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Beyond Academic Reputation: Factors that Influence the College of First Choice for High Achieving Students

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Beyond Academic Reputation: Factors that Influence the College of First Choice

for High Achieving Students

by

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ABSTRACT

Studies that have investigated college choice factors for high-achieving students repeatedly cite academic reputation as one of the top indicators of choice but have not indicated why some high-achieving students choose to attend universities with a less prestigious reputation than the more highly prestigious options available to them. The purpose of this study was to examine whether differences exist between traditional-aged high achieving students who choose to attend higher-tiered universities and their peers who choose to attend lower-tiered universities.

Independent variables were selected based upon Hossler and Gallagher's (1987) three-stage model and previous research findings in the literature and grouped according to: (1) students' individual and family characteristics, including ethnicity, gender, parents' education level, and family income; (2) institutional characteristics, including financial considerations and academic reputation; and (3) the influence of others, including parents, relatives, teachers and counselors.

The sample was drawn from the 97 universities which administered the CIRP Freshman Survey in 2004. Data were used for students who were attending their first choice college located more than 100 miles from home. Data were used from students who had received scores at or above 660 on the SAT Verbal, and scores at or above 670 on the SAT Math. For students who did not report scores for both SAT verbal and SAT math, the researcher accepted data from students reporting an ACT composite score of 30

or higher. In addition, in order for their data to be used, students were required to have an A or A+ average in high school.

Results were reported as (1) frequencies and descriptive statistics, (2) a correlation matrix, and (3) multiple regression models. The study found the availability of financial aid to be the most important factor in predicting whether students will attend a higher-tiered or lower-tiered university. Although college costs and academic reputation were found to be significant predictors of the tier level of university attended, they were of secondary importance compared with the attention to financial aid by high achieving students.

CHAPTER 1

INTRODUCTION

Each year a multitude of high school students complete college admission applications with anticipation of what may be the most significant decision of their young lives. With over 3,500 colleges and universities in the United States, the decision of where to submit applications has become a daunting task for students and parents. It is not surprising that the phenomenon of choosing a college would attract the attention of scholars. Researchers have examined the college choice process with a variety of approaches in an attempt to identify factors that influence the decisions of college-bound high school students. According to Kim (2004), "…every student has his or her own preferences about colleges based on institutional type, prestige, or even a student's 'intuitive feelings' about how his or her personality fits into a certain college" (p. 47). Consequently, the results of college choice studies are of particular interest to college administrators who are tasked with shaping the profile of their entering freshman classes.

The college choice process has undergone significant change over the past fifty years. Before 1950, fewer than one out of five high school graduates attended college, and this ratio was even smaller for women, students of color and students from low-income families (Kinzie, Palmer, Hayek, Hossler, Jacob, & Cummings, 2004). The enactment of the Servicemen's Readjustment Act (more commonly known as the GI Bill) in 1944, and the Supreme Court decision in Brown vs. Board of Education in 1954

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opened access to college to an ever-expanding number of students. By 1970 more than fifty percent of high school graduates were going off to college (Kinzie, et al., 2004).

Today there is general agreement that a four-year college degree is essential for future economic success. Several studies have supported anecdotal speculation that college graduates earn significantly more than their peers with no postsecondary degree (Leslie & Brinkman, 1988; Pascarella & Terenzini, 1991). Further, the specific college attended may have additional impact on a student's future financial status. According to a study conducted by Brewer, Eide & Ehrenberg (1999), there is a significant positive relationship between attendance at an elite private institution and future earnings. While economists may debate the extent to which a college education benefits individuals and society, there is agreement that an educated citizenry contributes to economic competitiveness, productivity, government revenues and social equality (Kinzie, et al., 2004).

Today's high school students and their parents are generally aware of the longer-term economic benefits of a college education; and students are more likely now than they were fifty years ago to view a college degree as within their grasp. With the influx of greater numbers and greater diversity of students has come increased competition among institutions of higher education for the most talented students. There is pressure on public institutions in particular to maintain broad access policies; but these pressures often are in conflict with some colleges' and universities' desires to recruit high-achieving students to improve academic reputation and rankings. Four-year institutions in particular have focused greater attention on marketing efforts to meet enrollment goals

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(Kinzie, et. al., 2004). Hoyt and Brown (2003) state that, "As a part of its marketing plan, an institution must determine who to contact in an effort to influence student college choice decisions" (p. 1).

Access to college and university information through mass media has had a noticeable impact on the manner in which application and admissions processes are approached. By the 1990s students and families had much more information that they could realistically use to make educated decisions regarding the institutions to which they should apply. In response to students becoming more savvy in their decision-making, colleges and universities have adjusted and improved their recruitment and enrollment procedures by incorporating strategies related to financial aid and early admission (Kinzie, et. al., 2004).

