

An Analysis of Decision-Making by Non-Revenue Sports Student-Athletes in Choosing the
University of North Carolina at Chapel Hill

By

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ABSTRACT

ROB OCKENFUSS: An Analysis of Decision-Making by Non-Revenue Sports Student-Athletes in Choosing the University of North Carolina at Chapel Hill
(Under the direction of Barbara Osborne, J.D.)

Recruiting student-athletes for intercollegiate athletics has become competitive at the highest level. The University of North Carolina at Chapel Hill strives to be successful in all of its athletic programs. The purpose of this study is to discover what is important to non-revenue sports student-athletes at this university as they make their institutional decision. Understanding the importance placed on certain factors can improve the ability of the athletic programs at UNC-Chapel Hill to have continued success.

This study attempts to build on the recent growing research in this field. In doing so, it identified *Academic Reputation* as the most important factor. Due to contrasting results from analysis of variance, no clear declaration can be made about significant statistical differences. However; slight differences were found among certain athletic grant-in-aid levels, as well as between residents and non-residents for some component groups.

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CHAPTER 1

INTRODUCTION

In American society today, the path for many graduating high school seniors leads to some kind of higher education. This could take place at a university, vocational institution, or career college. More students now are enrolling in colleges than ever before. The Department of Education reports that undergraduate enrollment rose twenty percent between 1996 and 2004, with 17.3 million students enrolled in degree granting institutions in 2003-2004 (U.S. Department of Education, 2006). These students are influenced by many things when deciding what college to attend.

Many high school students who play sports have aspirations of continuing competition at the intercollegiate level. It is a way to compete on a higher stage while also continuing their education. These individuals are influenced by some of the same things as students in the regular student body when choosing a school, but as athletes, they consider other factors as well. But how do student-athletes decide where to further pursue their academic and athletic career? Why is one institution chosen over another? This study will answer these questions.

In the United States, the National Collegiate Athletic Association (NCAA) plays the role of a facilitator for intercollegiate athletics and provides the proving ground for student-athletes who aspire to meet the challenge of combining academics with athletics. In 2005-

2006, the NCAA conducted eighty-eight championships in twenty-three sports across Divisions I, II, and III (NCAA Membership Report, 2007).

The NCAA is federated into three classes or divisions, those being Division I, II, and III. Division I is further divided into I-A, I-AA, and I-AAA. In August 2006, Division I-A became the Football Bowl Subdivision and Division I-AA became the Football Championship Subdivision (NCAA Differences Between Divisions, 2007). There are clear differences between the Divisions that make each unique. These differences also play a role in the kind of student-athlete who is recruited and participates. Division I institutions are required to sponsor more sports than either II or III and as a result typically carry larger budgets than their counterparts (NCAA Differences Between Divisions, 2007).

Those who wish to push themselves at the highest level of competition and play against the best strive to compete at Division I institutions. About \$1 billion in athletic scholarships are awarded each year to over 126,000 student-athletes (NCAA Undergraduate Athletic Scholarships, 2007). In some sports at UNC-Chapel Hill, such as football, men's and women's basketball, women's gymnastics, women's volleyball, and women's tennis, most players on the roster will receive a full scholarship. These are head-count sports, meaning that each student-athlete who receives a grant-in-aid is factored as one scholarship toward the team limit, even if that individual is not on a full grant-in-aid (NCAA Scholarship limits under APR, 2007). The same is not true for traditional non-revenue sports, where players outnumber allotted scholarships and many receive no scholarship at all. These equivalency sports make-up the majority of sponsored sports at institutions, creating fierce competition among aspiring players as they fight for a sliver of the scholarship pie.

Coaches are responsible for discovering potential prospects and offering them the opportunity to play intercollegiate athletics. Each must make difficult decisions regarding how much a certain prospect is worth to his or her program. Then, enough aid must be given in order to entice the recruit to attend that university. In the environment of intercollegiate athletics, it is difficult to take a scholarship away from a student-athlete once it has been given. Athletic grant-in-aid is renewable on a year to year basis. These grants are given in good faith for the course of that student-athlete's eligibility, but may be revoked for specified reasons as covered under NCAA Bylaws. Therefore, many freshman entering programs will not be receiving large amounts of scholarship money. It regularly occurs that an incoming student-athlete is given a small scholarship initially and earns more over the course of his or her career. Once a senior has graduated, that individual's scholarship is re-allocated to other members of the team. This could include incoming freshman.

With this environment in place, there are many factors prospective intercollegiate student-athletes in non-revenue sports take into account when making their decision where to attend. The purpose of this study is to find out the relative importance of these factors in order to facilitate recruitment efforts as well as improve the overall experience for players and coaches. Certainly, scholarship money is a significant factor. However, other variables mix together in the decision-making process. In a conference as competitive as the Atlantic Coast Conference (ACC) and at a school as strong as the University of North Carolina at Chapel Hill, only excellent players will be recruited. In addition, these players will be stronger academically as well. The combination of factors and the total package offered by the institution all play a role in the final decision that is made.

The University of North Carolina at Chapel Hill is one of sixteen campuses within the North Carolina state university system. It is a member of the NCAA Football Bowl Subdivision (I-A) and is one of the larger college athletic programs in the United States. The average Division I school has 487 student-athletes across nineteen teams and an undergraduate enrollment of 9,979 (NCAA Participation Report, 2007). UNC-Chapel Hill has 750 participants over 28 teams and an undergraduate enrollment of nearly 17,000 (EADA 2006-2007, Participants). Athletic department expenses are also higher at UNC-Chapel Hill, which spent over \$58 million in 2006-2007 (EADA 2006-2007, Revenues and Expenses). The average Division I-A program spent \$34.4 million in the same time period (NCAA Membership Report, 2007).

Statement of Purpose

The primary purpose of this study is to analyze the reasons why scholarship and non-scholarship, non-revenue sports student-athletes at the University of North Carolina at Chapel Hill choose this institution. The study will survey members of each Olympic Sport team to determine their motivations to attend and includes the cohort of student-athletes entering between the Fall Term of 2006 and the Fall Term of 2007.

Research Questions

- How are the following items affecting college choice valued by non-revenue sports student-athletes at UNC-Chapel Hill?
 - *Head Coach, Assistant Coach, Academic Facilities, Athletic Facilities, Sport-Specific Facilities, Teammates, Community, Major, Academic Reputation, Athletic Reputation, Athletic Grant-in-Aid, Competition and Schedule,*

Proximity to Home, Performance Team, Performance UNC, Play Immediately, Equipment and Apparel, Academic Support Facilities, Sports Medicine Facilities, Strength and Conditioning Facilities, Carolina Leadership Academy, Housing, Recruiting Visit, Literature

- Is there a significant difference in the responses based on athletic grant-in-aid levels (high-scholarship, low-scholarship, and non-scholarship) of non-revenue sport student-athletes?
- Is there a significant difference in the responses based on gender (male or female) of non-revenue sport student-athletes?
- Is there a significant difference in the responses based on gender (male or female) for each athletic grant-in-aid level group (high scholarship, low-scholarship, non-scholarship) of non-revenue sport student-athletes?
- Is there a significant difference in the responses based on residency status (in-state or out-of-state) of non-revenue sport student-athletes?
- Is there a significant difference in the responses based on residency status (in-state or out-of-state) for each athletic grant-in-aid level group (high-scholarship, low-scholarship, non-scholarship) of non-revenue sport student-athletes?

Definition of Terms

- Atlantic Coast Conference: ACC; a member conference of the National Collegiate Athletic Association (NCAA) comprised of twelve teams located on the east coast of the United States. The ACC is a “(Bowl Championship Series) BCS Conference”, meaning its conference champion in football receives an automatic invite to a BCS

bowl game. Schools in the ACC are Boston College, Clemson, Duke, Florida State, Georgia Tech, Maryland, Miami, North Carolina State, North Carolina, Virginia, Virginia Tech, and Wake Forest.

- Counter: A student-athlete who receives scholarship money that is counted against an overall team limit in each particular sport.
- Division I: The highest level of intercollegiate athletics as categorized by the National Collegiate Athletic Association (NCAA). In order to qualify for Division I athletics, the athletic department must be in compliance with NCAA regulations and sponsor no less than 16 varsity sports. Additional requirements also apply and can be found on the NCAA website (NCAA Membership)
- Equivalency Sport: Including counters, a student-athlete's value is calculated as his or her total for room, board, tuition and fees, and books up to full grant-in-aid as a fraction of the full grant in aid value for that particular student-athlete. This number is unique for each institution and is the actual cost of a full grant-in-aid for all students. At UNC-Chapel Hill, equivalency sports include the men's sports of baseball, cross country, fencing, golf, lacrosse, soccer, swimming and diving, tennis, track and field, wrestling, and the women's sports of cross country, fencing, field hockey, golf, gymnastics, lacrosse, rowing, soccer, softball, swimming and diving, tennis, track and field, and volleyball.

Full Grant-in-Aid- At UNC-Chapel Hill, this figure is \$13,436 for in-state students and \$29,084 for out-of-state students. (Note: The North Carolina General Assembly recently enacted legislation that allows state institutions to provide scholarships to both in-state and out-of-state students at the in-state rate.)

- **Head Count Sport:** Including counters, all student-athletes will be counted as full scholarship, regardless of the amount of scholarship received. Usually, full scholarships are offered to all players. At UNC-Chapel Hill, head count sports include football, men's basketball, women's basketball, gymnastics, women's tennis, and women's volleyball.
- **High-scholarship student-athlete:** One who receives 50% or more of his or her cost of attendance as athletics grant-in-aid.
- **Grant-in-aid:** Financial-aid package given to student-athletes covering costs such as tuition and fees, room and board, and required course-related books.
- **Low-scholarship student-athlete:** One who receives more than zero dollars, but less than 50% of his or her cost of attendance as athletic grant-in-aid.
- **National Collegiate Athletic Association (NCAA):** A voluntary, non-profit organization, consisting of over 1,200 members, that organizes and makes decisions regarding the athletic programs of colleges and universities in the United States. It is federated into three divisions (I, II, and III) and three subdivisions within Division I (Football Bowl Subdivision-formerly I-A; Football Championship Subdivision-formerly I-AA; and Division I Non-Football-formerly I-AAA).
- **Non-revenue sport-** Includes sports outside of football and men's and women's basketball. At UNC-Chapel Hill, the teams include the men's sports of baseball, cross country, fencing, golf, lacrosse, soccer, swimming and diving, tennis, track and field, wrestling, and the women's sports of cross country, fencing, field hockey, golf, gymnastics, lacrosse, rowing, soccer, softball, swimming and diving, tennis, track and field, and volleyball.

- Non-scholarship student-athlete: One who does not receive any athletically related grant-in-aid money.
- Olympic Sport: Synonymous with the term non-revenue sport. At UNC-Chapel Hill, the teams are baseball, men's and women's cross country, fencing, field hockey, men's and women's golf, gymnastics, men's and women's lacrosse, rowing, men's and women's soccer, softball, swimming and diving, men's and women's tennis, track and field, wrestling, and women's volleyball.
- Scholarship: Monies, such as grants-in-aid, given to student-athletes for athletic ability.
- Student-athlete: A student enrolled full-time at a college or university who is also participating in intercollegiate athletics, either as a walk-on or scholarship player.
- Walk-on: A student-athlete who tries out for a team without having been recruited or offered an athletic scholarship. An individual could be recruited, but offered no athletic grant-in-aid. In this case, the student-athlete would be a recruited walk-on.

Assumptions

- It is assumed that the answers offered by the respondents are honest and accurate.
- All student-athletes are told that their answers will be kept confidential.
- The surveys completed and returned represented a large enough sample of the population.

Limitations

- Student-athletes may be afraid that their responses will be seen by a coach or administrator and influence that person's perceptions of them.

- Study looks only at one university, the University of North Carolina at Chapel Hill, which maintains a highly competitive athletics program and is a larger than average sized athletic department.

Delimitations

- This study is delimited to the University of North Carolina at Chapel Hill.
- Only non-revenue sports were examined.
- Only students from the last two years (those entering in Fall 2006 and Fall 2007) were included.

Significance

This study may be useful to coaches and administrators associated with universities both within and outside the University of North Carolina at Chapel Hill. Non-revenue sports are different from revenue sports in that most if not all of the team members receive less than a full scholarship. While the amount of scholarship is still important to prospects, other things are considered heavily by these potential student-athletes. For equivalency sports at UNC-Chapel Hill, each team has an average of 10.7 scholarships. This number jumps to 10.9 when the other non-revenue sports, which are also head count sports, are included. This makes recruiting an interesting venture for coaches deciding how much to invest in a certain player. This study could assist these coaches by showing them the weight student-athletes place on certain school characteristics when deciding where to enroll. Knowing what these characteristics are may assist coaches in identifying prospective student-athletes who are

more likely to choose the University of North Carolina at Chapel Hill or put coaches in a more favorable position when recruiting certain student-athletes.

Even though the University of North Carolina at Chapel Hill is considered an exceptional athletic program, there are many things other schools of lesser notoriety could ascertain from a study on this university. In fact, the list of characteristics considered by aspiring student-athletes may be more important at a lesser-known school because even fewer scholarships may be offered. As a result, a student-athlete enrolling will be even more interested in the total package a school offers.

Chapter II

REVIEW OF LITERATURE

Decisions are made by individuals on a daily basis and are inherently linked with the study of human behavior. The study of decision-making has been examined and explored by psychologists, social scientists, economists, statisticians, and mathematicians since as early as the seventeenth century. In statistics, decision theory is a set of quantitative methods for reaching optimal decisions. The best decision is made based on optimizing the expected utility, while the outcome of the given decisions is uncertain (Decision theory, Encyclopedia Britannica 2007).

Several modern models exist for explaining the decision process. John Dewey listed five consecutive stages of problem solving: felt difficulty, definition of the character of the difficulty, suggestion of possible solutions, evaluation of the suggestion, and further observation and experimentation leading to acceptance or rejection (Hansson, 1994). Herbert Simon, a well-known 20th century economist and scholar in decision-making theory, modified Dewey's list for organizational decision making. Simon's three stages were labeled intelligence, design, and choice (Hansson, 1994).

Decisions are made by human beings who have goals for specific behaviors and are chosen through a non-random thought process. For each decision made, there is a given consequence, positive or negative. The specific choice to enter college is the result of an individual contemplating the consequences of the decision, which in this case is the potential

for a college degree. As the author of one article stated, “when a student enrolls at a college for the right reasons, life-changing experiences happen” (Crane, 2003). This is especially true in the case of individuals pursuing intercollegiate athletics aspirations.

Decision making of the general student

Much of the previous research on student college choice has focused on the common student rather than the student-athlete. Early research conducted by sociologists and economists in the 1960s and 1970s devoted effort to developing models based on attributes of prospective students and institutions (Nolfi, et al., 1978; Sewell & Shaw, 1967). The environment of this time period was one of increasing competition for students and as a result, institutions raised their commitment to recruitment strategies (Chapman, 1981).

Two reviews of the college selection process literature were provided in the early 1980s, each with a separate focus. The first was conducted by Chapman (1981) to help college administrators develop recruiting policies and support research in student college choice. It reviewed relevant current research and developed an additional longitudinal model. This model included a combination of student characteristics and external influences, including significant persons, fixed institutional characteristics, and the institutions marketing efforts. Along with the student’s expectation of college, the choice is made.

Chapman (1981) used several student characteristics in this model, including socioeconomic status. A pilot study conducted in 1975 by Davis and Van Dusen revealed the stratification of upper, middle, and lower income students in private, state, and community colleges respectively (as cited in Chapman). Studies have also connected socioeconomic status to other impactful characteristics of college choice, including educational aspiration

and grade-point-average (GPA) (Brookover, Erickson, & Joiner, 1967; Chapman ; Rehberg, 1967). GPA has always been significant in the determination of college application and enrollment, particularly the stature of institutions considered.

Often GPA is a reflection of a student's aptitude, another student characteristic in Chapman's (1981) model. Aptitude also reveals itself in standardized tests such as the Scholastic Aptitude Test (SAT), used by colleges to narrow their pool of applicants. As a result, students choose to apply to a college based on whether they think the college will consider their application or if similar students are applying (Chapman 1981, Nolfi, et al., 1978). These student characteristics are combined with external influences to complete the model.

