. However, recall the MAAC student-athletes graduated at higher rates than all-students. While the MAAC is the only conference in these two sport regions that demonstrated a significant difference, other conferences contribute to these sport regions' lower graduation rates for men's basketball.

Of all the sports regions, the Pacific Cornucopia displayed the most significant difference between men's basketball and overall student-athlete graduation rates. One observation of this region was made that collegiate basketball is of less importance in this area (Rooney and Pillsbury, 1992). This is the home of the Pac-10 conference, which carries a strong basketball tradition and has great recent success in the 80's and 90's. It is also home to Big West conference institutions, which also had men's basketball

graduation rates much lower than the overall student-athlete graduation rate. California, which comprises a majority of this conference, exports forty-four percent of its talent.(Rooney, 1987).

The Pigskin Cult sports region and the SEC had men's basketball graduation rates significantly lower than overall student-athlete graduation rates. This was also the case for football in the SEC. Collegiate sports are a major source of entertainment in the Pigskin Cult and these low graduation rates reflect the near-professionalism of these two amateur sports.

The Texas Southwest and SWC, similar to the Pigskin Cult and SEC, demonstrated significantly lower men's basketball graduation rates as compared to overall student-athlete graduation rates. Few professional teams were located in the Texas Southwest and the college teams satisfied the entertainment need, most likely at the expense of obtaining a bachelor's degree.

Another area with few professional sports franchises relative to its size is the Sport for Sport's Sake region. Men's basketball players in this area graduate at much lower rates than student-athletes overall. Recall that this region was one where student-athletes graduated at significantly higher rates than all-students.

Finally, the WAC also had lower graduation rates for men's basketball as compared to all student-athletes. Only one professional franchise serves this area, which also has low player production . Assuming football recruiting patterns transcend the hardwood, most talent is probably imported.

## Conclusion

In summary, this analysis examined student-athlete graduation rates according to institutional location in sports regions and athletic conference affiliation. Significant differences among student-athlete graduation rates were revealed within these two types of geographic regions. Specifically, the graduation rates of the revenue sports' student-athletes, football and men's basketball, demonstrated the most variation. According to Rooney,

these differences in graduation rates reflect regional differences in the philosophical underpinnings of both intercollegiate and interscholastic sport. Educational short cuts are commonplace where football is overemphasized to the point that young high school stars become folk heroes. The recent no pass, no play legislation adopted by the state of Texas was a long overdue response to athletic excesses. Though no quick fixes are possible, perhaps the Texas decision will spur an upgrading of academic values in the "Pigskin Cult" South (Rooney, 1988).

It is often reported that student-athletes graduated at rates equal to or higher than the all-students graduation rate. However, these reports fail to address the much lower rates of the revenue sports, as revealed by this study. One can assume the lower revenue sports' graduation rates are offset by the graduation rates of the many non-revenue sports, both male and female, sponsored by an institution.

At the collegiate level, football typically represented the largest percent, for most institutions, of incoming freshmen student-athletes. Due to this, it was a major factor in student-athlete graduation rates for institutions. Rooney observed,

Fewer than one-third of the NFL players have completed degree requirements. Considering that most of them have had a minimum of four years (many have had five) of collegiate residence and their average age is twenty-seven, the record is indeed appalling. Even more appalling is the growing attempt to rationalize the graduation problem by lauding the benefits received through exposure to a center

of higher education. Growth and education by contagion is now being falsely promoted as an alternative to the real thing. Being exposed to education is, however, not the same as being educated (Rooney, 1987:xvi).

Men's basketball also demonstrated lower graduation rates, but this sport usually represented a small percent of an institution's incoming class, therefore, had less impact on the overall graduation rate for student-athletes at an institution. These findings supported the results of the study conducted by Purdy, Eitzen and Hufnagel, which indicated,

there is evidence that athletes in male revenue sports of football and basketball have a relatively low probability of receiving an education compared to non-athletes or athletes in other sports (Purdy, Eitzen, and Hufnagel, 1985:231).

They attribute this to the pressure to win felt by revenue sports,

This means that coaches in these sports are likely to be excessive in their demands on the time of their athletes during and between sessions. The serious and far-ranging financial consequences of big-time sports also increase the likelihood that coaches will recruit exceptional athletes who are unqualified for the academic demands of college. To the degree that this occurs, coaches are then faced with keeping these marginal students eligible. At some schools, this has meant obtaining bogus credits for them out of difficult courses leading to graduation, and other tactics. When these practices occur, the goal of higher education has been subverted and the athletes have been exploited (Purdy, Eitzen, and Hufnagel, 1985).

In general, student-athletes in revenue sports receive full athletic scholarships and many of are supported by scholarships for four to five years. In addition, they have an eligibility incentive to stay in school continuously for that time period. With these two supporting factors, student-athletes in revenue sports should be graduating at higher rates than demonstrated in this study. General students may be more likely to change their status from full to part-time or take time off from college, to earn money to support their education.

One of the requirements student-athletes must fulfill to maintain satisfactory progress, as defined by the NCAA, is commonly referred to as “25/50/75”. Specifically, it is Bylaw 14.4.3.2.2. - Student-Athletes Entering Collegiate Institution On or After August 1, 1992, which states,

A student-athlete who is entering his or her third year of collegiate enrollment shall have completed successfully at least 25 percent of the course requirements in the student’s specific degree program. A student-athlete who is entering his or her fourth year of collegiate enrollment shall have completed successfully at least 50 percent of the course requirements in the student’s specific degree program. A student-athlete who is entering his or her fifth year of collegiate enrollment shall have completed successfully at least 75 percent of the course requirements in the student’s specific degree program. The course requirements must be in the student’s specific degree program (as opposed to the student’s major). (*Adopted: 1/10/92, effective 8/1/92, Revised 1/9/96*) (NCAA, 1997:146).