Within the last twenty-five years, the competition among colleges and universities to attract students has intensified. Not only are institutions concerned about the number of students they can enroll, but they are particularly interested in high-achieving students due to the enhancements that these students can contribute to an institution's reputation. The academic reputation of a university is a key factor in the recruitment of the best and brightest students; but it is also the case that the recruitment of the best and brightest students is critical for positive development of an institution's academic reputation. Moreover, with a multitude of colleges and universities vying for the best qualified students, it is a greater challenge for some institutions than others to attract the most desirable students to their institutions (Geiger, 2002).

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Many institutions of higher education in the United States are striving for greater levels of status and prestige. Among research-extensive universities, many long for membership in the Association of American Universities (AAU), which presently includes 62 universities considered by many to be the most prestigious in the United States and Canada (AAU web site, retrieved August 4, 2008, from http://www.aau.edu/about/default.aspx?id=4020). In addition, in the quest for prestige for their universities, administrators want to achieve an attractive rank in the annual edition of *Best Colleges* published by *U.S. News and World Report (*hereafter *USNWR)*. The *Best Colleges* report ranks institutions within broader categories of national universities, liberal arts colleges, and master's universities. *USNWR* defines national universities as those which "offer a full range of undergraduate majors, master's, and doctoral degrees… [and] are committed to producing groundbreaking research" (USNWR web site, accessed September 21, 2008, from http://colleges.usnews.rankingsandreviews.com/ college/national). The 248 institutions classified as national universities are grouped into four tiers, with those listed in the first and second tiers receiving individual numerical rankings.

An attractive ranking in the *USNWR* college guide offers nationwide advertising and bragging rights that many institutions could never afford to fund from their own budgets. "Prestige is vitally important … because it relates so closely to institutional wealth" (Geiger, 2004, p. 83). The wealth to which Geiger refers is not from state appropriations, but from the ability to obtain additional funds through increased tuition and private contributions. Research has found that a rise in an institution's ranking may

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lead to development success through improved relationships with proud alumni (Monks & Ehrenberg, 1999; Geiger, 2004). Moreover, universities pay attention to their placement in the rankings because rankings and prestige are important to their target student markets who want to attend a prestigious institution (Brooks, 2006).

Due to the known positive correlation between rankings and recruitment, universities striving for prestige are likely to dedicate energy and resources into researching the *USNWR* indicators, which include peer assessment, freshman retention rate, six-year graduation rate, faculty resources, alumni giving rate, and student selectivity. With respect to student selectivity, the level of achievement on standardized tests for an institution's freshman class is a widely accepted indicator of the quality of the student body. Therefore, the colleges that are most selective tend to garner the greatest levels of prestige. Some universities must work much harder than others to improve on this indicator. Universities such as Harvard, Princeton and Columbia have a long history of prestige and a solid reputation for quality, therefore attracting the most qualified students. Well into the future, the names of such universities will likely attract the best and brightest students from around the globe.

On the other hand, research-extensive universities which find themselves in the third or fourth tier according to *USNWR*, particularly public universities, experience the greatest challenges in making headway with student selectivity indicators. For these lower-tiered institutions, strategic enrollment planning and strong marketing campaigns are necessary to communicate the quality of programs and accomplishments of faculty to students and other key stakeholders. Historically, little recruitment effort was required to

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attract a sufficient number and quality cohort of students. However, with the proliferation and effortless access to media rankings guides, the increased competition between institutions has resulted in constant attention to the success of student enrollment strategies (Kinzie, et. al., 2004).

College Choice Models

A variety of models have been developed to provide rationale for college choice behaviors. These models generally fit into one of three types, as identified by Hossler, Braxton, and Coopersmith (1989): econometric, sociological, or combined. Econometric models (Kotler & Fox, 1985; McDonough, 1997) view college attendance as an economic benefit, where students who choose to attend college do so because the perceived benefits outweigh the benefits of any alternatives. McDonough (1997) proposed that "students maximize perceived cost-benefits in their college choices; have perfect information; and are engaged in a process of rational choice" (p. 3). An econometric model focuses on expected costs, expected future earnings, student background characteristics, and college characteristics as factors important to the study of college choice (Hossler & Stage, 1992).

Some researchers have questioned the applicability of econometric models to studies of college choice, arguing that students often lack the ability to adequately and rationally process information affecting matriculation due to socioeconomic constraints and limited information (Jackson, 1982). Alternatively, sociological theories, or status-attainment theories as described by Paulsen (1990) and McDonough (1997), focus on the

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characteristics that influence both social and cultural capital, including socioeconomic status and academic ability. A sociological model considers the role of certain factors in the attainment of positions or occupations of prestige or status.