Chapman (1981) defined "external influences" to include significant persons, relatively fixed college characteristics, and college efforts to communicate with students. Significant persons are impactful on a prospective college student and include friends, family, teachers, and guidance counselors. College characteristics include cost, financial aid, location, and availability of desired courses. College efforts to communicate can also be labeled as marketing, which includes informational brochures and high school visits by college admissions officers.

The second review of college selection literature was done by Litten (1982) and attempted to build on Chapman's "basic model" and focus on the "college choice process". This review focused on the results of four studies: Gilmour, Spiro, & Dolich; Hanson & Litten; Lewis & Morrison; and the Six-Market Study, each varying in scope and measure (as cited in Litten, 1982). Also included was Kotler (1976), most well known for his knowledge on marketing principles, who composed a seven-step process from the student's point of

view: decision to attend; information gathering; inquiries to specific schools; application, admission, choice of school, and registration in the school. The reviewed studies attempted to build on Kotler's model (Litten, 1982).

Lewis and Morrison investigated and reported market differences according to race (as cited in Litten, 1982). These researchers found that not only do "African Americans" begin the college selection process after "Whites"; they take a longer amount of time as well. Also, the relationship between African Americans and Whites for the use of parents was strongly related to the education of the parents themselves.

Differences in gender were also presented. According to Lewis and Morrison, males and females began information gathering at similar times, but women finished before men. Females also begin applying to schools before men. Data collected by Hanson and Litten also showed that students asked more advice of a parent of the same sex than a parent of the opposite sex.

Higher ability students (n=31), who scored more than 1100 on the SAT, began the application process before lower ability students (n=21), who scored less than 900. According to Gilmour, Spiro, and Dolich, the former group knows to which schools they will apply in the fall of the senior year "rather than later". The higher ability students also applied to more schools than their lower ability colleagues (as cited in Litten, 1982).

Building on the work of Litten and Jackson (1982), who examined the tactics used by institutions to increase enrollment, were Hossler and Gallagher (1987), both scholars in educational research. They proposed that the college selection process could be broken into three stages: *Predisposition*, *Search*, and *Choice*. In the *Predisposition* stage, the student was deciding whether or not to continue with his or her education. This was often influenced by

socio-economic status (Chapman, 1981; Fetters, Dunteman, & Peng, 1977; Hossler & Gallagher; Miller, 1997), ability level of the student (Chapman; Fuller, Manski, & Wise, 1982; Fetters, Dunteman, & Peng; Manski & Wise, 1982), attitudes of parents and friends (Conklin & Dailey, 1981; Hossler & Gallagher; Stage and Hossler, 1989), and educational activities (Espinoza, 2002; Hossler & Gallagher). Once the student has the inclination to attend college, he or she enters the *Search* phase. In this phase, the student gathers the information needed to make the final decision. This may begin as early as the tenth grade (Cabrera & La Nasa, 2000; Hossler, Braxton, & Coopersmith, 1989) and includes visiting campuses, obtaining literature about colleges, and talking to friends (Cabrera & La Nasa 2000; Hossler, et al., 1989; Litten, 1982). While information about schools is being accumulated, a group of institutions, or choice set, where the student would like to attend is being developed (Hossler & Gallagher; Jackson, 1982). The final decision very often comes from this choice set. Hossler and Gallagher (1987) proposed that during the *Choice* phase, the student is influenced by the recruiting conducted by schools and the most prominent and relevant characteristics of the schools (Cabrera & La Nasa, 2000).

A more recent and very relevant longitudinal study was conducted with 322 Minnesota high schools students over the course of one year (Galotti, 1995). In the study of decision making, the college choice decision was ideal. Typically, decisions of major importance are unpredictable and can happen over various lengths of time. According to the author, the numerous lifelong ramifications for a young individual and the defined time frame in which the decision took place made it unique. For young people, this is often the first important decision to make. However, psychologists have studied the decision making abilities of youth and have found that by age fifteen, adolescents make decisions similarly to

adults (Galotti, 1995; Ormond, Luszcz, Mann, & Beswick, 1991). One thing inimitable about college decision making is the lack of a “correct” choice (Galotti, 1995). Certainly, one decision might be better than another, but that is dependent on the circumstances.

The study was conducted over three separate sessions and those participants who finished all three were called the “core” sample (Galotti, 1995). Out of the total number of participants (n=322), only 27.6% were male (n=88) while 72.4% were female (n=234). The “core” sample (n=90) was divided exactly the same way according to gender. Also, 93% of both the total sample and “core” sample were White/Caucasian. There were several different purposes of this research, of which this review will focus on only two. Galotti (1995) was interested to know how students structured the college decision, what she labeled a “decision map”. Secondly, she wanted to know if these “decision maps” changed over the course of the decision making process.

The first purpose focused on how many criteria were being used by students. In order to do that, the survey instrument asked the participating students to generate the list of criteria they were using to make the college decision. To analyze these responses, the author used a 2 (gender) x 3 (ability group: lower, average, higher) x 3 (measure: number of criteria, flexibility of criteria, number of alternatives) x 3 (session: first, second, third) ANOVA. The results from the “core” sample indicated that these high school students considered about nine criteria, eight types of criteria, and about four schools, $F(2, 169) = 89.04, p < .001$. The same test also showed that the structure of the decision for males and females was similar, $F(2, 84) = 3.12, p < .05$. To further study the specific types of criteria used, a second ANOVA was run and revealed that the genders were different in this regard, $F(22, 1848) = 3.28, p < .001$ (Galotti, 1995).

The specific criteria used were important, but it was also helpful to know if these criteria changed over time. Since this analysis was based on time, the “core” sample was used because these students had been to all three sessions. For both criteria and the number of schools considered, the percentage of overlapping responses from one session to the next was used to investigate. About 48% of the criteria listed in the first session resurfaced in the last session, while almost 43% of the schools overlapped. Given the redundancy of some criteria, Galotti (1995) wanted to know which these were. The analysis that followed compared the mean importance ratings of the responses that remained and did not remain on students lists from one session to another. Not surprisingly, the more importance given to criteria, the more likely it was to recur, $F(1, 83) = 8.6, p < .01$ (Galotti, 1995).

Although it is important to understand how students make the choice to attend college and more specifically, which college to attend, this study was interested in looking at the characteristics that make institutions attractive. Two studies in particular assessed which qualities made institutions attractive. Both attained responses through surveys but each study enlisted the responses of different groups (Canale, Dunlap, Britt, & Donahue, 1996; Espinoza, 2002). The Canale, et al. study achieved a sample of over 500 high school juniors and seniors in upstate New York (Canale et al., 1996). Espinoza’s (2002) sample was much larger, spanning 122 institutions and over 68,000 college freshman.

The former of these studies used a survey designed by members of the Marist College psychology department and asked respondents to rate eleven characteristics affecting college choice as either “Very Important”, “Somewhat Important” or “Not Important” (Canale, et al., 1996). To analyze the importance of each characteristic relative to the others, a Wilcoxin Pairs Signed-Ranks test was used and it was determined that *Excellent Teachers* and *Areas of*

Study were more important than all others ($p < .05$). These characteristics were rated “Very Important” by 76% and 73% of the sample respectively. Also, *Teacher Availability*, *Cost*, and *Academic Reputation* were all rated as “Very Important” by 60% of the sample (Espinoza, 2002).

Suzanne Espinoza (2002) used twenty of the questions from the College Board’s Admitted Student Questionnaire to gauge the importance of college choice in her study. The respondents were asked to rate each question as (1=Very Important, 2=Somewhat Important, 3=Very Important). The author also divided these factors into six groups based on her review of literature: *Academics*, *Service Expectation*, *Athletics*, *Cost*, *Student Life*, and *Location*. These groups were then tested for reliability using Cronbach’s Alphas. Results indicated that *Academics* ($M = 1.24$, $p < .0001$) was most important to this sample, followed by *Service Expectation* ($M = 1.38$, $p < .0001$) and *Cost* ($M = 1.42$, $p < .0001$) (Espinoza, 2002). Students rating *Academics* as “most important” was not surprising, given the size and the high achievement level of the students being surveyed.

Decision making of the student-athlete

While much research has been devoted to understanding the decision process for the general student population, less effort has been extended to the college-bound student-athlete. With the ever-changing landscape of intercollegiate athletics, it is useful for the parties involved to understand why the participants in athletic programs make matriculation decisions.

Intercollegiate athletics has evolved over the past twenty to thirty years into an industry driven more by finances and run according to a business model. The success of

university sports can have a significant impact on the school itself. Several studies have attempted to examine the influence winning seasons have on enrollment patterns and athletic giving. McCormick and Tinsley reported that contributions to athletics increase academic giving (as cited in Chressanthis & Grimes, 1993). A subsequent regression analysis of twenty years of data reported that enrollment at Mississippi State University increased due to athletic success (Chressanthis & Grimes, 1993). However, this may come at a cost to academic reputation. Roper and Snow provided evidence, finding a negative correlation between football and basketball success and undergraduate academic reputation (as cited in Chressanthis & Grimes, 1993). Therefore, it cannot be simply said that the success of major sports programs at universities brings positive results.

With so many individuals interested and invested in the success of intercollegiate athletic programs, decisions made by administrators are put under tremendous scrutiny. Coaches are expected to produce winning teams on a consistent basis, or they can expect to be replaced. Administrators are often held responsible for the admissions of certain student-athletes who might be considered at-risk. Athletic boosters also feel invested in the success of the athletic program, as they supply money for scholarships or capital projects. Of course, much of the success enjoyed by programs is dependent on the performance of the student-athletes themselves. It is important, then, to understand why these individuals make the decision to enroll.

Some of the earliest research somewhat relevant to this study was performed by Budig (1976), Sigelman and Carter (1979), Sigelman and Bookheimer (1983), Gaski and Etzel (1984), and Frey (1985). It involved the relationship between intercollegiate athletics and alumni giving to the general university fund (as cited in Chressanthis & Grimes, 1993).

Although not entirely relevant to student-athlete college choice, these studies provide some background to the importance of recruiting top-notch athletes. More relevant to this study were studies that found a positive relationship between winning and alumni contributions to intercollegiate athletics programs (Chressanthis & Grimes, 1993). The importance of giving to these sports programs as it relates to successful programs cannot be overstated.

Other research more pertinent to this study involved sports success at the intercollegiate level and enrollment demand at the same institution. The sports analyzed most typically were football and men's basketball, as was the case when Chu (1989) longitudinally studied application rates within predominantly large Division I conferences. Chu (1989) found that applications increased significantly with the success of these programs. Returning to Chressanthis and Grimes (1993), the lone significant variable affecting first year enrollment demand was "% Wins". Three separate regressions were run; football, basketball, and total program, with "% Wins" being significant within the first and third of these regressions. The study showed that a one percent increase in the percentage of wins from the previous season would increase first-year enrollment by 3.8 and 5.5 students respectively in the football and total program regressions.

Turning attention to what this study will analyze, it is appropriate to investigate why student-athletes choose institutions and athletic programs. Universities apportion a large amount of athletic department funds to recruiting student-athletes, as NCAA Division I-A universities expended over \$540,000 on average for recruiting in the 2003 fiscal year (Fulks, 2005). In 2006-2007, the University of North Carolina at Chapel Hill spent over \$970,000 on recruiting (U.S. Department of Education, Revenues and expenses). The research conducted typically has examined freshman student-athletes who have already enrolled and

are asked to recall recent decision making information. Investigations have acquired data from small colleges and large universities at varying levels of competition within the NCAA and the National Association of Intercollegiate Athletics (NAIA).

At the root of understanding the college choice process is the desire for administrators within athletics and the university to influence which students pass through the doors of their institution. Martin and Dixon (1991) realized how understanding decision factors could assist these administrators, when they described the four basic types of influences that effect affect college choice as the following: reputation of academic programs, social climate, cost and location, and influences of others.. Many of the top programs competing in NCAA Division I athletics are similar in what they offer. It is important to note, however, that each institution is unique in its specific characteristics and benefits. This is true at the University of North Carolina at Chapel Hill, where the overall program is one of the most respected in the country. This study will examine if the factors considered by UNC-Chapel Hill student athletes correspond with the previous literature.

The first study employed was conducted by Gabert, Hale, and Montalvo (1999) and intended to expand student-athlete research into the broader research on student-college choice, explore student-athlete decision factors, and develop institutional choice profiles. The Student-Athlete College Choice Profile was the instrument used and was a compilation of questions based on previous research. For all student-athletes across Divisions I, II, and III, five of the ten most influential factors were athletically related. When broken down by institutional type, Division I regarded “academic support services” as most important, Division II named “location”, and the NAIA schools polled named “head coach”. For these three respective segments, Division I was the only one with a majority of the top factors

being athletically related. Gabert, et al. (1999) also made comparisons within the variables of gender, sport type, and scholarship. Men and women found the “head coach” to be the most important factor in their decision, as did both revenue and non-revenue sport groups and full and partial athletic scholarship respondents. “Location” was identified as important for revenue and non-revenue sports, as well as the non-scholarship set (Gabert, et al., 1999).

What this and continued research showed was the importance of focusing recruiting efforts differently for unique populations of student-athletes. In other words, it cannot be assumed that one method of recruiting is effective, as Gabert, et al. (1999) showed. Many times, the importance an individual places on a certain institutional characteristic varies depending on personal values. These values are most important when making a very important decision, such as college selection.

In studying school choice for student-athletes, Klenosky, Templin, and Troutman (2001) utilized means-end theory developed by Gutman (1982), which is designed to link meaning and value to decision alternatives. Originally used to examine consumer behavior, it can also be used in a study of this scope, as college choice is a form of consumerism as well. Somewhat limiting to this study, Klenosky, et al. (2001) interviewed a sample of 27 Division I football players. Despite the size of the sample, similar small studies have shed light on student-athlete decision making (Cooper, 1996; Doyle & Gaeth, 1990).

Means-end theory uses a technique called laddering (Reynolds & Gutman, 1988), which begins by attaining attributes through questioning. In this case, the attributes are characteristics about a specific university. Next, continued questioning leads to the benefits or consequences of the attribute. At some point in the questioning, a personal value linked to the attribute and consequence is discovered. Klenosky, et al. (2001) found the attribute

“coach/coaching staff” to be most important to these particular football players, with the “schedule” (played)” and “facilities” (used)” used the second and third most listed. Adler and Adler’s study (as cited in Letawsky, et al., 2003) as well as Mathes & Gurney (1985) and Gabert, et al. (1999) support “coach” as being the most important factor. The importance of the coach is clear and not surprising, given how much time student-athletes spend with their coach and also how much influence coaches have on their lives.

The essence of the student-athlete is an individual who encompasses athletic and academic excellence. It is important to explore the nature of the factors involved in the decision making process and observe the importance of both athletic and non-athletic factors. The earlier discussion of Gabert (1999) touched on this distinction, and it will continue here. Two pieces of literature completed in the last five years focus squarely on the different aspects of the decision making of student-athletes. In 2003, Letawsky, Schneider, Pedersen, and Palmer published an article in the *College Student Journal* that compared the college selection factors of student-athletes and non-(student) athletes. Davis (2006) completed his doctoral dissertation in 2006 by focusing on the decision-making process and satisfaction of student-athletes at the Virginia Polytechnic Institute and State University. Both studies were conducted at similarly sized and congruous institutions, and both focused on the importance of both athletic and non-athletic factors. The former study will be discussed, followed by an extensive review of the latter.

Letawsky, et al. (2003) acknowledged the changing landscape of college athletics and recognized its alteration as a multi-million dollar industry, supporting that claim with revenue information contained within the Fulks Report in 2000 (as cited in Letawsky, et al., 2003). The study took place at an unnamed “large, public, four year, Research I” institution

with a “large enrollment”. The athletics program had more than 400 student-athletes and 25 varsity sports and was chosen, according to the authors, because of its reputation as a “Big-Time College Sports” institution. The study intended to survey the entire population, but surveys were completed by 126 of 135 first-year student-athletes.

An adaptation of the Intercollegiate Student-Athlete Questionnaire developed by Gabert, et al. (1999) was used by the authors. More men (n=72) than women (n=54) participated in the study, the sample was mostly white (n=100), and scholarship representation was evenly distributed. A majority of the respondents were from non-revenue sports (n=103), defined in the study as all sports other than football and men’s and women’s basketball. The Letawsky, et al. (2003) study did not involve extensive analysis and simply listed the most and least influential factors for college choice.