Assuming a bachelor’s degree requires 120 semester credit hours, a student-athlete must have completed 30 credit hours applicable towards a degree, prior to the beginning of his or her junior (third) year. Sixty credit hours must be completed prior to the beginning of the senior (fourth) year and 90 must be completed prior to the fifth year. For revenue student-athletes, who are most likely to be redshirted as freshmen, completing a 120 credit hour bachelor’s degree in five years is a reasonable expectation. This rule even allows for the student-athlete to explore for a major during the first two years of enrollment. If student-athletes are receive scholarships for five years, participate in four of them, and successfully complete 12 credit hours for 10 semesters, they should be obtaining their bachelor’s degrees. Perhaps many are maintaining eligibility until the fifth year and then choosing not to complete the degree program.

Revenue sports, often referred to as “big time”, are frequently of great benefit to institutions while they place huge time demands on student-athletes. Although the

NCAA has a twenty-hour per-week maximum practice time rule, other suggested activities dominate student-athletes' time such as weightlifting and viewing game film.

Rooney wrote,

The benefits have often extracted a terrible price from young athletes and their sponsors. They have compromised the academic objectives and have blemished the reputations of some of our best universities. "Big time" sports have placed enormous demands on the time and energies of student-athletes. The football season typically requires a forty-hour a week commitment to practice, meetings, film sessions, and the game. Only the most dedicated students succeed academically, and even they are cut off from the mainstream of college life...The conflict between academic and athletic achievement will remain until we reduce the sport-related time demands on our intercollegiate athletes, and as long as we continue to recruit student-athletes with marginal classroom potential or interest (Rooney, 1985).

Student-athletes may be the current reference, but athlete-student, after analyzing these graduation rates, could be the more accurate title. It has even been suggested that institutions should expand majors to include an athletic degree. Michener observed

...I see nothing wrong in having a college or a university provide training for the young man or woman who wants to devote his adult life to sports. My reasoning is twofold: 1) American society has ordained that sports shall be a major aspect of our national life, with major attention, major financial support and major coverage in the media. How possibly can a major aspect of life be ignored by our schools? 2) If it is permissible to train young musicians and actors in our universities, and endow munificent departments to do so, why is it not equally legitimate to train young athletes, and endow them with a stadium? (Michener, 1976:237-238).

Gary Funk, an academic advisor who works primarily with student-athletes, also suggested an athletic major, which "would allow student-athletes to take subjects of interest to them...." These majors would have mandatory general education courses and fall under the same jurisdiction of degrees offered at the school (Funk, 1991:147-148).

Suggestions to encourage colleges to focus on both academics and athletics are abundant. Sociologist Donald Chu states "...coaches, boosters, and administration must



be given incentive to promote the education of their athletes. Availability of scholarships should be directly tied to graduation rates of student-athletes," (Chu, 1989:197-98).

Rooney provides eleven specifics in his guidelines for implementing a system of amateur college sports which includes eliminating freshman eligibility, restricting total practice time (including practice, film review, team meetings, and weight training) to fifteen hours per week. He also believes that sports schedules should be made such that student-athletes miss a maximum of seven days of classes (Rooney, 1987).

Of increasing concern is the opportunity to make oneself available to the professional sports draft. According to the NCAA, two in one hundred college men's basketball players, and three in one hundred college football players, have a probability of professional careers (NCAA, 1998). However, it would be of interest to determine how many student-athletes complete eligibility and leave an institution, prior to obtaining their degree, at the lure of a opportunity to compete at the next level. While it is understandable some student-athletes select this option, perhaps graduation rates could also reflect the number of students who left in good academic standing and or completed degree requirements after the six-year time frame.

A noteworthy observation was made regarding non-qualifiers, that is, incoming student-athletes deemed not eligible by the NCAA because they have not achieved minimum academic standards. John Gerdy, a former associate commissioner of the ACC, states that non-qualifiers now have an opportunity to gain a fourth year of eligibility if they graduate after their fourth year on campus. However, the NCAA reported in the 1996 NCAA Division I Graduation Rate Report that student-athletes take

an average of 4.8 years to graduate. To encourage student-athletes to obtain that degree, NCAA eligibility standards should be adjusted accordingly (Gerdy, 1997).

A final viewpoint regarding accountability should be considered. According to Funk, “a significant contributor to the academic problems of student-athletes is the athletes’ failure to accept responsibility for their scholastic endeavors” (Funk, 1991:145). It is important to remember all of the players in the game of academics and athletics. However, institutions must lead by example in demonstrating accountability in maintaining this ever-controversial balance.

#### Suggestions For A Future Study

A study of graduation rates may be most reflective of educational attainment when other factors are included. Individual student-athlete factors of home state (to compare state educational systems), high school achievement (grade point average and rank), and college assessment scores should be considered. Institutional characteristics including average ACT/SAT scores of incoming freshmen, commitment to academic success (as indicated by student retention rates), and support services available to all students should also be included. Sport, gender, and ethnicity factors would provide better insight where to target efforts for improvement. An examination of all of these factors or a combination thereof, would aid in determining if institutions, which may be recruiting student-athletes less-prepared academically, recognize this pattern and are committed to working with all students wanting to realize academic success.

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