Two of the most prominent models of college choice are based on an integration of econometric and sociological models. One commonly referenced model within the related literature for college choice behavior comes from Chapman and Jackson (1987), whose comprehensive model accounts for a wide spectrum of variables investigated within prior research studies, including "…student characteristics and background, student attitudes, student perceptions of colleges, college characteristics, money (parental income level, tuition, and financial aid), student self-reported preferences, and actual college choices of students" (p. 11). Viewing the college choice process as the formation of intermediate summary measures followed by the weight of intermediate constructs, Chapman and Jackson (1987) suggested that college choice is a result of the combination of the following three behaviors: perception formation, preference formation, and choice. The model proposes that students' perceptions about an institution are synthesized to form a comprehensive evaluation of the institution's value (preference formation), which leads ultimately to observed college choices.

According to Chapman and Jackson's (1987) model a student's overall impression of an institution is formed at the perception formation stage. Chapman and Jackson's (1987) study, which was comprised of surveys and follow-up interviews with over 1,000 high-ability students, supported the premise that early preferences for a particular institution are principally influenced by perceptions of academic quality,

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followed by perceptions of the school's social climate. Early perceptions of various colleges are formed by a combination of students' individual backgrounds of with students' previous exposure to the college and the brand that institutions have intentionally or non-intentionally promoted.

Similar to perception formation, the formation of student preferences is believed to be dependent on the interactions between the student and the institution, and the influence of the particular college. "Analysis at the choice phase is based on revealed preference behavior" (Chapman and Jackson, 1987, p. 14). Preferences are largely determined by the combination of early perceptions of the student and special familiarity effects such as whether either parent attended the college.

Although the model proposed by Chapman and Jackson (1987) is commonly referenced in college choice studies, the three-stage choice model developed by Hossler and Gallagher (1987) has been most widely used within the research and was the basis for this study. Hossler, et al. (1989) defined the college choice experience as a "complex, multi-stage process during which an individual develops aspirations to continue formal education beyond high school, followed later by a decision to attend a specific college, university or institution of advanced vocational training" (p. 234). Hossler and Gallagher's (1987) model outlines three stages of the college choice process:

1. Predisposition: students' decisions/aspirations to enroll in postsecondary education.

2. Search: the process of considering types of institutions to which to apply.

3. Choice: the selection of an institution to attend.

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In this model of college choice, the three processes typically do not occur concurrently but rather simultaneously, often overlapping one another.

The first stage of predisposition is defined as the phase in which students decide whether or not to pursue formal education after high school. Several factors that have been found to predispose students toward college include socioeconomic status, students' academic achievement, parents' education levels, ethnicity, gender, encouragement from high school counselors and teachers, support from peers, and parental expectations and encouragement (Hossler & Stage, 1992). During the search stage, students access information on specific colleges to further examine the opportunities and benefits. It is within this phase that students are most likely to consider external and institutional information sources. Factors that may be considered by students at this second phase include cost of attendance, availability and offers of financial assistance, and academic reputation. The third stage of college choice is the application of the predisposition factors combined with the information gathered during the search phase (Hossler & Gallagher, 1987).

Hossler and Gallagher's model was the basis for the current study. This study examined how significant differences among high achieving students in each of the first two stages may impact the level of academic reputation, measured by the *USNWR*-assigned tier, of the college of first choice. Predisposition-related factors to be included as independent variables were grouped within the categories of student and family characteristics (gender, ethnicity, parents' education levels, and family income) and the influence of others (parents, relatives, teachers, and counselors). Search-related factors

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considered for this study were grouped as institutional characteristics (costs, financial aid, and academic reputation).

Statement of the Problem

There are many postsecondary institutions in the United States that provide quality education. However, due to the difficulty in quantifying the value of a degree from any individual institution, many colleges rely on external recognition, including media-based rankings, to validate assertions of quality. One of the most commonly cited benchmarks for quality is the composition of an institution's entering freshman class. The charge of enrollment planning officers at ambitious lower-tiered research universities is to be acutely aware of the factors that are important to the high-achieving students they are trying to attract.

Studies that have investigated college choice factors for high-achieving students repeatedly cite academic reputation as one of the top indicators of choice (Chapman & Jackson, 1987; Goenner & Snaith, 2004; Manski & Wise, 1983). These results fail to provide an indication as to why some high-achieving students choose to attend universities with a less prestigious reputation than the more highly prestigious options available to them. The literature on college choice is vast and investigates many factors, in addition to institutional reputation, that students consider when choosing to enroll at a particular university. Some of the other factors include education level of the parents, cost and financial aid packages, availability of certain programs, location of the campus, and the influence of parents and others.