Mean values were calculated for each factor and comparisons were made on this data. This study used a five-point scale, ranging from 1 (Not at All [Important]) to 5 (Very Much [Important]) The five most influential factors given in this study were, in order of influence, *degree program options* (M=3.98), *head coach* (M=3.86), *academic support services* (M=3.83), *type of community where campus is located* (M=3.79), and the *school’s sports traditions* (M=3.77). No significance values were given. Letawsky, et al. pointed out that two of the top three factors were academically related. As previously discovered (Klenosky, et al. 2001; Mathes & Gurney, 1985), the head coach variable was the most highly rated of the athletic factors in this study (Letawski, et al., 2003).

The dual purpose of the Davis (2006) dissertation was to find what factors, specifically the most important factor, were important to entering freshmen student-athletes and also determine how satisfaction could be improved by using the results of the study. The

analysis here will focus on the first part of his purpose, although the answers to the satisfaction questions can be useful. Davis' study shares many similarities with the study being attempted here and has a similar focus and scope. Specifically, his instrument was a basis for some of the questions and factors posed by this study. Also, the institutional venues for these studies are similar, making the student-athlete populations fairly analogous. Due to this relationship, it is important to use the Davis study as both a baseline and a point of comparison.

Virginia Polytechnic Institute and State University (hereafter referred to as Virginia Tech) was the school used in the Davis (2006) study, while this study is being conducted at the University of North Carolina at Chapel Hill (hereafter referred to as UNC). Although the institutions are similar in some ways, they are also quite different. While the schools are comparable academically and both boast extensive research capabilities, they prove to be quite different in other areas.

Virginia Tech was founded as a land-grant college and now defines itself as a comprehensive, innovative research university. It has the largest number of degree offerings in the state of Virginia (Virginia Tech Background, 2007). The university offers 60 bachelor's degree programs (Virginia Tech At A Glance, 2007) through seven undergraduate academic colleges: Agriculture and Life Sciences, Architecture and Urban Studies, Engineering, Liberal Arts and Human Sciences, Natural Resources, Pamplin College of Business, and Science (Virginia Tech Instruction, 2007). It also offers 140 masters and doctoral degree programs through the Graduate School and a professional degree from the Virginia-Maryland Regional College of Veterinary Medicine.

UNC defines itself as a research-extensive, liberal arts university offering bachelor's, master's, doctoral and professional degrees in academic areas critical to North Carolina's future: business, dentistry, education, law, medicine, nursing, public health and social work, among others (UNC Key Statistics, 2007). UNC offers 71 bachelor's, 107 master's, 74 doctorate and four professional degree programs.

UNC is the oldest state institution in the United States, chartered in 1789, and was the only public university to award degrees in the 18th century (UNC History, 2007). Virginia Tech was started in 1872 (Virginia Tech Background, 2007), almost 100 years after UNC. UNC is primarily a liberal arts institution, with many students concentrating in the arts and sciences. Virginia Tech is acknowledged as a school focusing on technical specialties, such as agriculture and engineering.

The institutions are compared on key academic statistics below (Virginia Tech Student Overview, 2007; UNC Class Profile, 2007; UNC Enrollment and Student Characteristics, 2007): total undergraduate enrollment, Virginia Tech-22,987, UNC-17,628; gender population, Virginia Tech-58 % male, 42 % female; UNC- 41% male, 59% female; undergraduate residency, Virginia Tech-74% resident, 26% non-resident; UNC- 82% resident, 18% non-resident; undergraduate tuition and fees, Virginia Tech- \$7,397 resident, \$19,775; UNC- \$5,033 resident, \$19,681 non-resident; enrolling freshman GPA, Virginia Tech- 3.78, UNC- 4.42; enrolling freshman SAT- Virginia Tech-1201, UNC-1292.

Athletically, Virginia Tech and UNC compete at the NCAA Division I Bowl Subdivision level and are members of the Atlantic Coast Conference (ACC). UNC was one of seven original founding members of the ACC in 1953 and has enjoyed much success on the conference level. Virginia Tech is one of the newest members of the conference, joining

with the University of Miami in July of 2004 (The ACC, 2007). The institutions are compared below on several key athletic statistics (U.S. Department of Education, Participants; U.S. Department of Education, Revenues and expenses): number of student-athletes, Virginia Tech-547, UNC-784; varsity teams, Virginia Tech-21, UNC-28; athletics revenue, Virginia Tech- \$65.5 million, UNC- \$58.2 million; athletically related student aid, Virginia Tech- \$5.7 million, UNC- \$7.3 million.

Now that the similarities and differences have been pointed out, it is necessary and important to explore the results of the Davis (2006) dissertation. The study received responses from 88 of 129 possible freshmen student-athletes, a response rate of 68.21%. Of those 88 respondents, 73.9% were scholarship (n=65) and 26.1% were non-athletic scholarship (n=23). Additionally, 56% were male (n=49) and 44% were female (n=39). The author attributed the scholarship percentages to the university fully-funding all women's sports and football and men's basketball (Davis, 2006).

Through a review of literature and interviews with coaches, parents, and prospective student athletes, Davis (2006) was able to compose the survey. For the "factor" questions, a five-point Likert Scale was used, with 1 being "Very Important", 3 being "Neutral", and 5 being "Not Important". In addition to the individual factor questions, the author also created informal groupings, which he named *Team History*, *Facilities and Equipment*, and *Departmental Services*. Each "factor related" question posed was placed into one of these groups.

Davis (2006) began his analysis by examining the open-ended question asking respondents to list the "three most important factors...in your decision to come to Virginia Tech" (p. 27). According to gender, the importance of these factors was listed in order for

males: *Coaches* (n=22), *Education* (n=17), *Success of Program* (n=15), *Players* (n=8), and *Sports* (n=7). Females listed the factors in this order: *Education* (n=22), *Coaches* (n=21), *Facilities* (n=10), *Players* (n=8), and tied fifth were *Conference* (n=7), *Environment* (n=7), *Location* (n=7), and *Team* (n=7). According to this simple analysis, the coach and the education provided by the institution are valued equally by both males and females. Again, this supports what we have seen in previous studies (Gabert, et al., 1999; Klenosky, et al., 2001; Letawsky, et al., 2003; Mathes & Gurney, 1985). In order to provide further explanation beyond this query, Davis broke down each of the factor questions as mentioned above.

Davis (2006) presented his data as the percentage of respondents who ranked a “factor” as either “somewhat important” or “very important”. In an analysis according to informal groups, *Team History* was most important. Of the top four “factors” for males, three were within this group: *Success of Sport* (78%), *Conference Affiliation* (72%), and *Head Coach Philosophy* (71%). For females, the top four were within *Team History*: *Teammate Relationship* (80%), *Relationship to Coach* (77%), *Conference* (75%), and *Success of Sport* (74%). The next most important informal group was *Facilities and Equipment*, followed by *Department Services* (Davis, 2006).

Another important comparison made in this study was scholarship versus non-scholarship student-athletes. Davis (2006) admitted that the results in this area were not as successful as he had hoped. As was previously mentioned, there were three times as many scholarship participants in this study. According to the results, the two scholarship groups were different on the “factors” of *Head Coach Philosophy*, *Relationship with Teammates*, and *Sports Medicine Facilities*. The largest differences occurred between scholarship males

and females and non-scholarship males and females for *Head Coach Philosophy* and *Relationship with Teammates*.

In the final analysis, Davis (2006) makes sure to note that *Education* was the most important “factor”, having been listed in the open-ended question most frequently by females and second most frequently by males. Also, no individual question was asked about the importance of the education received to the student-athlete (Davis, 2006). The author places much emphasis on this fact.

In reviewing the research of both the general student-population and the student-athlete population, there are similarities and differences. Academic variables were important to both groups in these previous studies. However, many athletic variables were more important when combined with academically-related items. This study examines the importance of certain factors for non-revenue sport student-athletes. Many of these individuals may be more similar to the general student population in that they are not receiving athletic grant-in-aid. This study will attempt to provide evidence what is more important to these non-revenue sports student-athletes.

Chapter III

METHODOLOGY

The purpose of this study was to determine the factors significant in the decision of non-revenue sports student-athletes to attend the University of North Carolina at Chapel Hill.

Subjects

The subjects for this study were student-athletes who were enrolled for the first time at the University of North Carolina at Chapel Hill since the fall semester of 2006. This group includes student-athletes who originally matriculated at UNC as well as those who transferred into the university. The subjects were identified through listing on a non-revenue sport roster. All student-athletes were eligible to compete at the time the survey was distributed.

Freshmen and sophomores were chosen for this study because information regarding college choice would be fresher in their minds, having more recently made their college decision. For the same reason, the survey was administered during the first semester. Only non-revenue sports student-athletes were surveyed for the following reasons. First, there have been several studies conducted which examined both revenue and non-revenue sports combined. Although the most visible sports in a typical Division I-A program are football and basketball, the majority of student-athletes competing at UNC-Chapel Hill and other Division I-A universities are doing so in non-revenue sports. Because of the difference in the

profile of the sport in which the athlete competes, it makes sense to separate the two groups. Also, a majority of non-revenue sports are equivalency sports, where most members are not receiving a full grant-in-aid, compared to head count sports where each athlete likely receives a full scholarship. As a result, the decision factors important in choosing a college or university could be different for non-revenue sport student-athletes as compared to their peers receiving full grants-in-aid.

The varsity teams involved in this study were NCAA-sponsored sports and included baseball, men's cross country, women's cross country, men's fencing, women's fencing, field hockey, men's golf, women's golf, gymnastics, men's lacrosse, women's lacrosse, men's track and field, women's track and field, women's rowing, men's soccer, women's soccer, softball, men's swimming and diving, women's swimming and diving, men's tennis, women's tennis, women's volleyball, and wrestling.

There were 320 student-athletes in the population of either freshman or sophomores participating in a non-revenue sport. Some of these individuals could be redshirt freshmen, meaning they entered UNC-Chapel Hill in the fall semester of 2006 but are in their first year of athletic eligibility. About 53% were males and 47% were females. None of the participants was under the age of eighteen. Certain teams are larger than others and therefore have a larger representative population for this study. For example, the Track & Field squad is the largest in the athletic program and is comprised of both males and females. Therefore, a total of 53 surveys were sent to this squad. Conversely, gymnastics is represented only by females and required that only six surveys to be sent.

Instrumentation

The data for this study was collected through an online survey. The survey was constructed through personal experience and knowledge and also pre-existing surveys from similar literature. The survey was comprised of three parts, for a total of seven questions.

Part 1, Introductory Questions, included five questions which asked for demographic information regarding the subjects' age, sport, athletic grant-in-aid amount, and residency status. These questions were used to answer specific research questions posed by the study. Part 2, Likert Scale Questions, encompassed 24 of these scaled questions related to various athletically and academically-related decision characteristics. Part 3, Open-ended Question, asked respondents to list the top three reasons for coming to UNC-Chapel Hill. Over the course of the instrument's development, some questions were added and some were omitted. The questions omitted pertained to characteristics that would have been irrelevant to a prospective student-athlete and did not make sense to ask in this study.

Likert queries were formatted on a scale of 1 through 5, with 1 being "unimportant", 2 "slightly important", 3 "important", 4 "highly important" and 5 "extremely important". Likert Scale questions most often represent ordinal data, but this scale was designed to attain as close to interval level data as possible. Therefore, comparison of all factors by mean values could be enabled. Also, questions six and seven allowed the respondent to list the top three most important and least important factors used to make their decision, thereby supplementing the scaled questions.

Validity and reliability were established by obtaining input from colleagues in the graduate Sport Administration program at UNC-Chapel Hill, staff members of the athletic department, and several junior and senior student-athletes at the university.

Procedure

Non-revenue sport squad lists were examined to identify eligible freshman and sophomore student-athletes. Original names were compiled from the rosters found on tarheelblue.com, the athletics department website for the university. The compliance office of UNC-Chapel Hill was requested to supply information regarding eligibility, namely student-athletes who were no longer with the team, and the age of certain freshman student-athletes.

The final survey was administered through surveymonkey.com, an internet site which enables the creation of online surveys. The subjects were contacted through electronic mail and invited to participate in the survey. The invitation explained the purpose of the study and assured subjects that participation was anonymous and that all responses would be confidential as well. The subjects were informed that participation was entirely voluntary and a hyperlink to the survey was included in the invitation, which directed the participants to a consent form to be read and agreed upon before continuing to the survey itself.

In order to ensure the confidentiality and anonymity of the subjects, names were not collected with the data. Three reminder messages were sent over the course of three weeks to those subjects yet to complete the survey. No person was contacted individually or asked specifically to participate or ask others to participate in the study.

Data Analysis

Demographic information related to amount of athletics grant-in-aid received, gender, sport, and resident status was collected. Descriptive statistics were calculated for each of the twenty-four decision factors and comparisons were made between these factors. Each of the

twenty-four factors was rank-ordered according to the mean score and frequency data to produce a list of importance. In addition, the final question on the survey asked respondents to list the three most important factors in the decision to attend UNC-Chapel Hill. These responses were also used as a gauge to rank importance.

In order to ensure validity of results, a principle component analysis (PCA) was performed to identify which of the items could be grouped for analysis. Although it was feasible and originally planned to place the items into groups based on simple examination, the PCA was able to do the same function using a mathematical model, called eigen analysis. The PCA “is a way of identifying patterns in data, and expressing the data in such a way as to highlight their similarities and differences.” (Smith, 2002, p. 12). Shields employed this tactic to reduce the number of variables or dimensions so that data analysis was simplified (as cited in Wrenn, 2004).

PCA produced individual loading factors, which placed the items into three component groups. Once the component groups were developed, frequencies and mean scores were tabulated to discover which were the most highly rated.

A variety of different ANOVA analyses were run to determine if the levels within groups named in the research questions (athletic grant-in-aid, gender, and residency), were significantly different. In order to run these analyses, mean scores were calculated for each individual subject. These scores were used in the subsequent ANOVAs as the dependent variable. A one-way between subjects ANOVA was used to evaluate if differences existed between athletic grant-in-aid levels for each resulting component of the PCA. Similar one-way ANOVAs were also completed to distinguish if differences existed between genders and also between residents and non-residents. In order to examine the PCA components based on

gender for each athletic grant-in-aid level, a two-way totally between subjects ANOVA was run. The same analysis was conducted for residency status and athletic grant-in-aid level.

Chapter IV

RESULTS

A total of 310 surveys were sent to student-athletes representing 14 different sports. Ninety eight surveys were returned, for a return rate of 31.6%. All sports included in the study returned at least one survey, with an average of seven surveys for each. Nine of the 14 sports responded with at least 30% of their population; gymnastics, rowing, and golf had over 50%. The first four questions collected demographic information about the respondents and were used for grouping purposes in analysis. Of those returned, 42.9% (42 surveys) came from males and 57.1% (56 surveys) came from females. The average return rate for each sport across gender was 34%. Gymnastics had the highest return rate within a sport; responding at a rate of 67%. Baseball returned at the lowest rate within a sport, with only two returned out of 26 surveys sent. The lowest raw return came from volleyball, with only one student-athlete responding.

Thirteen of the surveys returned were not completed, resulting in an overall completion rate of 27.4%. Of those returned, the completion rate was 86.7%. Seven sports had at least one student-athlete who returned a survey but failed to complete it. Only one team, women's volleyball, failed to complete at least one survey. Track and field completed the most surveys, with 16% of the total completed surveys. Overall, the return and completion rates were about 15% higher for females than for males. Table 1 provides a list of non-revenue sports included in the study and their return rates.

Table 1: Return rates by sport

Sport	Surveys Sent	Total Surveys Returned	Percent of Total Surveys Returned	Percent of Surveys Returned within Sport
Baseball	26	2	2%	8%
Fencing	30	14	14%	47%
Field Hockey	15	6	6%	40%
Golf	8	4	4%	50%
Gymnastics	6	4	4%	67%
Lacrosse	39	8	8%	21%
Rowing	13	9	9%	69%
Soccer	34	11	11%	32%
Softball	10	3	3%	30%
Swimming & Diving	37	15	15%	41%
Tennis	11	2	2%	18%
Track & Field*	53	17	17%	32%
Volleyball	8	1	1%	13%
Wrestling	20	2	2%	10%
TOTAL	310	98	100%	

^a Includes cross country and indoor and outdoor track

Table 2: Completion rates by gender and sport

Sport	Female Returned	Female Completed	Male Returned	Male Completed	Total Surveys Completed	Percent of Surveys Completed
Baseball			2	2	2	2%
Fencing	9	8	5	4	12	14%
Field Hockey	6	6			6	7%
Golf	3	3	1	1	4	5%
Gymnastics	4	4			4	5%
Lacrosse	3	3	5	4	7	8%
Rowing	9	7			7	8%
Soccer	6	6	5	4	10	12%
Softball	3	3			3	4%
Swimming & Diving	4	3	11	9	12	14%
Tennis	1	1	1	1	2	2%
Track & Field*	7	6	10	8	14	16%
Volleyball	1	0			0	0%
Wrestling			2	2	2	2%
TOTAL	56	50	42	35	85	100%

*Includes cross country and indoor and outdoor track

Figure 1: Return rates by sport

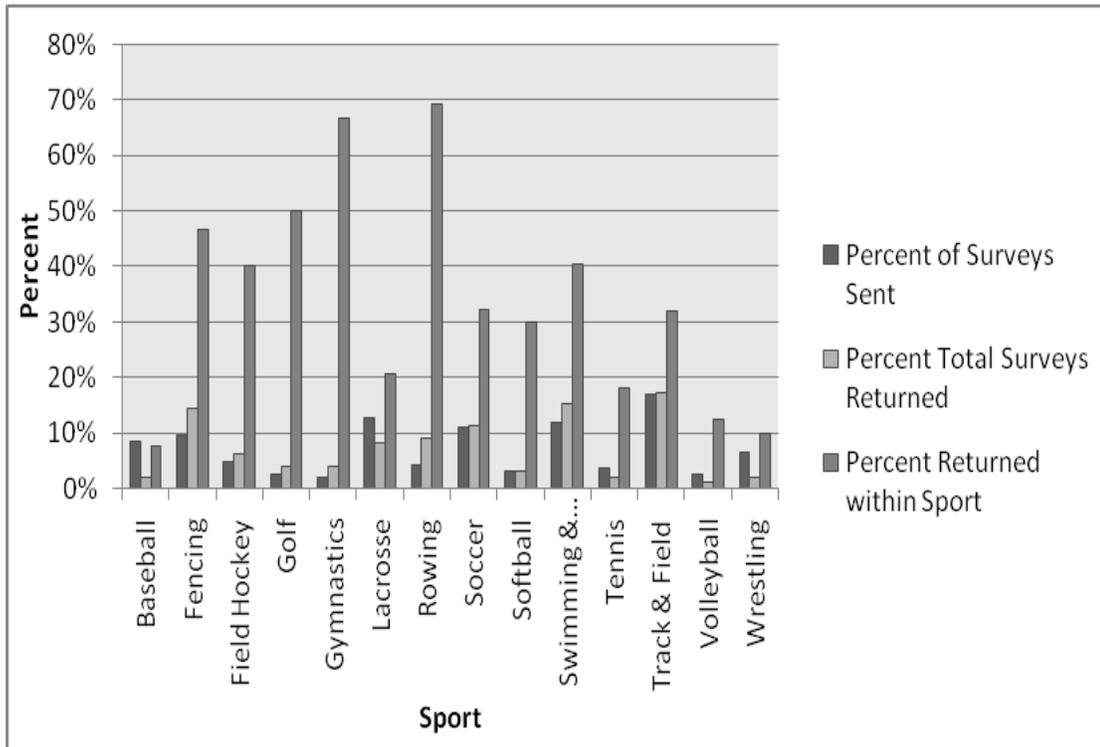
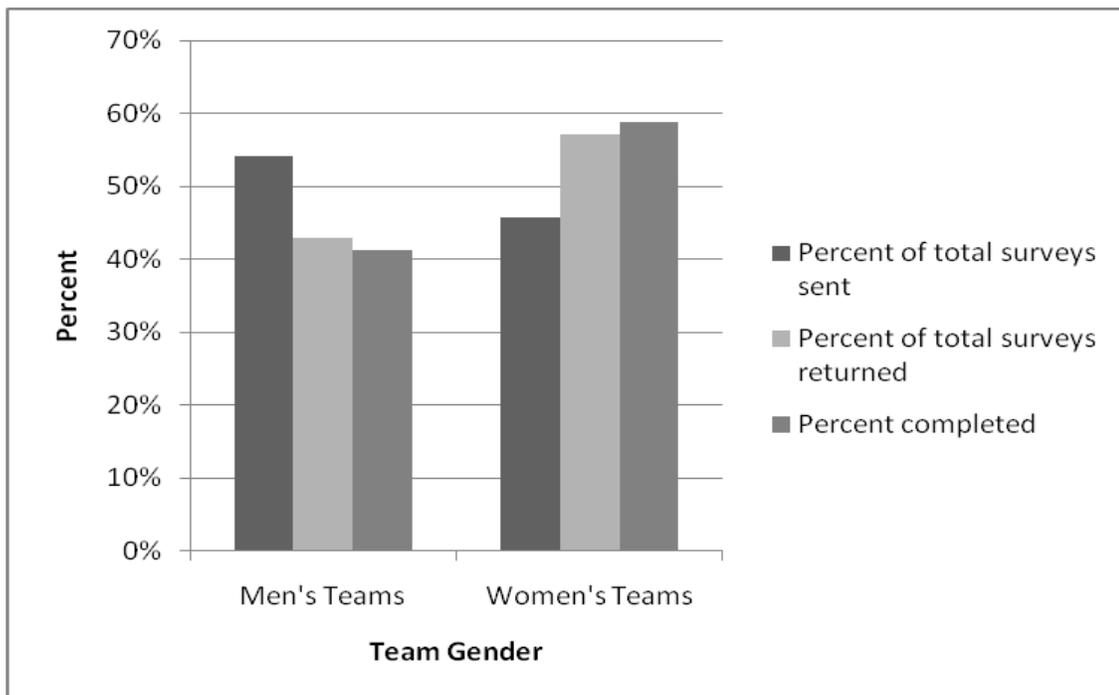


Figure 2: Return and completion rates by team gender



A majority of students (80% for the Fall 2007 freshman class)(UNC Class Profile, 2007) at the University of North Carolina at Chapel Hill come from within the state. Conversely, the majority of student-athletes are non-residents. Of those who responded to the survey, 59.2% were non-residents and 40.8% were residents. Table 3 illustrates residency status distribution across sports.

Table 3: Residency status by sport

Sport	Resident	Non-resident	Total
Baseball	1	1	2
Fencing	9	5	14
Field Hockey	1	5	6
Golf	1	3	4
Gymnastics	1	3	4
Lacrosse	2	6	8
Rowing	5	4	9
Soccer	3	8	11
Softball	2	1	3
Swimming & Diving	5	10	15
Tennis	2	0	2
Track & Field*	9	8	17
Volleyball	0	1	1
Wrestling	0	2	2
TOTAL	41	57	98

*Includes cross country and indoor and outdoor track

Athletic grant-in-aid information was important to this study and in fact necessary to answer three of the five research questions presented. A total of 96 individuals provided their athletic grant-in-aid level as of their first semester of their freshman year. The amount supplied was given as either a percentage amount or a dollar amount. Of the 98 who answered *Question 4: Did you receive any ATHLETIC grant-in-aid as an incoming freshman?*, 39 answered that they did receive athletic grant-in-aid and 59 responded that they

did not receive any athletic grant-in-aid. Thirty seven of the 39 scholarship athletes gave an amount of athletic grant-in-aid received, with two choosing not to respond.

For this study, athletic grant-in-aid was divided into three groups: high-scholarship, low-scholarship, and non-scholarship. Fifty-eight of the participants in this study were non-scholarship as of their freshman year. Twenty-four declared as high-scholarship student-athletes. The fewest number came from the low-scholarship grouping, with 14 in this category.

The survey asked the student-athletes to answer 24 questions about factors which influenced their decision to attend the University of North Carolina at Chapel Hill. The questionnaire stressed that retrospective analysis be used to answer these questions, meaning that responses should be based on experiences before making the college decision. A Likert scale was used, with five choices: Not Relevant (in my decision to come to UNC-Chapel Hill) [0], Unimportant [1.0], Slightly Important [2.0], Important [3.0], Highly Important [4.0], Extremely Important [5.0]. The resulting data from the surveys was placed into SPSS, a statistical software package, with the output used to analyze the six research questions. The first question looked to find the importance of the 24 items and which factor the student-athletes found to be the most important when making their college decision.

Research Question 1:

How are the items affecting college choice valued by non-revenue sport student-athletes at UNC-Chapel Hill?

In order to answer research question one, frequency tables were employed to find how many and what percentage of student-athletes chose the responses, 0.0 to 5.0. The scale

was designed to be used as an interval scale so that a calculated mean could be utilized for analysis. A choice of “not relevant” (0.0) was also given so that respondents had this option if the item had no bearing on their decision. In order to obtain a useful mean score, it was necessary to eliminate the response of 0.0 before calculating the mean.

Fourteen items had a mean score of at least three, indicating these items to be “important” to the respondents. These fourteen items can be found in Table 4, along with the number of student-athletes and the valid percent who chose 5.0 or higher and 3.0 or higher. Only *Item 9-Academic Reputation* (62.4%) was rated as “extremely important” by over 50% of the student-athletes. This same item had the highest frequency ($f = 53$) of “extremely important” ratings. *Item 9* also had the highest valid percent (96.5) of respondents who chose 3.0 or higher. *Item 10- Athletic Reputation* ($f = 33$) received the second highest frequency of responses of “extremely important.” Both of these items were also the only ones to receive a mean importance score of 4.0 or higher. *Item 9 and Item 10* (85.9), as well as *Item 8- Major* (87.1), *Item 7- Community* (83.6), and *Item 5-Athletic Facilities* (83.5) all had valid percentiles of 3.0 or higher with at least 80% of respondents. Four of these top six items were not related to athletics, but rather had academic and quality of life implications.

The next four items, ranked by frequency of 3.0 or higher, had at least 60 student-athletes who felt them to be at least “important.”: *Item 21- Academic Facilities* (77.7), *Item 12- Competition and Schedule* (76.5), *Item 23- Head Coach* (71.8), and *Item 24- Sport Specific Facilities* (70.6). The latter three items all directly relate to athletics, specifically within the student-athletes’ particular teams. *Item 7- Teammates*, nearly fit into this group: it

had 59 student-athletes respond at least 3.0. This item had the third highest mean score (M = 3.81) of any of the 24 items.

Of the 14 items in Table 4, *Item 11- Strength and Conditioning Facilities* (M = 3.11), *Item 1- Academic Support Facilities* (M = 3.28), *Item 2- Assistant Coach* (M = 3.27), and *Item 18- Recruiting Visit* (M = 3.24) had relatively lower mean importance ratings.

However; the first three of these had valid percentiles of 3.0 or higher with at least 60% of respondents. Items 11 and 1 are both supplemental, in that each is available to all student-athletes, regardless of team or sport. Items 2 and 18 are more team-specific.

**Table 4: Highly rated items
(ordered by valid percent of 3.0 or higher)**

Item	Mean*	Frequency 5.0 (Extremely important)	Valid Percent 5.0	Frequency 3.0 (Important) or higher	Valid Percent 3.0 or higher
9. Academic Reputation	4.39	53	62.4	82	96.5
8. Major	3.84	30	35.3	74	87.1
10. Athletic Reputation	4.00	33	38.8	73	85.9
7. Community	3.66	19	22.4	71	83.6
5. Athletic Facilities	3.55	11	12.9	71	83.5
21. Academic Facilities	3.49	14	16.5	66	77.7
12. Competition & Schedule	3.58	15	17.6	65	76.5
23. Head Coach	3.48	17	20	61	71.8
24. Sport Specific Facilities	3.37	12	14.1	60	70.6
17. Teammates	3.81	26	30.6	59	69.4
11. Strength and Conditioning Facilities	3.11	6	6.1	58	68.2
1. Academic Support Facilities	3.28	5	5.1	57	67.1
2. Assistant Coach	3.27	12	14.1	55	64.7
18. Recruiting Visit	3.24	11	12.9	45	52.9

* n=85

No item on the survey received an overall mean score lower than 2.0 (Slightly Important). The items listed in Table 4 indicate the most important factors, more specifically where a majority of the student-athletes scored the item 3.0 or higher. Table 5 shows the four lowest ranked items. Two items shared the highest mean importance rating of this group ($M = 2.26$), *Item 15- Performance UNC* and *Item 22- Literature*. *Item 3- Carolina Leadership Academy* was the most unimportant, according to mean importance rating. Note, however, that one quarter of respondents rated this item as “not relevant.” According to the frequency of student-athletes who rated 2.0 or lower, *Item 13- Proximity to Home*, was the most unimportant. This item also had the highest frequency of student-athletes ($f = 33$) who rated an item “unimportant.”

**Table 5: Lowest rated items
(ordered by valid percent 2.0 or lower)**

Item	Mean*	Frequency 1.0 (Unimportant)	Valid Percent 1.0	Frequency 2.0 (Slightly Important) or Lower	Valid Percent 2.0 or lower
13. Proximity to Home	2.14	33	38.8	48	56.4
15. Performance UNC	2.26	24	28.2	47	55.3
3. Carolina Leadership Academy	2.00	27	31.8	42	49.4
22. Literature	2.26	16	18.8	38	44.7

* n=85

Six items did not appear on either list. These items all received mean scores between 2.5 and 3.0, and each had the highest frequency of its responses of either “very important” or “important.” Five of the six items, *Item 4- Housing* (58.9), *Item 16- Play Immediately* (56.5), *Item 20- Sports Medicine Facilities* (56.5), *Item 6- Equipment and Apparel* (55.3), and *Item 14- Performance Team* (51.8) had at least 50 % valid of the responses at least “important.” There was one item that received its highest frequency as “unimportant”. *Item 20- Athletic Grant-in-Aid* was chosen as “not relevant” by the majority of respondents. Of those who found this item relevant, the plurality responded as “unimportant.” Also, 32 student-athletes rated *Item 20- Athletic Grant-in-Aid* to be at least “important”, which accounted for nearly all of respondents who received athletic grant-in-aid. A comprehensive list of all 24 of the items from the questionnaire can be found in Appendix C, including the mean, frequencies, and valid percentiles for each item.

Twenty four questions, which comprised the survey items, were included in question six of the survey. It was necessary to reduce this number to make analysis easier. In order to accomplish this, a principle component analysis (PCA) was executed to narrow the

information into categories. These categories were labeled as component groups. The models were extracted and rotated using Varimax rotation with Kaiser Normalization.

An item was considered to have loaded highly if its component score was at or above .600. On the first PCA that was conducted, the first rotation converged in 19 iterations. In this initial model, 18 items loaded highly on six different components. The first component contained seven items that loaded highly, the second component contained five, the third component contained four, and the fourth, fifth, and sixth components contained one each.

The second PCA was performed excluding those items that had not loaded highly on the first PCA, resulting in a total of 18. On the second PCA, 15 items loaded highly across four components. The first component loaded highly on six items, the second component contained five, the third component contained three, and the fourth component contained only one.

The model was extracted and rotated three more times, resulting in a component matrix including 14 items across three components. Each item was mutually exclusive, and each component contained at least four items. The list of loading scores for the component groups can be found in Table 6.

Table 6: Item component groups

Rotated Component matrix			
Item	Component 1	Component 2	Component 3
11. Strength and Conditioning Facilities (a)	0.831	0.307	0.151
12. Competition and Schedule (a)	0.798	0.235	0.055
5. Athletic Facilities(a)	0.791	0.337	0.145
6. Equipment and Apparel(a)	0.762	0.296	0.108
16. Play Immediately (a)	0.704	0.165	-0.010
10. Athletic Reputation (a)	0.694	0.132	0.383
18. Recruiting Visit (b)	0.356	0.764	-0.039
22. Literature (b)	0.280	0.687	0.081
3. Carolina Leadership Academy (b)	0.152	0.685	0.105
17. Teammates (b)	0.501	0.637	0.139
9. Academic Reputation (c)	0.019	0.012	0.849
8. Major (c)	0.061	-0.169	0.779
21. Academic Facilities (c)	0.145	0.356	0.654
7. Community (c)	0.250	0.280	0.584

(a) items grouped by Component 1

(b) items grouped by Component 2

(c) items grouped by Component 3

The original 24 items on the questionnaire were necessary to begin to understand the variety of reasons why student-athletes choose to enroll and compete at the University of North Carolina at Chapel Hill. However, in order to conduct more in-depth analysis, it was necessary to create these component groups. Since the items were grouped together by their load score, similarities existed and therefore each component group was given a name. A list of the items and the component group names can be found in Table 7.