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There is some consensus among researchers that institutional prestige and academic reputation are of primary importance to high ability students when choosing a college. According to Manski and Wise (1983), students tend to choose a college where the mean SAT score of their student class is within 100 points of their own scores. However, the literature in this area offers little guidance to enrollment management professionals at lower-tier universities. Many high-achieving students are choosing to attend less prestigious universities. For those students, to what extent do individual characteristics, family circumstances or institutional attributes play a role in swaying them away from a more selective university?

Purpose of the Study

The purpose of the study was to examine whether differences exist between traditional-aged high achieving students who choose to attend higher-tiered universities and their peers who choose to attend lower-tiered universities. Specifically, the researcher applied a causal-comparative research design using multiple regression to identify whether significant differences exist between high-achieving students who chose to attend a higher-tiered university and those who chose to attend a lower-tiered university. The independent variables were selected based upon Hossler and Gallagher's (1987) three-stage model and previous research findings in the literature and grouped according to: (1) students' individual and family characteristics, such as ethnicity, gender, parents' education level, and family income; (2) institutional characteristics, such as financial

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considerations and academic reputation; and (3) the influence of others, including parents, relatives, teachers and counselors.

The data for the study was gathered from the Cooperative Institutional Research Program (CIRP) Freshman Survey for 2004. CIRP has been conducting national longitudinal studies of American college students since 1966 and has surveyed over eight million students. The CIRP Freshman Survey, managed by the Higher Education Research Institute (HERI) at the University of California at Los Angeles, is administered annually to over 400,000 entering freshmen at approximately 700 two-year and four-year colleges and universities (Higher Education Research Institute webpage, March 2008). The survey gathers information about (a) established behaviors in high school, (b) academic preparedness, (c) admissions decisions, (d) expectations for college, (e) interactions with peers and faculty, (f) student values and goals, (g) student demographic characteristics, and (h) concerns about financing college (HERI web site, retrieved June 2, 2008, from http://www.gseis.ucla.edu/heri/cirp.php). The 40-question survey is attached at the end of this research proposal as Appendix A.

A review of the research that has examined the college choice of high achieving students in U.S. postsecondary institutions provided the basis for the research questions addressed in this study. The following research questions guided the study:

1. To what extent do students' individual characteristics (e.g. gender and ethnicity) relate to college choice for high achieving students?

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2. To what extent do students' family characteristics (e.g. parents' education level and family income) relate to college choice for high achieving students?

3. To what extent do financial considerations associated with college (e.g. cost and financial aid) relate to college choice for high achieving students?

4. To what extent does academic reputation of the institution relate to college choice for high achieving students?

5. To what extent does the influence of significant others (e.g. parents, relatives, teachers, and counselors) relate to college choice for high achieving students?

Significance of the Study

An exploration of the factors related to the individual characteristics and institutional preferences of high ability students who choose to enroll in a non-selective university is not only an interesting research question but also an issue of relevance to state policymakers and college administrators. The present study adds to the body of literature related to college choice by exploring differences between high achieving students who attend higher-tiered universities and high achieving students who attend lower-tiered universities.

The existing literature on the subject of college choice and high achieving students demonstrates that high achieving students differ from the general student population as far as the manner in which they approach the college choice process and

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the factors that are most important to them (Bradshaw, Espinosa & Hausman, 2001). There is also some agreement within the literature on college choice that, although financial factors are considered important to high-achieving students, the criterion that typically grabs the top spot is college quality (Chapman & Jackson, 1987). The literature is limited in providing a broad and comprehensive understanding of the college choice decisions of high-ability students who choose to attend lower-tiered institutions. The present study addressed these gaps within the literature. The results of this study should be of particular interest to lower-tiered universities. It is apparent that high achieving students who choose to attend lower-tiered universities are either not giving preference to the factor of college quality or are viewing college quality differently than how it is commonly defined by the media.

This study can be differentiated from previous research on student choice in several ways. First, this study explored and proposed, using regression techniques, a prediction model of high achieving student enrollment probability towards either higher-tiered or lower-tiered research universities. Second, the study used data received from high achieving students enrolled at 97 national research universities that participated in the 2004 Freshman Survey; whereas earlier literature on the subject is by and large limited to high achieving students at only a handful of institutions, or the studies do not focus on the unique characteristics and priorities of high-achieving students.

Limitations

Limitations refer to "limiting conditions or restrictive weaknesses" (Locke, Spiruduso & Silverman, 2007, p. 16). All research studies have limitations, possibly related to the difficulty of controlling variables within the research design or related to the limited types of data that can be gathered due to ethics or feasibility. This study, as well, has its limitations. First, the process involved with college choice is inherently difficult to study due to the complex, longitudinal, interactional and cumulative issues involved with selecting a college (Hossler, et al., 1989). This study did not allow for the exploration of longitudinal perceptions and cumulative influences on the process.