Table 7: Component group names

<i>Direct Impact</i>	<i>Peripheral Impact</i>	<i>Academics</i>
11. Strength and Conditioning Facilities	18. Recruiting Visit	9. Academic Reputation
12. Competition and Schedule	22. Literature	8. Major
5. Athletic Facilities	3. Carolina Leadership Academy	21. Academic Facilities
6. Equipment and Apparel	17. Teammates	7. Community
16. Play Immediately		
10. Athletic Reputation		

Just as frequencies for the individual survey items were tabulated, they were also calculated for the three component groups. Frequency tables for each component can be found in Appendix D. The component *Academics* collected the highest percentage (7.1) of 5.0 (“extremely important”) ratings, with 50% of the respondents finding it to be at least 4.0 (“highly important”). *Direct Impact* was the second most important component, with 1.2% of the student-athletes rating it as 5.0 (“extremely important”) and almost 23% rating it as 4.0 (“highly important”). *Peripheral Impact* was clearly the least important component, where only 28.7% of respondents found it to be at least 3.0 (“important”). Table 8 shows these component group ratings.

One important observation came from analysis of the items that composed *Peripheral Impact*. The PCA was constructed in a mathematical sense, which resulted in items with higher importance being left out of the model and lower rated items included. The model placed together items which went together in the mathematical model, not necessarily what was most important. *Peripheral Impact* included, *Item 22- Literature* and *Item 3- Carolina Leadership Academy*. These were two of the lowest four rated items according to descriptive statistics. This is important to remember when analyzing the results.

**Table 8: Component ratings
(ordered by percent rating as 5.0)**

Component	Percent Rating Component as 5.0	Percent Rating Component as 4.0 or higher	Percent Rating Component as 3.0 or higher
<i>Academics</i>	7.1	49.9	91.5
<i>Direct Impact</i>	1.2	22.8	74.4
<i>Peripheral Impact</i>	0	7.9	28.7

Research Question 2:

Is there a significant difference in the responses based on athletic grant-in-aid levels of non-revenue sport student-athletes?

Once the component groups were established, mean scores were computed that were then used in the subsequent ANOVA procedures. The first of these analyses was a series of one-way, between subjects ANOVAs, one conducted for each of the three component groups, with scholarship level as the independent variable. Each ANOVA used an alpha level of .05.

These ANOVAs were used to examine research question two and determine if significant differences existed in the responses for each athletic grant-in-aid level. Descriptive statistics revealed that *Direct Impact* was slightly more important to high-scholarship student-athletes (M = 3.58, SD = .66) than low-scholarship (M = 3.35, SD = .53) and non-scholarship (M = 3.21, SD = .87); however, each of the three groups felt it to be important. For *Direct Impact*, results revealed a failure to reject the null hypothesis that no differences existed between athletic grant-in-aid groups, $F(2, 78) = 1.735, p = .18$.

Descriptive statistics for *Peripheral Impact* show similar results, with high scholarship student-athletes (M = 3.14, SD = .62) finding this component to be more

important than low-scholarship ($M = 2.77$, $SD = .91$) and non-scholarship ($M = 2.61$, $SD = .85$). In this case, however, analysis of variance revealed that significant differences existed between at least one of the athletic grant-in-aid level groups, $F(2, 71) = 3.27$, $p < .05$. A Tukey HSD post-hoc test presented the significant difference between the mean scores for high-scholarship and non-scholarship student-athletes. High-scholarship student-athletes had significantly higher importance ratings for *Peripheral Impact* than non-scholarship student-athletes.

Academics were evenly valued by each of the three groups, but non-scholarship student-athletes valued them the most ($M = 3.99$, $SD = .69$). Low-scholarship ($M = 3.79$, $SD = .80$) and high-scholarship ($M = 3.60$, $SD = .78$) were slightly less important, yet still important. The findings showed a failure to reject the null hypothesis, with the effect of scholarship not statistically significant for *Academics*, $F(2, 79) = 2.18$, $p = .12$.

Research Question 3:

Is there a significant difference in the responses based on gender of non-revenue sport student-athletes?

The second series of one-way ANOVA procedures was similarly conducted using gender as the independent variable. Research question three asked if significant differences existed in the responses based on gender. *Direct Impact* was valued evenly for both males ($M = 3.33$, $SD = .87$) and females ($M = 3.37$, $SD = .70$). Consequently, with such similar mean scores, the null hypothesis was not rejected, $F(1, 81) = .064$, $p = .80$.

Mean scores on *Peripheral Impact* were below 3.0 for both genders, with the average female finding this component to be of slightly higher value ($M = 2.96$, $SD = .75$) than the

average male ($M = 2.60$, $SD = .85$). Again, no significant differences existed between gender groups for *Peripheral Impact*, $F(1, 74) = 3.58$, $p = .062$.

As was the case with *Direct Impact*, male ($M = 3.83$, $SD = .73$) and female ($M = 3.86$, $SD = .75$) means were almost identical for *Academics*, which once more resulted in the failure to reject the null, $F(1, 82) = .01$, $p = .91$.

Research Question 5:

Is there a significant difference in the responses based on residency status of non-revenue sport student-athletes?

To answer research question five, the last series of one-way ANOVAs used residency status, in or out of the state of North Carolina, as the independent variable. Significant results were found for two of the three tests. Descriptive statistics and analysis of variance modeling indicated that non-residents ($M = 3.50$, $SD = .60$) found *Direct Impact* significantly more important than residents ($M = 3.14$, $SD = .94$) when making their decision to come to UNC-Chapel Hill, $F(1, 81) = 4.77$, $p < .05$.

More of a disparity existed between residents ($M = 2.54$, $SD = .76$) and non-residents ($M = 3.00$, $SD = .79$) for *Peripheral Impact*, with significant differences between the two parties in this component group, $F(1, 74) = 6.510$, $p < .05$. Again, non-residents had significantly higher importance ratings for this component group.

Similar to the preceding athletic grant-in-aid and gender analysis, residency status does not create an “importance gap” when it comes to *Academics*. Residents ($M = 3.83$, $SD = .81$) and non-residents ($M = 3.86$, $SD = .68$) both value this component highly. Also

similar to previously indicated results, the null failed to be rejected, as the two groups were not significantly different statistically, $F(1, 82) = .037$, $p = .849$.

Table 9: One-way ANOVA results

Independent Variables	Component Groups		
	<i>Direct Impact</i>	<i>Peripheral Impact</i>	<i>Academics</i>
Athletic grant-in-aid	Not Significant ($p=.18$)	Significant ($p<.05$)	Not Significant ($p=.12$)
Post Hoc	N/A	High/Non-Scholarship ($p<.05$)	N/A
Gender	Not Significant ($p=.80$)	Not Significant ($p=.062$)	Not Significant ($p=.91$)
Residency	Significant ($p<.05$)	Significant ($p<.05$)	Not significant ($p=.85$)

Note: An alpha level of .05 was used for all statistical tests

Research Question 4:

Is there a significant difference in the responses based on gender for each athletic grant-in-aid level group of non-revenue sport student-athletes?

In order to answer research questions four and six, it was necessary to conduct a slightly different kind of analysis. In each case, a two-way totally between subjects ANOVA was performed on each component, for a total of six models. An alpha level of .05 was utilized for each two-way, between subjects ANOVA. The first of the two research questions, number four, asked if a significant difference in the responses exists based on gender for each athletic grant-in-aid level group. Using gender and athletic grant-in-aid level as the independent variables and the mean scores for the component groups as the dependent variable, the procedures were performed.

Within the group of male subjects, high-scholarship student-athletes ($M = 3.48$, $SD = .74$) rated the component *Direct Impact* slightly more important than both low ($M = 3.27$, $SD = .76$) and non-scholarship ($M = 3.28$, $SD = .96$). High-scholarship females ($M = 3.62$, $SD = .63$) found *Direct Impact* to be more important on average than high-scholarship males and non-scholarship females found this component to be slightly less important on average than their male counterparts ($M = 3.15$, $SD = .79$). As a result in the similarity of mean scores for *Direct Impact*, a significant main effect was not found for either gender, $F(1, 75) = .062$, $p = .804$, or athletic grant-in-aid level, $F(2, 75) = 1.319$, $p = .274$. In addition, no significant interaction effect occurred between gender and grant-in-aid level, $F(2, 75) = .288$, $p = .751$, for *Direct Impact*.

On average, the mean importance ratings for *Peripheral Impact* were lower than either of the other two component groups. For males, high-scholarship student-athletes ($M = 2.80$, $SD = .76$) found *Peripheral Impact* to have the most importance in their decision, albeit of slight importance. Low-scholarship student-athletes ($M = 2.36$, $SD = 1.19$) recorded the lowest mean scores on average, with little importance shown. Females found *Peripheral Impact* more important across all athletic grant-in-aid levels, with the most importance given by high-scholarship student-athletes ($M = 3.30$, $SD = .48$). Although some disparity in importance ratings existed, particularly within the females, no significant main effect was found for gender $F(1, 68) = 3.35$, $p = .071$, or athletic grant-in-aid level, $F(2, 68) = 2.22$, $p = .12$. Likewise, no significant interaction effect was found between gender and grant-in-aid level, $F(2, 68) = .749$, $p = .48$.

Mean importance ratings were the highest for *Academics* across gender and athletic grant-in-aid levels, as has been shown already. The lowest ratings were given by high-

scholarship male student-athletes ($M = 3.5$, $SD = .68$) and high-scholarship females ($M = 3.66$, $SD = .84$) although still quite important. Non-scholarship males ($M = 3.95$, $SD = .72$) and females ($M = 4.01$, $SD = .68$) found *Academics* to be “very important” on average. However, since there was no real disparity between groups, no main effect was found to be significant for gender, $F(1, 76) = .034$, $p = .854$ or athletic grant-in-aid level, $F(2, 76) = 2.20$, $p = .118$. Predictably, no significant interaction effect resulted between the two independent variables as well, $F(2, 76) = .11$, $p = .89$.

Research Question 6:

Is there a significant difference in the responses based on residency status for each athletic grant-in-aid level group of non-revenue sport student-athletes?

Research question six asks if a significant difference exists in the responses based on residency status for each athletic grant-in-aid level. In this model, the independent variables were athletic grant-in-aid level and residency. The mean scores for the component groups were once more the dependent variable. Analysis of residents compared to non-residents for *Direct Impact* reveals inverse results, with an increase in importance from high scholarship ($M = 2.94$, $SD = .76$) to low scholarship ($M = 3.20$, $SD = 1.00$) in the former and a decrease in importance from high scholarship ($M = 3.79$, $SD = .48$) to low scholarship ($M = 3.24$, $SD = .67$) in the latter. Examination of the two main effects revealed one main effect, residency, as nearly significant, $F(1, 75) = 3.78$, $p = .056$, and one as not significant, athletic grant-in-aid level, $F(2, 75) = .29$, $p = .751$. In any case, the interaction effect of the two independent variables for *Direct Impact* is not significant, $F(2, 75) = 1.88$, $p = .16$.

Across athletic grant-in-aid levels for residents and non-residents, the latter group showed more importance for the *Peripheral Impact* component. The lowest importance rating for non-residents, being non-scholarship student-athletes ($M = 2.85$, $SD = 1.04$), was nearly greater than the highest importance rating for residents, being high-scholarship student-athletes ($M = 2.88$, $SD = .56$). As a whole, *Peripheral Impact* was the least important of the three component groups. Non-scholarship residents found this component to be the least important of all six subgroups ($M = 2.44$, $SD = .66$). No significant main effect was obtained for athletic grant-in-aid level, $F(2, 68) = 1.59$, $p = .21$, or residency, $F(1, 68) = 1.48$, $p = .23$. The interaction effect between residency and athletic grant-in-aid level was insignificant for *Peripheral Impact*, $F(2, 68) = .067$, $p = .94$.

Finally, the last two-way totally between subjects ANOVA was performed for *Academics*, with athletic grant-in-aid level and residency again as independent variables. All subgroups attained a mean rating of at least 3.0. The importance ratings for both residents and non-residents increased as the athletic grant-in-aid level of the student-athlete decreased. Non-scholarship, residents ($M = 4.00$, $SD = .73$) found *Academics* to be most important, followed by non-scholarship, non-residents ($M = 3.96$, $SD = .65$). A significant main effect of athletic grant-in-aid level was attained on the importance given to *Academics*, $F(2, 76) = 3.70$, $p < .05$. Therefore, regardless of gender, scholarship level had an effect on the importance given to *Academics* by prospective student-athletes when making their decision. High-scholarship student-athletes rated *Academics* as less important than low and non-scholarship student-athletes. For further analysis, a Tukey HSD post-hoc procedure using a Bonferroni adjustment was utilized. This test showed a difference in means ($-.38$), though not significant, between high-scholarship and non-scholarship student-athletes in regards to

how they valued *Academics* ($p = .10$). A significant main effect of residency was not found for *Academics*, $F(1, 76) = 1.02, p = .315$. No significant interaction effect was present between athletic grant-in-aid level and residency, $F(2, 76) = 1.67, p = .20$.

One and Two-Way ANOVA Discrepancies

One and two way ANOVA procedures were used in analysis for this research. These tests produced different results for certain independent variables for each of these tests. In four instances, significant and non-significant results were found on the same independent variable for the two separate tests. These results can be found in Table 10.

Table 10: One versus two way ANOVA differences

One-way ANOVA	Two-way ANOVA
Direct Impact (Residency) (a)	Main Effect (Residency) for Direct Impact
Peripheral Impact (Residency) (a)	Main Effect (Residency) for Peripheral Impact
Academics (Athletic Grant-in-Aid)	Main Effect (Athletic Grant-in-Aid) for Academics (b)
Peripheral Impact (Athletic Grant-in-Aid) (a)	Main Effect (Athletic Grant-in-Aid) for Peripheral Impact

(a) significant at alpha level of .05

(b) significant main effect, non-significant post-hoc test at alpha level of .05

Chapter V

SUMMARY

Due to the popularity of intercollegiate athletics among both men and women, the pool of potential student-athletes continues to expand. Young people begin to view the prospect of receiving an athletic scholarship early in their athletic careers. As time goes on and the prospect has institutional choices, it is necessary to compare and contrast universities at an academic and athletic level. Thus, it is necessary for institutions and administrators at the macro-level and individual teams and coaches at the micro-level, to continually understand the search process of a potential student-athlete and what he or she is seeking from a program and university.

More research has been conducted recently on the subject of institutional choice, particularly for student-athletes. This study attempted to describe what influences affect the small group of student-athletes who enroll and matriculate at the University of North Carolina at Chapel Hill. This study examined only a small group of student-athletes at one university, and should not be interpreted as exhaustive or completely conclusive. Part of the purpose was to assist coaches and administrators at the University of North Carolina at Chapel Hill, as many of the academic and athletic opportunities offered at this university are unique.

The data collected in this study assists those in the position to make decisions regarding recruitment of student-athletes. This chapter analyzes the factors valued by non-

revenue sports student-athletes at UNC-Chapel Hill and whether their motivations are different from similar groups at other universities. It will also discuss whether student-athletes of different athletic grant-in-aid levels, genders, and residency status value these factors in similar ways. It draws conclusions from these findings and makes recommendations for future research that may build upon this and previous research.

Discussion

Research Question 1:

How are the items affecting college choice valued by non-revenue sport student-athletes at UNC-Chapel Hill?

A comprehensive list of questions derived from previous studies and personal experience was intended to develop relevant factors used by the population of interest. The first research question asked how these items were valued and ranked according to importance in their decision.