Secondly, there are limitations concerning the reliability and validity of the Cooperative Institutional Research Program (CIRP) Freshman Survey. To address these issues, the Higher Education Research Institute (HERI) has addressed these questions through a document posted on its website entitled "CIRP Freshman Survey: Reliability and Validity" (Higher Education Research Institute, retrieved July 27, 2008, from http://www.gseis.ucla.edu/heri/PDFs/CIRP_Reliability_Validity.PDF). However, the document lacks evidence for either reliability or validity except to mention that item values remain consistent over time for the same respondent. In addition, HERI offers neither content validation evidence nor any indication of relationships with other measures.

Thirdly, using secondary data precludes the possibility of exploring some factors that may differentiate the matriculation of high achieving students. For example, some research has supported the hypothesis that some students are particularly drawn to

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institutions with a strong reputation for athletics; and additional research has explored the influence of peers, particularly romantic relationships, and a significant factor in college choice. The 2004 Freshman Survey does not gather such information from students, and therefore the factors of athletic reputation and peer influence were not explored in the current study.

Finally, the decision to use data gathered through the 2004 Freshman Survey limited the number of institutions from which student data were obtained, because the survey is offered and administered by colleges and universities on a voluntary basis. Although 97 (39%) of 249 national research universities participated in the survey, the lack of full inclusion limited data available to address the research questions explored for this study.

Delimitations

Delimitations refer to the external validity and generalizability of the study based upon the research design. The author acknowledged two delimitations pertaining to the current study. First, this study considered only students who are attending national research universities as defined by the 2003 edition of *Best Colleges*, by *U.S. News and World Report*. The results of the study cannot be generalized to students attending liberal arts colleges or regional master's universities. Second, the data were taken from a convenience sample of students attending universities which participated in the 2004 CIRP Freshman Survey.

Assumptions

As with all research studies, this researcher makes some assumptions in the design and interpretation of results for this study. First, the study is grounded in Hossler and Gallagher's (1987) model, which outlines three stages of the college choice process:

1. Predisposition: students' decisions/aspirations to enroll in postsecondary education.

2. Search: the process of considering types of institutions to which to apply.

3. Choice: the selection of an institution to attend.

In this model of college choice, the three processes typically do not occur concurrently but rather simultaneously, often overlapping one another. However, the variables that were used in the study were assigned to either the predisposition stage or search stage and therefore assumed to fit neatly within only one stage.

A second assumption is related to the use of secondary data as the source for this study. Researchers must be cautious when deciding to use secondary data sources, and note the disadvantages of such a choice. For example, the researcher may make incorrect assumptions about the intended definition of certain terms used in the instrument. "In some cases, secondary analysts are able to change their concepts' definitions to match the original ones and still be faithful to their theoretical framework. In other cases, this is not possible—the concepts are too different and forcing the fit is not appropriate" (Moriarty, et. al, 1999, p. 148). The current study assumed that the respondents' understanding of the survey questions reflects the researcher's understanding.

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Definitions

To facilitate understanding of the author's intended meaning of certain terms, the following definitions are provided.

Traditional-age student refers to a student who enrolled at the university the year following graduation from high school.

High achieving student is defined as a student who (1) received scores at or above 660 on the critical reading portion of the SAT and scores at or above 670 on the mathematics portion of the SAT, or scores 30 or above on the ACT, and (2) had at least an "A" average in high school.

National research university refers to any college or university listed as a National University in the 2003 edition of *Best Colleges* by *U.S. News and World Report*.

Higher-tiered university refers to a university which was ranked in Tier One or Tier Two in the 2003 edition of *Best Colleges* by *U.S. News and World Report*, excluding any university which had been placed in Tiers Three or Four within the past five years.

Lower-tiered university refers to a university which was ranked in Tier Three or Tier Four in the 2003 edition of *Best Colleges* by *U.S. News and World Report*, excluding any university which had been placed in Tiers One or Two within the past five years.

CHAPTER 2

REVIEW OF THE LITERATURE

For generations students generally have believed that college attendance has a positive impact on their future success, a notion promoted by higher education institutions. In addition, students also have recognized that a degree from some institutions is more valuable than a degree from others. Clearly, students and parents in the twenty-first century continue to put significant effort into selecting the "right" college, and institutions likewise dedicate significant resources toward recruiting the "right" students. Since the early twentieth century, several research studies have been conducted in an effort to understand the various factors which are most important to students and their families when making the choice of which college to attend.