The goal of the student-athlete entering college should be to attain a degree. This is particularly true in non-revenue sports, where the opportunity to play professionally does not exist or is of low probability. Research discussed in Chapter 2 points to the importance given to academic factors and the education received by the individual (Davis, 2006, Gabert, et. al. 1999, Letawski, et al., 2003). According to the results of this study, previous research is supported. The top two items according to importance were *Item 9- Academic Reputation* and *Item 8- Major*, meaning the status of the university and the availability of desired courses and intended degree program. Only three student-athletes who completed the survey did not rank *Academic Reputation* as being at least “important.” All items specifically pertaining to

Academics were rated in the top half of all items when ranked by importance, the last of these being Academic Support Facilities.

Responses to part three of the survey, which asked the final question, *What were the three most important reasons for choosing to come to UNC-Chapel Hill?*, strongly reinforced the importance of *Academics*. The respondents listed the top three factors, in order, in an open-ended format, enabling them to list anything. Forty-one respondents listed *Academic Reputation* as the number one reason. Across all responses, *Academic Reputation* was listed 61 times in total, by far the most of any category.

Item 8- Major, analyzes the importance of the university having the student-athlete's desired courses of study and academic specialization. This is important, particularly for non-revenue sport student-athletes, and may be a deciding factor when choosing between schools. If *Academics* are the most important, and two individual athletic programs are similar, an academic major might swing the decision one way or another. Also, if two institutions have similar majors but one is of higher quality or reputation, it may also make a difference. This is not something that administrators or coaches can control but should be something they understand when recruiting.

As well-regarded as the academic programs are at UNC-Chapel Hill, the athletic program has as much, if not more, noteworthiness on some levels. Referred to by many as the "front porch" of this or any large university, athletics often receives much publicity. Student-athletes strive to compete at a school with successful athletic programs. In the case of the University of North Carolina at Chapel Hill, most of the individual athletic programs have a strong history of success. Teams have won thirty-five national championships, and

numerous other individual national champions have also competed at the university (UNC-Carolina National Champions, 2007)

Item 10- Athletic Reputation, showed a high level of importance for student-athletes, with 33 student-athletes rating it as “extremely important.” This was second in frequency only to *Academic Reputation*. The mean score for this item was also second highest (M=4.00), proving it to be “very important” on average. The most popular of the individual athletic programs at UNC-Chapel Hill is the men’s basketball team, which is known all over the country. The men’s basketball team was ranked as the second most popular college basketball team in a 2008 *Harris Poll* (Harris Interactive Inc, 2008) Other programs, including women’s soccer, women’s basketball, field hockey and baseball most recently, have garnered national acclaim. These successes contribute to acquiring the best athletes from all over the country. Many schools, particularly in non-revenue sports, attempt to recruit on a local or regional scale. The name and reputation of Carolina allows many of its athletic programs to recruit on a national and international level as well. *Athletics* also received a high number of responses on the open ended question at the end of the survey, recorded 31 times in total.

One item that was highly rated and has stood out as “important” in previous student-athlete research was *Item 7- Community* (Gabert, et al., 1999, Letawsky, et al., 2003). Most regular college students take this into consideration, and student-athletes are no different. Chapel Hill, and the surrounding region, is a valuable asset to the athletics program in recruiting. Over 80% of those who returned a survey rated *Community* as at least “important”, ranking fifth in overall mean score (M = 3.66). Ten individual comments were made about the location of the school in the responses to part three of the survey.

Item 17- Teammates, was very highly rated in this study, similar to the Davis study (2006). It ranked fourth in both mean score ($M = 3.81$) and frequency rated “extremely important” ($f = 26$). Certain research has shown the importance of relationships and social interaction for the regular college student when making his or her decision (Martin & Dixon, 1991). This interaction may be even more important with regards to teammates on athletic squads. So much time and energy are invested with teammates in practice and competition, that it is essential to have positive interaction in order to be successful. Davis (2006) also supported the notion of teammate importance in his study.

One area in which the results of this study differed slightly was “coaching”. Previous research indicated that coaching was perhaps the most important element in the institutional decision for the student-athlete (Gabert, et. al., 1999, Davis, 2006). Though each was still rated as important on average, *Item 23- Head Coach* ($f = 61$) and *Item 2- Assistant Coach* ($f = 55$) were ranked eighth and thirteenth respectively according to the frequency of responses rating at least “important.” It is hard to say why “coaching” was not more valued by student-athletes at this institution. However, it is important to realize that “coaching” was not regarded as “unimportant”. One noteworthy observation comes from part three of the survey, where “Coaches” was listed 15 times by the student-athletes. This was third most of all reasons listed.

Facilities provided to the student-athletes in both the academic and athletic setting were rated highly. Research has indicated a trend showing increases in spending on larger athletic programs, UNC- Chapel Hill being no exception (Fulks, 2005). This money is often spent on programs like football and basketball; however funds are also used by non-revenue sports as well. These funds are used to improve athletic facilities, which are an essential tool

in recruiting student-athletes. For example, the men's baseball team is in the process of renovating Boshamer Stadium, its on-campus baseball complex. Carmichael Auditorium, home to the women's basketball team but also women's gymnastics, women's volleyball, and wrestling, will undergo renovations beginning in 2008. Henry Stadium, home to women's field hockey, recently re-surfaced its artificial turf field. Of the six facilities questions on the survey, five of them were rated at minimum "important" by no fewer than 50 % of the respondents. *Item 5- Athletic Facilities* (M = 3.55), which asked about the quality of the overall athletic facilities, was valued as "important" by over 80% of the student athletes who responded. *Item 24- Sport-Specific Facilities* (M = 3.37), those used specifically by the team for which the individual plays, received the same mark by 70% of the respondents. This was somewhat surprising, as the facilities used specifically by an individual would seemingly be more important than the athletic facilities overall.

Considering the credence given to *Academics*, it was not surprising that *Item 21- Academic Facilities* (M = 3.49) had a high level of importance. Similar to athletic departments, institutions are constantly doing something to improve their campus. The University of North Carolina at Chapel Hill being no exception, new projects are beginning on a continual basis. State-of-the-art technology for classrooms is necessary in order to compete with other schools for students. Since student-athletes are in fact students, these qualities are important to them as well. In some instances, student-athletes on this campus are receiving some kind of academic scholarship or tuition grant, possibly indicating increased focus on academic resources.

When recruiting, coaches undoubtedly show prospects the academic support facilities available only to the student-athlete population. In many cases, this is more important to the

parents than the prospects themselves. In any case, 67.1% of respondents rated *Item 1- Academic Support Facilities* as at least “important.” Just as athletic departments have striven to have the best athletic facilities, each has also worked to improve academic support facilities and provide them with excellent equipment.

Teams receive specialized, focused weight training. This training has become part of the daily routine, where many student-athletes have focused their efforts to improve performance on the field of play. *Item 11- Strength and Conditioning Facilities*, focused on the facilities, not the specific training received from strength coaches. Athletic departments upgrade these strength facilities as another recruiting tool. Even though it received the lowest mean importance score of those items which obtained at least 3.0, *Strength and Conditioning Facilities* was rated as at least “important” by 68.2% of the respondents.

Since the goal of almost all teams at UNC-Chapel Hill is to compete for ACC and NCAA championships, it is necessary to recruit the most talented athletes. Being in the ACC presents the challenge of competing against other very talented programs. The draw for many student-athletes is to compete against the best, so that they might improve the level of their game. *Item 12- Competition and Schedule*, proved the importance of what schools compete against. Of the student-athletes in this study, 76.5% rated this item as at least “important”.

The final item which received a mean score of at least 3.0 was *Item 18- Recruiting Visit* (M = 3.24). Like quite a few individuals competing in non-revenue sports, many in this study were walk-on, non-scholarship student-athletes entering college. Many of these student-athletes did not make a recruiting trip to campus for a particular sport. Therefore, 22 of the 85 respondents listed this item as “not relevant” in their decision. Of those who did

respond, just over half found their recruiting trip to be at least “important.” This could mean one of two things. First, the student-athletes who made a recruiting trip were convinced and impressed so much by everything else the institution had to offer that they had decided to attend already. Second, the visit did nothing to further impress or persuade the individual. In any case, a coach may put forth more effort for a recruit whom a team really wants.

Not every item on the survey was valued as “important”, on average. Six items received mean scores in the range 2.5 to 3.0, between “slightly important” and “important”. These items could be labeled as marginally important. Beginning with *Item 16- Play Immediately*, it is surprising that this item was not ranked higher. However; the item was nearly “important” on average. The ego, or perhaps self-confidence, that many student-athletes have would make one think playing time was very important. Student-athletes entering on athletic grant-in-aid most likely expect to be competing for playing time right away. However; considering the number of non-scholarship student-athletes in this study, these individuals may not expect to play right away. These were likely the 37 who rated this item as “slightly important” or lower. It appears that some student-athletes in non-revenue sports at this institution may expect it to take time to develop before they are ready to compete in the ACC, or they are more willing to learn early on in their college experience.

Most athletic departments, especially ones the size of UNC-Chapel Hill, are contracted with equipment manufacturers. The University of North Carolina at Chapel Hill has an exclusive apparel contract with Nike. Other high-quality brand equipment is also used by UNC-Chapel Hill athletic programs. Some student-athletes are particular about the equipment they use, which could play a part in the decision. *Item 6- Equipment and Apparel* (M = 2.93) showed some importance. Though only a small number found this item to be

“extremely important”, over half of the respondents rated it either “important” or “very important.” Considering the strength of Nike and other brands used, this item is a non-issue for the most part.

Item 19- Sports Medicine Facilities (M = 2.89) was the only facilities item to have a mean importance rating below 3.0. In the case of UNC-Chapel Hill, there have often been complaints about the inadequacy of its athletic training facilities. Despite its lower rating, there are still student-athletes who found this item to be important. Plans are underway to build a new facility on campus in the next several years.

As mentioned, construction seems to be ubiquitous on the campus of UNC-Chapel Hill. Recently, new residence halls have been added and renovations have been made to others. A number of student-athletes have been placed into these newer and nicer residence halls, such as Ram Village. Though not one of the highest ranked items, *Item 4- Housing* (M = 2.84), can make an impression on some. Similar to *Equipment and Apparel*, a small number found *Housing* to be “extremely important”, but nearly 86% found it to be either “slightly important”, “important”, or “very important.”

One item ranked lower than expected was *Item 14- Performance Team* (M = 2.80). It has already been stated that the performance of other teams at UNC-Chapel Hill did not have an impact on the decision to come to this institution. Given the high importance of *Athletic Reputation* and *Competition and Schedule*, which in some ways reflect the recent success of an individual team, it is surprising that *Performance Team* was not more important. Although some student-athletes found it to be at least “important”, nearly half of the sample responded “slightly important”, “unimportant”, or “not relevant.” This could reflect the idea

that many student-athletes at UNC-Chapel Hill are attracted by the reputation of the school academically and their first priority is completing a degree.

The final item to discuss was *Item 20- Athletic Grant-in-Aid* (M = 2.78), which seemed easy to explain. When the composition of the sample was analyzed, 60% of the student-athletes were non-scholarship. In other words, these individuals were not receiving athletics related grant-in-aid. If they decided to enroll at UNC-Chapel Hill without receiving this aid, it was clearly not important or relevant. Thirty respondents replied that *Athletic Grant-in-Aid* was “not relevant”, while 18 said it was “unimportant.” However; if the mix of scholarship and non-scholarship student-athletes were reversed, these results could be different. Many student-athletes who receive multiple scholarship offers from different institutions make their decision on how much aid is offered. In any case, the student-athletes in this study did not find athletic aid to be overly important.

Four items received mean importance ratings under 3.0, and none of these were rated higher than 2.26. The lowest item on the survey was *Item 3- Carolina Leadership Academy* (M = 2.00). This was a result, despite the Academy actively marketing itself, through brochures, press releases and other means including the UNC-Chapel Hill Athletic Department website. Some sports have invested time in explaining to recruits what this program involves, but it does not appear to be a huge component in recruiting. Nearly 30% of respondents found this item to be “not relevant”. Of those who answered, 31.8% found it to be “unimportant” in their decision. These statistics showed that either not enough information is given to have made a difference or it was never a factor. Many student-athletes do not know about the Leadership Academy until they are on campus.

Item 13- Proximity to Home ($M = 2.14$), had the highest frequency of “unimportant” responses ($f = 33$). Despite being one of the lowest rated items, *Proximity to Home* received 9 comments on the open-ended Part Three of the survey, which was eighth most. Regardless, 56.4% of respondents rated this item as “slightly important” or lower. Examining the residency statistics from the study, the majority come from out-of-state. Clearly, this group of student-athletes does not find living close to home to be a priority.

Item 15- Performance UNC ($M = 2.26$) and *Item 22- Literature* ($M = 2.26$) received the same mean importance rating. The former of these had a higher frequency of “unimportant” responses ($f = 24$), compared to the latter ($f = 16$). Though research has shown that success of football and basketball programs will increase general enrollment (Chressanthis & Grimes, 1993, Chu, 1989), success of other athletic programs at UNC-Chapel Hill has not influenced non-revenue sport student-athletes to attend there. As far as recruiting literature is concerned, athletic departments spend a considerable amount of money on producing and distributing this information. The results of this study show that prospective student-athletes do not find this literature important in their decision.

Principle Component Analysis

In order to make analysis of the remaining research questions easier, a principle component analysis (PCA) was conducted. This procedure classified the items from the survey into more general response groups, clustered according to their relationship in affecting college choice. The three components were *Direct Impact*, *Peripheral Impact*, and *Academics*. After five attempts to create a model, the final model identified by SPSS included 14 items and explained 64% of the total variance. Items were eliminated after each

new attempt until the final model was realized. The list of component groups can be found in Table 7 in Chapter 4.

Research Question 2:

Is there a significant difference in the responses based on athletic grant-in-aid levels of non-revenue sport student-athletes?

One-way ANOVA procedures were used for each of the three individual component groups to compare across athletic grant-in-aid level. For *Direct Impact*, no significant differences existed between the means for high scholarship (M=3.58), low scholarship (M=3.35), and non-scholarship (M=3.21) $F(2, 78) = 1.735, p = .18$. This shows that, because the means for each group are so similar, *Direct Impact* is valued almost equally by each group.

Peripheral Impact was less important as a whole for all athletic grant-in-aid levels. However, a significant difference was found within this component between at least one pair, $F(2, 71) = 3.27, p < .05$. A Tukey HSD post-hoc procedure revealed this difference existed between “high scholarship” student-athletes (M = 3.14) and “non-scholarship” student-athletes (M = 2.61). This difference can be explained by some of the individual items of *Peripheral Impact*. Since the majority of student-athletes in this study were “non-scholarship”, many were not heavily recruited. *Item 18- Recruiting* showed that 22 individuals found it to be “not relevant”, and many of these could be non-scholarship individuals. *Item 22- Literature*, asking the importance of recruiting material, lacked importance for all student-athletes on average. “High-scholarship” student-athletes receive more thorough recruiting efforts than “non-scholarship” student-athletes, perhaps explaining

some of the difference in this component. Also, NCAA rules restrict the type of printed materials that can be distributed to recruits, so there may be very little difference in types of materials distributed by different institutions.

As results have shown, academic variables are very important to students and student-athletes at UNC-Chapel Hill. It was not surprising that the component *Academics* had no significant differences between athletic grant-in-aid levels $F(2, 79) = 2.18, p = .12$. This is not surprising, since many of these individuals are athletically “non-scholarship”, but may be receiving academic scholarships. Therefore, *Academics* was valued a little bit more on average by the “non-scholarship” group. There are also student-athletes in non-revenue sports receiving athletic scholarships as well as academic aid. As the majority of these individuals are concerned about their academic well-being and future career, each group values *Academics*.

Research Question 3:

Is there a significant difference in the responses based on gender of non-revenue sport student-athletes?

One-way ANOVA procedures were used for each of the three individual component groups to compare between genders. No significant differences existed between genders for any of the three components at UNC-Chapel Hill. *Academics* was the most important of these components across both males and females ($M = 3.85, SD = .73$), though not significant with $F(1, 82) = .01, p = .91$. *Direct Impact* followed ($M = 3.35, SD = .77$), with $F(1, 81) = .06, p = .80$. Least important was *Peripheral Impact* ($M = 2.81, SD = .81$), with $F(1, 74) = 3.58, p = .06$. Males and females rated the first two of these components almost the

same within the components themselves, with *Peripheral Impact* valued slightly more by females. *Item 17- Teammates*, was a part of *Peripheral Impact*. Females tend to value relationships with teammates more, perhaps making this component slightly more important to them.