To appreciate and more fully understand the complexity of the college choice process, various topics must be examined. First, the literature review will explore issues from the perspective of the institutions, namely the strategies and resources that are dedicated to improving institutional academic reputation. Second, the review will discuss college choice models and human capital development theory as the conceptual frameworks referenced in related college choice literature. Finally, there will be a review of the college choice literature, including a review of college choice models that examine the relationship between college choice and student characteristics, institutional characteristics and external influences.

Academic Reputation

American college bound students have a choice of thousands of colleges, and prestige undeniably affects that choice, especially for those students who have excelled academically and for those students who come from families with abundant financial means. Fried (2005) observed that, "As the marketplace for students has expanded from regional to national to international, and as the number of institutions offering degrees has increased, the importance of reputation has grown significantly" (p. 21). Similarly, Sevier (1994) posited five observations pertinent to the image of higher education institutions, namely that (1) people are more influenced by prior knowledge than new knowledge; (2) image has a tremendous and often underappreciated effect on college choice; (3) institutions with strong images are able to recruit better faculty, and faculty are more likely to stay longer; (4) institutions with strong images tend to have a greater percentage of annual fund participation; and (5) image-building is seen as a legitimate pre-recruiting function at a handful, but growing number of market-oriented institutions (pp. 60-61).

In a financial sense, a university's prestige has very real impacts. According to Geiger (2002), there are two primary factors which have an impact on reputation for research universities, namely selectivity of the freshman class and the scholarly productivity of its faculty. Selectivity refers to the percentage of applying students who are admitted to the institution. Generally, private institutions are more selective than their public counterparts. This difference can be attributed to the size of many institutions and the expectation for the public universities to serve a broad population of students.

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Admissions directors at national universities have observed the impact of rankings, whereas an institution's decline in the ranking is followed by a decline in applications submitted by high achieving students (Espeland, 2007). The recruitment of high achieving students among research extensive universities is highly competitive due to the national and international recognition that these students bring. In addition, a high achieving student body will help the institution attract world class faculty and researchers, further strengthening the university's image. Thus, just as top students are attracted to schools with outstanding faculty, so are top faculty attracted to schools with outstanding students, creating a win-win for the institution (Brooks, 2006).

For prestige-oriented universities, a high or improved ranking in *USNWR* is noteworthy and likely to be mentioned frequently in institutional literature which will gain the attention of targeted students, faculty and donors. Private and public institutions alike are driven toward reports published by *USNWR*, which ranks American universities using a self-developed formula. The first edition of *Best Colleges* was published by *USNWR* in 1983. The ranking included 76 institutions and was based solely on a reputation survey completed by nearly 1,300 presidents of four-year colleges (Machung, 1998). The original report gained instant popularity among prospective undergraduates and their parents because it was the first time that such information was available in a comprehensive format (Webster, 1992).

Although *USNWR* has made some adjustments since the initial *Best Colleges* edition in 1983, the methodology generally consists of quantitative information at the undergraduate level such as freshmen retention and graduation rates, test scores

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(SAT/ACT) for first-time students, the percentage of classes with fewer than 20 or greater than 50 students, percentage of full-time faculty, faculty-to-student ratios and alumni-giving rate. These factors are combined with the reputational scores derived from the survey of university presidents and provosts. The indicators are then standardized and weighted to produce the overall score that is used for rank-ordering (Clarke, 2002). A complete description of categories and indicators used by *USNWR* in the most recent edition of *Best Colleges* is provided in Table 2.1.

Table 2.1 - *U.S. News and World Report* Indicators and Weights for the 2008 College Rankings[a]

Ranking Category	Category Weight	Indicator	Indicator Weight
Academic Reputation	25%	Academic Reputation Survey	100%
Student Selectivity	15%	Acceptance Rate	10%
		High School Standing Top 10%	40%
		SAT/ACT Scores	50%
Faculty Resources	20%	Faculty Compensation	35%
		Faculty With Top Terminal Degree	15%
		Percent Full-time Faculty	5%
		Student/Faculty Ratio	5%
		Class Size, 1-19 Students	30%
		Class Size, 50+ Students	10%
Graduation and Retention Rate	20%	Average Graduation Rate	80%
		Average Freshmen Retention Rate	20%
Financial Resources	10%	Educational Expenditures Per Student	100%
Alumni Giving	5%	Alumni Giving Rate	100%
Graduation Rate Performance	5%	Graduation Rate Performance	100%

[a]These indicators and weights are for the national liberal arts and national university rankings only.