Research Question 5:

Is there a significant difference in the responses based on residency status of non-revenue sport student-athletes?

One-way ANOVA procedures were used for each of the three individual component groups to compare between residents and non-residents of North Carolina. Comparison of means for these two groups within *Direct Impact* proved to be significant. Non-residents ($M = 3.50$, $SD = .60$) found this component to be significantly more important than residents ($M = 3.14$, $SD = .94$) with $F(1, 81) = 4.78$, $p < .05$. Those items part of *Direct Impact* have large implications for the future success and enjoyment of the student-athlete's athletic experience at UNC-Chapel Hill. Thirteen of the 38 individuals who received athletic grant-in-aid were offered a full athletic scholarship. Thirty-one of these individuals were from outside the state of North Carolina. Therefore, the majority of these student-athletes are not receiving full athletic scholarships and are non-residents. More money would be paid out of pocket to attend UNC-Chapel Hill, possibly increasing the importance of this component to non-residents.

Peripheral Impact again produced lower importance ratings on average for residents and non-residents, but evaluation of the means discovered that non-residents ($M = 3.00$, $SD = .79$) found this component significantly more important than residents ($M = 2.54$, $SD = .76$)

with $F(1, 74) = 6.51, p < .05$. The reputation of UNC-Chapel Hill is known throughout the country. However; the university is particularly respected and appreciated by its own residents, which is the case with many state universities. Many of the residents in this study may have had the desire to attend and compete at UNC-Chapel Hill for a long time, not needing a great deal of convincing. These individuals may not value the importance of a recruiting trip or it may not be necessary at all. The *Peripheral Impact* component includes recruiting items, in turn affecting its value for residents and non-residents.

No significant differences existed between residents ($M = 3.83, SD = .81$) and non-residents ($M = 3.86, SD = .68$) for *Academics*, with $F(1, 82) = .04, p = .85$. Again, academic interests are similar across all student-athletes in this study.

Research Question 4:

Is there a significant difference in the responses based on gender for each athletic grant-in-aid level group of non-revenue sport student-athletes?

In an attempt to identify differences in importance between gender and athletic grant-in-aid levels, a series of two-way, totally between subjects ANOVAs were conducted to explore this research question. For each component group, the two-way (2 X 3) ANOVA procedure was performed, both main effects and interaction effect were analyzed. The result was a total of nine hypothesis tests: six main effects and three interactions.

For *Direct Impact*, *Peripheral Impact*, and *Academics*, there were no significant main effects of gender on the importance of each component, $F(1, 75) = .06, p = .80$, $F(1, 75) = 3.36, p = .07$, and $F(1, 76) = .03, p = .85$ respectively. This tells us that overall, regardless of

athletic grant-in-aid amount, gender did not influence the importance of *Direct Impact*, *Peripheral Impact*, or *Academics*.

There was no significant main effect of athletic grant-in-aid on each of the three components: *Direct Impact*, $F(2, 75) = 1.32, p = .27$, *Peripheral Impact*, $F(2, 68) = .12$, and *Academics*, $F(2, 76) = .11, p = .89$. This showed that all else being equal, each level of athletic grant-in-aid valued this component equally.

No significant interaction effect existed for gender and athletic grant-in-aid amount for any component either, with *Direct Impact*, $F(2, 75) = .29, p = .75$, *Peripheral Impact*, $F(2, 68) = .75, p = .48$, and *Academics*, $F(2, 76) = .11, p = .89$.

From these results, it can be confirmed that there are no significant differences in the responses based on gender for each athletic grant-in-aid level group. Analysis of Research Questions 2 and 3 would be beneficial in the study of this question. It has been shown that no significant results were found for any of the three components based on gender and only one significant result based on athletic grant-in-aid. Accordingly, one might believe that little significance would be found when combining these two as independent variables. In this case, the assumption would be correct. Analysis of descriptive statistics for this two-way ANOVA procedure showed that within each component and between genders, little difference existed in mean scores for each scholarship level.

Research Question 6:

Is there a significant difference in the responses based on residency status for each athletic grant-in-aid level group of non-revenue sport student-athletes?

To explore the differences between residency status and athletic grant-in-aid level, another series of two-way, totally between subjects (2 X 3) ANOVAs were performed. Both main effects and interaction effect were analyzed. Out of nine hypothesis tests, one significant result was achieved.

The main effect of residency for *Direct Impact* was not significant, but approached significance, $F(1, 75) = 3.78, p = .06$. This was a case where an increase in power through a larger N might increase the likelihood of a significant finding. Interestingly, Research Question 5 revealed a significant finding for *Direct Impact*, with non-residents finding this component significantly more important than residents. If an increase in power could be attained resulting in a significant finding, a main effect of residency would allow the conclusion that ignoring athletic grant-in-aid, residency status would influence the importance of *Direct Impact*. If mean values stayed consistent, non-residents would find this component significantly more important than residents. In any case, the second main effect for athletic grant-in-aid for *Direct Impact* was not significant, $F(2, 75) = .29, p = .75$. Everything else being equal, high, low, and non-scholarship student athletes at UNC-Chapel Hill found this component to be equally important. The items part of *Direct Impact*, Athletic Facilities and Competition and Schedule among others, are an important part of the athletic experience for all student-athletes. Lastly, the interaction effect of residency and athletic grant-in-aid for *Direct Impact* was not significant, $F(2, 75) = 1.88, p = .16$.

No significant main effects or interaction effect were present for *Peripheral Impact*. The nonsignificant main effect of residency revealed that regardless of the amount of athletic aid received, living in or out of North Carolina did not impact the importance placed on *Peripheral Impact*, $F(1, 68) = 1.48, p = .23$. In the same way, the main effect for athletic grant-in-aid was not significant, which showed that regardless of residency, the amount of athletic aid did not influence how student-athletes rated *Peripheral Impact*, $F(2, 68) = 1.59, p = .21$. The interaction effect was also nonsignificant for this component, $F(2, 68) = .07, p = .935$.

One main effect was significant and one was not significant for the component *Academics*. The main effect for residency was not significant, meaning that when athletic grant-in-aid is ignored, residency status does not impact the importance of *Academics*, $F(1, 76) = 1.02, p = .32$. This is not surprising considering *Item 9- Academic Reputation* and *Item 8- Major* are two of the top items in the entire study and both are part of this component. There was a significant main effect of the amount of athletic grant-in-aid received, on the importance of *Academics*, $F(2, 76) = 3.70, p < .05$, meaning that at least two levels of this variable were significantly different from one another. A Tukey HSD post-hoc procedure, incorporating a Bonferroni adjustment for multiple comparisons, determined that no significant differences existed between any of the means. The difference in means approached significance for “high-scholarship” ($M = 3.60$) and “non-scholarship” ($M = 3.96$). As had been stated for the main effect of residency for *Direct Impact*, an increase in N or the equalization of N values for “high” and “non-scholarship” groups may provide a significant finding. Recollection to the one-way ANOVA results for the component *Academics* in Research Question 2 provides that no significant differences existed between

any levels of athletic grant-in-aid. It appears that when including residency in the model with athletic aid, significance for the latter of the two is increased. Regardless of the significance of the main effect for athletic grant-in-aid, its interaction with residency is not significant, $F(2, 76) = 1.67, p = .20$.

One and Two-way ANOVA Discrepancies

Table 10 in Chapter 4 indicated where results produced on the same independent variable for each of these ANOVA procedures were different. In one test, the independent variable was stated to have no significant differences between any of its levels and in the other, significant differences did occur. These equivocal outcomes were reason to pause and consider the implications. Essentially, these contrasting results show that no statement can be made one way or another in regards to the statistically significant or non-significant differences of these independent variables. The results do indicate that certain subgroups of these independent variables are different according to average score. However, further research and closer inspection are needed to make any more definitive comments in regards to these variables.

Implications

The results of this study, combined with results from previous research, provide an idea of what is important to student-athletes. Specifically, this research can help administrators and coaches of non-revenue sports at UNC-Chapel Hill. Since this study only took place at this university, the ability to extrapolate and make deductions about other athletic programs and institutions is unwise.

The ability to recruit top athletes is important to the success of any intercollegiate program. Attracting these recruits is not easy, but knowledge of how recruits make choice of college decisions alleviates some stress. Key points revealed by this study include:

1. The strong education provided by the University of North Carolina is a big attraction for non-revenue sport student-athletes coming to this institution. *Item 9- Academic Reputation* was the most highly ranked item according to descriptive statistics, including mean score. Over 62% of respondents rated this item as “very important” and over 96% rated it at least “important.” The component group *Academics*, which included Academic Reputation, was the most important of the three. As a corollary, *Item 8- Major* was also rated strongly, with 87% of respondents ranking it as at least “important. The component group *Academics* revealed no significant differences between groups within athletic grant-in-aid, gender, or residency, reinforcing the educational value for these student-athletes.
2. Coaches and administrators understand that the quality of athletics in general is a major draw to this university, with several teams per year competing for conference and national championships. *Item 10- Athletic Reputation* recorded the second highest mean score, and was rated “very important” on average. These results reinforce the importance of recruiting top athletes and maintaining success.
3. Coaching was not ranked as highly in this study as in previous studies. Though still important and necessary to have good coaching, it was not a top factor for non-revenue sport student-athletes at UNC-Chapel Hill. This could be due to the additional items used in this survey than ranked higher or were not included in past research of this kind.

4. Administrators and coaches should assess the highly rated items in Table 4 and use them as a guide to ranking the importance of each item when developing recruiting strategies.
5. No significant differences existed between male and female, non-revenue sport student-athletes at UNC-Chapel Hill for each of the three component groups. Though each component group had a different level of importance relative to the others, both genders had a very similar importance level within components.
6. Non-residents of North Carolina found the component groups *Direct Impact* and *Peripheral Impact* to be significantly more important than residents. This is important to coaches at UNC-Chapel Hill, considering that non-residents outnumber residents within this athletic program.

Recommendations for Future Study

These recommendations and suggestions come from the results of this study, including some ideas that were not feasible within the time frame allotted to complete a graduate thesis:

1. Continued research is necessary on a larger number of subjects. This study was delimited because it took place at only one institution. Further examination of non-revenue sports student-athletes at other institutions is needed in order to make more conclusive statements about this population.
2. Changes should be made in the distribution of this study. Given more time, in-person evaluation would be more ideal to ensure that a larger sample is achieved and more surveys are completed. In case of confusion about certain questions,

clarification could be given by the administrator. Despite receiving completed surveys from every non-revenue sport except for one, many teams could have been more heavily represented.

3. Future research could explore team by team comparisons and evaluations. If more individuals from each team were reached, the results might indicate differences at the team level. If differences do exist, it may help administrators and coaches of these sports to change the way recruiting is approached.

4. Another suggestion would be to shorten the length of the survey. Thirteen individuals in this study completed the first four or five questions in Part 1 but dropped out before completing the Likert Scale Questions in Part 2. Certain questions shown not to have much relevance to this study should be eliminated.

5. Recommendations from previous research suggest that a longitudinal study be conducted related to this topic. This study included freshman and sophomores, but their answers were not separated or compared. Future studies could poll student-athletes in their freshman year and then again later in their intercollegiate athletic career to determine if changes in opinion occurred over time. Within subjects analysis could be performed to examine these results.

Conclusion

In conclusion, this study should be viewed as an additional part of the growing research on the student-athlete decision making process. This study made known that *Academic Reputation* was the single most important factor in the college decision making process to non-revenue sport student-athletes at the University of North Carolina at Chapel

Hill. Adding further support, of the three components derived from the PCA, *Academics* was the most important. As expected, *Athletic Reputation* also contributed heavily to these individuals' decision.

Also revealed were the slight differences in importance ratings that existed between athletic grant-in-aid levels and residency status, though few statistically significant differences were found. Different results from the one-way and two-way ANOVAs showed that no definitive statement can be made about the statistical differences between these variables. Overall, slight differences existed, but further inspection is needed in order to learn more.

This study contributes additional information on a small scale. Though certain characteristics of the University of North Carolina at Chapel Hill are unique, certain other schools share qualities with this institution. If it is possible to follow some of the recommendations proposed in this study, research in this area can continue to expand.

APPENDIX A

E-mail Cover Letters 1-3

Hello,

I am a graduate student in the Sport Administration program here at the University of North Carolina at Chapel Hill. In order to complete my degree, I am conducting a study titled *An examination of college decision making factors for non-revenue sports student-athletes at the University of North Carolina at Chapel Hill*.

As part of the research, I am asking student-athletes entering the UNC athletic program for the first time since the Fall of 2006 to complete an online survey. Questions regarding which sport you play, gender, resident status, athletics grant-in-aid percentage and what factors were important in choosing UNC-Chapel Hill are asked. The process will take no longer than 10 minutes of your time.

You will not be asked to give your name, so there is no way that the researcher, your coach, your teammates, or anyone else would be able to identify your responses. Your responses will be grouped with all of the other responses, so no individual answers will be disclosed.

Below is the link to the website where you will be directed to the survey. Please feel free to contact me or my faculty advisor, Barbara Osborne, if you have any questions. Thank you for your participation in this study.

http://www.surveymonkey.com/s.aspx?sm=EkBFv8tfx9fwAm1DDLcp5w_3d_3d

Sincerely,

Robert Ockenfuss
Kenan Field House
P.O. Box 2126 CB# 8550
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O: 919-843-2306
robert@unca.unc.edu

Barbara Osborne
919-962-6325

Hello Again,

For those of you who have completed the survey, thank you for your participation, as it has been very beneficial to me. For those of you who have not completed the questionnaire yet, feel free to help me over the next week.

Again, I am a graduate student in the Sport Administration program here at the University of North Carolina at Chapel Hill. In order to complete my degree, I am conducting a study titled *An examination of college decision making factors for non-revenue sports student-athletes at the University of North Carolina at Chapel Hill*.

As part of the research, I am asking student-athletes entering the UNC athletic program for the first time since the Fall of 2006 to complete an online survey. Questions regarding which sport you play, gender, resident status, athletics grant-in-aid percentage and what factors were important in choosing UNC-Chapel Hill are asked. The survey will take **no longer than 10 minutes** of your time.

You will not be asked to give your name, so there is no way that the researcher, your coach, your teammates, or anyone else would be able to identify your responses. Your responses will be grouped with all of the other responses, so no individual answers will be disclosed. Participation is purely voluntary and all information is confidential and anonymous

Below is the link to the survey. Please feel free to contact me or my faculty advisor, Barbara Osborne, if you have any questions. Thank you for your participation in this study.

http://www.surveymonkey.com/s.aspx?sm=EkBFv8tfx9fwAm1DDLcp5w_3d_3d

Sincerely,

Robert Ockenfuss
orobert@unca.unc.edu

Barbara Osborne
sportlaw@unc.edu

Hello,

This is my final attempt. I am in need of more responses to complete my degree by May. I am conducting a study titled *An examination of college decision making factors for non-revenue sports student-athletes at the University of North Carolina at Chapel Hill*. Please take time to complete this 10 minute survey. Your name will not be collected, in order to ensure anonymity. Below is the link which will take you to the survey. Thank you for participating.

http://www.surveymonkey.com/s.aspx?sm=EkBFv8tfx9fwAm1DDLcp5w_3d_3d

Sincerely,

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Barbara Osborne
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12. Quality of competition and the schedule played by your team?
0 1 2 3 4 5
13. Proximity to your home of UNC-Chapel Hill?
0 1 2 3 4 5
14. Recent performance (5 years) of your team at UNC-Chapel Hill?
0 1 2 3 4 5
15. Recent performance (5 years) of the other teams at UNC-Chapel Hill?
0 1 2 3 4 5
16. Opportunity to play/compete immediately?
0 1 2 3 4 5
17. Relationship with your future teammates?
0 1 2 3 4 5
18. Recruiting visit(s) you made to UNC-Chapel Hill?
0 1 2 3 4 5
19. Quality of the athletic training and sports medicine facilities?
0 1 2 3 4 5
20. Amount of athletic grant-in-aid offered?
0 1 2 3 4 5
21. Quality of the academic facilities on campus outside of athletics?
0 1 2 3 4 5
22. Recruiting literature distributed or published by the athletic department?
0 1 2 3 4 5
23. Relationship you had with the head coach?
0 1 2 3 4 5
24. Quality of your sport-specific facilities?
0 1 2 3 4 5
6. What were the three most important reasons for choosing to come to UNC-Chapel Hill?
- 1.
 - 2.
 - 3.