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For the schools historically ranked at the top (i.e. Princeton, Harvard, Yale), it is unlikely that the annually reported reputational scores for these institutions will deviate in the foreseeable future. According to Sheehan (1996), reputation is highly correlated with resources, and the two characteristics "tend to feed on each other" (p. 18). In fact, a review of the change in reputation score for national universities over a ten-year period (1998-2007) demonstrates the static nature of the survey results. This researcher's review of the data revealed that no university in the last ten years has made significant headway with its reputation score. *USNWR* began reporting the five-point peer assessment score (PAS) with its 1998 Best Colleges issue. A review of the historical trends reveals that in the years between 1998 and 2007 (inclusive), only 30 of the 248 national universities experienced an absolute change of 0.2 points or more, and only one college had a change as high as 0.5 points (see Table 2.2).

Those postsecondary institutions with aspirations of improving their *USNWR* rankings develop strategies based upon the weight given to various indicators; however, few indicators are under the control of institutions. As demonstrated in the previous paragraph and in Table 2.1, the indicator with the greatest weight (academic reputation score) has very little to do with efforts made by individual institutions. Because student selectivity is one of the few indicators considered among the ranking criteria over which institutions have some amount of control, the universities that have made prestige a priority have made strategic changes to their admissions criteria. Public universities, which historically have a reputation for access and open admission, are now turning away a larger and larger proportion of their applicants in the name of increased quality.

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Table 2.2 - Largest Positive Changes in Peer Assessment Scores from 1998-2007

School Name	Public/ Private	2007 PAS	1998 PAS	MAX[a] 1998-2007	MIN[b] 1998-2007	1998-2007 Change
University of Alabama	Public	3.1	2.6	3.1	2.6	**0.5**
University of Arkansas	Public	2.9	2.5	2.9	2.5	**0.4**
Northeastern University	Private	3.1	2.8	3.1	2.8	**0.3**
Andrews University	Private	2.1	1.8	2.1	1.8	**0.3**
Nova Southeastern University	Private	2.0	1.7	2.0	1.7	**0.3**
University of San Francisco	Private	3.0	2.7	3.0	2.7	**0.3**
University of Miami	Private	3.2	3.0	3.2	3.0	**0.2**
Montana State University--Bozeman	Public	2.6	2.4	2.6	2.4	**0.2**
Pepperdine University	Private	3.1	2.9	3.1	2.9	**0.2**
George Washington University	Private	3.5	3.3	3.5	3.3	**0.2**
Idaho State University	Public	2.5	2.3	2.5	2.3	**0.2**
Middle Tennessee State Univ.	Public	2.1	1.9	2.1	1.9	**0.2**
University of Central Florida	Public	2.5	2.3	2.5	2.3	**0.2**
University of La Verne	Private	2.1	1.9	2.1	1.9	**0.2**
University of Alaska--Fairbanks	Public	2.6	2.4	2.6	2.4	**0.2**
University of Alabama--Huntsville	Public	2.6	2.4	2.6	2.4	**0.2**
University of South Dakota	Public	2.5	2.3	2.5	2.3	**0.2**
Biola University	Private	2.0	1.8	2.0	1.8	**0.2**
University of Southern California	Private	3.9	3.7	3.9	3.7	**0.2**
Howard University	Private	2.9	2.7	2.9	2.7	**0.2**
New York University	Private	3.8	3.6	3.8	3.6	**0.2**
San Diego State University	Public	2.8	2.6	2.8	2.6	**0.2**
University of San Diego	Private	2.8	2.6	2.8	2.6	**0.2**
University of Colorado--Denver	Public	2.9	2.7	2.9	2.7	**0.2**
University of Montana	Public	2.8	2.6	2.8	2.6	**0.2**

[a]Reflects the highest score received between 1998 and 2007 (inclusive)
[b]Reflects the lowest score received between 1998 and 2007 (inclusive)

All universities need sufficient enrollment to operate; however, institutions would like to be in the position of having a sufficient pool of applicants so that they can select the students who will shape the ideal class profile and demonstrate a lower acceptance rate. An improved ranking tends to lead to an increase of applications from qualified students (Monks & Ehrenberg, 1999). A fall in the rankings can put even greater pressure on the admissions office (Mufson, 1999). Despite the limitations in the ranking

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methodology, movement in the rankings appears to have some correlational relationships with future selectivity, with evidence that application rates will decrease following a drop in the rankings (Hoxby, 1997). Research-extensive universities placed in the third and fourth tiers have to work particularly hard to attract top quality students away from their top-tier competitors (Geiger, 2004).

College Choice Models

Effective enrollment management begins with an understanding of the college choice process, including the timing of various stages and knowledge regarding factors which are considered most important to the recruitment pool (DesJardins, et al., 1999). Institutions that understand the effects that various factors have on the tendency of students to prefer one type of institution over another are armed with information that may be helpful in the development of effective marketing strategies.