APPENDIX C

Item Ratings- Frequency and Valid Percentiles

Item	Mean	0.0 f	0.0 Valid %	1.0 f	1.0 Valid %	2.0 f	2.0 Valid %	3.0 f	3.0 Valid %	4.0 f	4.0 Valid %	5.0 f	5.0 Valid %
1. Academic Support Facilities	3.28	13	15.3	6	7.1	9	10.6	21	24.7	31	36.5	5	5.9
2. Assistant Coach	3.27	8	9.4	6	7.1	16	18.8	18	21.2	25	29.4	12	14.1
3. Carolina Leadership Academy	2.00	24	28.2	27	31.8	15	17.6	12	14.1	6	7.1	1	1.2
4. Housing	2.84	4	4.7	7	8.2	24	28.2	26	30.6	23	27.1	1	1.2
5. Athletic Facilities	3.55	7	8.2	1	1.2	6	7.1	31	36.5	29	34.1	11	12.9
6. Equipment and Apparel	2.93	11	12.9	8	9.4	19	22.4	21	24.7	22	25.9	4	4.7
7. Community	3.66	3	3.5	2	2.4	9	10.6	23	27.1	29	34.1	19	22.4
8. Major	3.84	2	2.4	3	3.5	6	7.1	22	25.9	22	25.9	30	35.3
9. Academic Reputation	4.39	1	1.2	0	0.0	2	2.4	16	18.8	13	15.3	53	62.4
10. Athletic Reputation	4.00	3	3.5	2	2.4	7	8.2	13	15.3	27	31.8	33	38.8
11. Strength & Conditioning Facilities	3.11	9	10.6	6	7.1	12	14.1	32	37.6	20	23.5	6	7.1
12. Competition & Schedule	3.58	7	8.2	3	3.5	10	11.8	19	22.4	31	36.5	15	17.6
13. Proximity to Home	2.14	11	12.9	33	38.8	15	17.6	13	15.3	9	10.6	4	4.7
14. Performance Team	2.80	11	12.9	11	12.9	19	22.4	23	27.1	16	18.8	5	5.9
15. Performance UNC	2.26	9	10.6	24	28.2	23	27.1	17	20.0	9	10.6	3	3.5
16. Play Immediately	2.96	9	10.6	12	14.1	16	18.8	21	24.7	17	20.0	10	11.8
17. Teammates	3.81	13	15.3	1	1.2	12	14.1	13	15.3	20	23.5	26	30.6
18. Recruiting	3.24	22	25.9	8	9.4	10	11.8	15	17.6	19	22.4	11	12.9
19. Sports Medicine Facilities	2.89	12	14.1	9	10.6	16	18.8	28	32.9	14	16.5	6	7.1
20. Athletic Aid	2.78	30	35.3	18	21.2	5	5.9	10	11.8	15	17.6	7	8.2
21. Academic Facilities	3.49	6	7.1	5	5.9	8	9.4	23	27.1	29	34.1	14	16.5
22. Literature	2.26	24	28.2	16	18.8	22	25.9	15	17.6	7	8.2	1	1.2
23. Head Coach	3.48	10	11.8	5	5.9	9	10.6	23	27.1	21	24.7	17	20.0
24. Sport-Specific Facilities	3.37	10	11.8	2	2.4	13	15.3	27	31.8	21	24.7	12	14.1

APPENDIX D

Component Groups- Mean Rating Frequency

<i>Direct Impact</i>		
Rating	Frequency	Valid %
1.50-1.99	4	4.8
2.00-2.49	7	8.4
2.50-2.99	10	12.0
3.00-3.49	20	24.0
3.50-3.99	23	27.6
4.0-4.49	14	16.8
4.5-5.0	5	4.8
Mean = 3.35		

<i>Peripheral Impact</i>		
Rating	Frequency	Valid %
1.0-1.49	4	5.2
1.50-1.99	8	10.5
2.00-2.49	9	11.8
2.50-2.99	12	15.8
3.00-3.49	23	30.3
3.50-3.99	14	18.4
4.0-4.49	6	7.9
Mean = 2.81		

<i>Academics</i>		
Rating	Frequency	Valid %
2.00-2.49	4	4.8
2.50-2.99	3	3.6
3.00-3.49	14	16.6
3.50-3.99	21	25.0
4.0-4.49	19	22.6
4.5-5.0	23	27.3
Mean = 3.85		

References

- The Atlantic Coast Conference (2007). About the ACC. Retrieved on November 14, 2007, from: <http://www.theacc.com/this-is/acc-this-is.html>
- Brookover, W.D., Erickson, E.L., & Joiner, L.M. (1967). Educational aspirations and educational plans in relation to academic achievement and SES. *School Review*, 75, 392-400.
- Cabrera, A.F., & La Nasa, S.M. (2000). Understanding the college choice process. *New Directions for Institutional Research*, 2000(107), 5-22. Retrieved September 18, 2007 from: <http://www3.interscience.wiley.com/cgi-bin/fulltext/101524640/PDFSTART>
- Canale, J.R., Dunlap, L., Britt, M., & Donahue, T. (1996). The relative importance of various college characteristics to students in influencing their choice of a college. *College Student Journal*, 30(2), Retrieved from: Academic Search Premiere.
- Chapman, D.W. (1981). A model of student college choice. *The Journal of Higher Education*, 52(5), 490-505. Retrieved May 21, 2007, from JSTOR: <http://www.jstor.org/view/00221546/di962473/96p0016k/0>
- Chressanthis, G.A., & Grimes, P.W. (1993). Intercollegiate sports success and first-year student enrollment demand. *Sociology of Sport Journal*, 10(3), 286-300. Retrieved from Academic Search Premiere.
- Chu, D. (1989) The relationship between sports success and student population characteristics. Paper presented at the North American Society for the Study of Sport, Washington, DC.
- Conklin, M.E., & Dailey, A.R. (1981). Does consistency of parental educational encouragement matter for secondary school students? *Sociology of Education*, 54(4), 254-263. Retrieved November 8, 2007, from JSTOR: <http://www.jstor.org/view/00380407/di975443/97p0234y/0>
- Cooper, K. (1996). What the basketball recruit wants to know. *Coach and Athletic Director*, 65(7), 24-26.
- Crane, P. (2003, Summer). The best college-or the best fit? *Journal of College Admission*, Retrieved November 8, 2007, from findarticles.com: http://findarticles.com/p/articles/mi_qa3955/is_200307/ai_n9244764/.

- Davis, G.R. (2006). Freshman student-athletes: An examination of the decision making process and satisfaction (Doctoral dissertation, Virginia Tech University, 2006). Retrieved September 20, 2007, from: <http://scholar.lib.vt.edu/theses/available/etd-04202006-181220/>
- Decision theory. (2007). In Encyclopedia Britannica. Retrieved November 17, 2007, from Encyclopedia Britannica Online: <http://www.britannica.com/eb/article-9029703>.
- Doyle, C.A., & Gaeth, G.J. (1990). Assessing the institutional choice process of student athletes. *Research Quarterly for Exercise and Sport*, 61(1), 85-92.
- Espinoza, S. (2002). Exploring college decision-making: A disconnect in student ratings. Paper presented at annual meeting of the Association for the Study of Higher Education, Sacramento, CA. (ERIC Document Reproduction Service No. ED476669)
- Fetters, W.B., Dunteman, G.H., & Peng, S.S. (1977). Fulfillment of short term educational plans and continuance in education: national longitudinal study of high school seniors. Washington, D.C.: National Center for Educational Statistics.
- Fulks, D. (2005). *2002-2003 revenues and expenses of divisions I and II intercollegiate athletics program report (2546)*. Indianapolis, IN: National Collegiate Athletic Association.
- Fuller, W.C., Manski, C.F., & Wise, D.A. (1982). New evidence on the economic determinants of postsecondary schooling choices. *Journal of Human Resources*, 17(4), 477-498. Retrieved November 15, 2007, from: <http://www.jstor.org/view/0022166x/ap010068/01a00020/0>
- Gabert, T.E., J.L. Hale, & G.P. Montalvo, Jr. (1999). Differences in college choice factors among freshmen student-athletes. *Journal of College Admission*. 162, 20-29.
- Galotti, K.M. (1995). A longitudinal study of real-life decision making: Choosing a college. *Applied Cognitive Psychology*, 9(6), 459-484. Retrieved March 21, 2007 from: Academic Search Premiere.
- Gutman, J. (1982) A means-end chain model based on consumer categorization processes. *Journal of Marketing*, 46(2), 60-72.
- Hansson, S.O. (1994). Decision theory: A brief introduction. Retrieved November 17, 2007, from: <http://www.infra.kth.se/~soh/decisiontheory.pdf>

- Harris Interactive Inc., The Harris Poll #32. (March 26, 2008). *Duke Returns to Top Spot and is Favorite College Basketball Team Again*. Retrieved April 6, 2008, from: http://www.harrisinteractive.com/harris_poll/index.asp?PID=886
- Hossler, D., Braxton, J., & Coopersmith, G. (1989). Understanding student college choice. In J. Smart (ed.), *Higher Education: Handbook of Theory and Research*, 5. New York: Agathon Press.
- Hossler, D., & Gallagher, K.S. (1987). Studying student college choice: A three phase model and the implications for policy makers. *College and University*, 2(3), 207-221.
- Jackson, G.A. (1982). Public efficiency and private choice in higher education. *Educational Evaluation and Policy Analysis*, 4(2), 237-247. Retrieved November 8, 2007, from JSTOR: <http://links.jstor.org/sici?sici=0162-3737%28198222%294%3A2%3C237%3APEAPCI%3E2.0.CO%3B2-7>.
- Klenosky, D.B., Templin, T.J., & Troutman, J.A. (2001). Recruiting student-athletes: A means end investigation of school-choice decision making. *Journal of Sport Management*, 15, 95-106. Retrieved September 20, 2007, from: Academic Search Premiere.
- Kotler, P. (1976). Applying marketing theory to college admissions. *A Role for Marketing in College Admissions* (pp. 54-72), by the College Entrance Examination Board. New York: College Entrance Examination Board.
- Letawsky, N.R., Schneider, R.G., Pedersen, P.M., & Palmer, C.J. (2003). Factors influencing the college selection process of student-athletes: Are their factors similar to non-athletes? *College Student Journal*, 37(4), 604-614. Retrieved March 21, 2007, from Wilson Web: http://vnweb.hwwilsonweb.com/hww/shared/shared_main.jhtml?requestid=52326
- Litten, L.H. (1982). Different strokes in the applicant pool: Some refinements in a model of student college choice. *The Journal of Higher Education*, 53(4), 383-402.
- Martin, N.K., & Dixon, P.N. (1991). Factors influencing students' college choice. *Journal of College Student Development*, 32(3), 253-257.
- Mathes, S., & Gurney, G. (1985). Factors in student-athletes' choices of colleges. *Journal of College Student Personnel*, 26, 327-333.
- Miller, E.I. (1997). Parents views on the value of a college education and how they will pay for it. *Journal of Student Financial Aid*, 27(1), 20.

- National Collegiate Athletic Association. (2006). About the NCAA-budget and finances: 2006 NCAA membership report, 22. Indianapolis, IN. Retrieved October 10, 2007, from: <http://www.ncaa.org/wps/portal>
- National Collegiate Athletic Association. (2007, May). Media and events- NCAA publications-research: Sport sponsorship and participation rates report (59976). Indianapolis, IN. Retrieved October 10, 2007, from: <http://www.ncaa.org/wps/portal>
- National Collegiate Athletic Association. (2007). About the NCAA-membership: Differences between divisions. Indianapolis, IN. Retrieved October 10, 2007, from: <http://www.ncaa.org/wps/portal>
- National Collegiate Athletic Association. (2007). *Academics* and athletes-scholarships and internships: Undergraduate athletic scholarships. Indianapolis, IN. Retrieved October 10, 2007, from: <http://www.ncaa.org/wps/portal>
- National Collegiate Athletic Association. (2007). *Academics* and athletes-education and research-academic reform: Understanding scholarship limit under APR. Indianapolis, IN. Retrieved October 10, 2007, from: <http://www.ncaa.org/wps/portal>
- Nolfi, G.H., Fuller, W.C., Corazzini, A.J., Epstein, W.H., Freeman, R.B., Manski, C.F., Nelson, V.I., & Wise, D.A. (1978). Experiences of recent high school graduates. Lexington, MA.: D.C. Heath.
- Ormond, C., Luszcz, M.A., Mann, L., and Beswick, G. (1991). A metacognitive analysis of decision making in adolescence. *Journal of Adolescence*, 30(5), 275-291.
- Rehberg, R.A. (1967). Adolescent career aspirations and expectations: Evaluation of two contrary stratification hypotheses. *The Pacific Sociological Review*, 10, 81-90.
- Reynolds, T.J., & Gutman, J. (1988). Laddering theory, method, analysis and interpretation. *Journal of Advertising Research*, 28(1), 11-31.
- Sewell, W.H., & Shah, V.P. (1967). Socio-economic status, intelligence, and the attainment of higher education. *Sociology of Education*, 40, 1-23. Retrieved November 16, 2007, from JSTOR: <http://www.jstor.org/view/00380407/di975384/97p0105h/0>
- Smith, L.I. (2002). A tutorial on principle component analysis. Retrieved on November 26, 2007, from: http://csnet.otago.ac.nz/cosc453/student_tutorials/principal_components.pdf

- Stage, F.K., & Hossler, D. (1989). Differences in family influences on college attendance plans for male and female ninth graders. *Research in Higher Education*, 30(3), 301-315.
- United States Department of Education, National Center for Education Statistics (2006). *Digest of Education Statistics, 2005* (NCES 2006-005). Retrieved September 16, 2007, from: <http://nces.ed.gov/fastfacts/display.asp?id=98>
- United States Department of Education. (n.d.). *2006-2007 equity in athletics disclosure act*. Participants. Retrieved November 30, 2007, from: <http://ope.ed.gov/athletics/InstDetail.asp>
- United States Department of Education. (n.d.). *2006-2007 equity in athletics disclosure act*. Revenues and expenses. Retrieved November 30, 2007, from <http://ope.ed.gov/athletics/InstDetail.asp>
- The University of North Carolina at Chapel Hill. (2007). Carolina national champions. Retrieved January 25, 2008, from: <http://tarheelblue.cstv.com/genrel/111501aaa.html>
- The University of North Carolina at Chapel Hill. (2007). Class profile. Retrieved November 12, 2007, from: <http://www.admissions.unc.edu/Academics/factsandfigures.htm>
- The University of North Carolina at Chapel Hill. (2007). Enrollment and student characteristics. Retrieved on November 12, 2007, from: <http://oira.unc.edu/facts-and-figures/student-data/enrollment-and-student-characteristics.html>
- The University of North Carolina at Chapel Hill. (2007). History. Retrieved on November 12, 2007, from: <http://www.unc.edu/news/compendium.shtml>
- The University of North Carolina at Chapel Hill. (2007). Key statistics. Retrieved on November 12, 2007, from: <http://www.unc.edu/news/compendium.shtml>
- Virginia Polytechnic Institute and State University. (2007). At a glance. Retrieved on November 12, 2007, from: <http://www.vt.edu/about/>
- Virginia Polytechnic Institute and State University. (2007). Background. Retrieved on November 12, 2007, from: http://www.vt.edu/about/about_university.php#statement
- Virginia Polytechnic Institute and State University. (2007). Instruction. Retrieved on November 12, 2007, from: http://www.vt.edu/about/about_university.php#statement

Virginia Polytechnic Institute and State University. (2007). Student overview. Retrieved on November 12, 2007, from:
http://www.vt.edu/about/factbook/student_overview.php#on

Wrenn, C. Facets of job satisfaction for olympic sport coaches. (MA thesis, the University of North Carolina at Chapel Hill, 2004)