A variety of models have been developed to provide rationale for college choice behaviors. These models generally fit into one of three types, as identified by Hossler, Braxton, and Coopersmith (1989): econometric, sociological, or combined. Econometric models (Kotler & Fox, 1985; McDonough, 1997) view college attendance as an economic benefit, where students who choose to attend college do so because the perceived benefits outweigh the benefits of any alternatives. McDonough (1997) proposed that "students maximize perceived cost-benefits in their college choices; have perfect information; and are engaged in a process of rational choice" (p. 3). An econometric model focuses on expected costs, expected future earnings, student

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background characteristics, and college characteristics as factors important to the study of college choice (Hossler & Stage, 1992).

Some researchers have questioned the applicability of econometric models to studies of college choice, arguing that students often lack the ability to adequately and rationally process information affecting matriculation due to socioeconomic constraints and limited information (Jackson, 1982). Alternatively, sociological theories, or status-attainment theories as described by Paulsen (1990) and McDonough (1997), focus on the characteristics that influence both social and cultural capital, including socioeconomic status and academic ability. A sociological model considers the role of certain factors in the attainment of positions or occupations of prestige or status.

Two of the most prominent models of college choice are based on an integration of econometric and sociological models. One commonly referenced model within the related literature for college choice behavior comes from Chapman and Jackson (1987), whose comprehensive model accounts for a wide spectrum of variables investigated within prior research studies, including "…student characteristics and background, student attitudes, student perceptions of colleges, college characteristics, money (parental income level, tuition, and financial aid), student self-reported preferences, and actual college choices of students" (p. 11). Viewing the college choice process as the formation of intermediate summary measures followed by the weight of intermediate constructs, Chapman and Jackson (1987) suggested that college choice is a result of the combination of the following three behaviors: perception formation, preference formation, and choice. The model proposes that students' perceptions about an institution are synthesized to

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form a comprehensive evaluation of the institution's value (preference formation), which leads ultimately to observed college choices.

According to Chapman and Jackson's (1987) model a student's overall impression of an institution is formed at the perception formation stage. Chapman and Jackson's (1987) study, which was comprised of surveys and follow-up interviews with over 1,000 high-ability students, supported the premise that early preferences for a particular institution are principally influenced by perceptions of academic quality, followed by perceptions of the school's social climate. Early perceptions of various colleges are formed by a combination of students' individual backgrounds with students' previous exposure to the college and the brand that institutions have intentionally or non-intentionally promoted.

Similar to perception formation, the formation of student preferences is believed to be dependent on the interactions between the student and the institution, and the influence of the particular college. "Analysis at the choice phase is based on revealed preference behavior" (Chapman and Jackson, 1987, p. 14). Preferences are largely determined by the combination of early perceptions of the student and special familiarity effects such as whether either parent attended the college.

Although the model proposed by Chapman and Jackson (1987) is commonly referenced in college choice studies, the three-stage choice model developed by Hossler and Gallagher (1987) has been most widely used within the research and will be the basis for this study. Hossler, et al. (1989) defined the college choice experience as a "complex, multi-stage process during which an individual develops aspirations to continue formal

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education beyond high school, followed later by a decision to attend a specific college, university or institution of advanced vocational training" (p. 234). Hossler and Gallagher's (1987) model outlines three stages of the college choice process:

1. Predisposition: students' decisions/aspirations to enroll in postsecondary education.

2. Search: the process of considering types of institutions to which to apply.

3. Choice: the selection of an institution to attend.

In this model of college choice, the three processes typically do not occur concurrently but rather simultaneously, often overlapping one another.

The first stage of predisposition is defined as the phase in which students decide whether or not to pursue formal education after high school. According to the Hossler, et al.'s (1989) model of college choice, the predisposition stage is a "developmental phase in which students determine whether or not they would like to continue their education beyond high school" (p. 209). The predisposition stage coincides with the transition from middle school to high school during which time students tend to be open to the positive influences of significant others at home and school. When these adolescents receive positive messages and encouragement from parents and other significant individuals in the area of academic development, there is a positive effect on future college success. According to this model, the predisposition stage is a "longitudinal development phase involving the initial formation and subsequent reassessment of college aspirations" (Brasier, 2008, p. 22). Several factors that have been found to predispose students toward college include socioeconomic status, students' academic achievement, parents'

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education levels, ethnicity, gender, encouragement from high school counselors and teachers, support from peers, and parental expectations and encouragement (Hossler & Stage, 1992).

During the search stage, students engage in accessing information on specific colleges to further examine the opportunities and benefits. It is within this phase that students are most likely to consider external and institutional information sources. Factors that may be considered by students at this second phase include cost of attendance, availability and offers of financial assistance, and academic reputation. The third stage of college choice is the application of the predisposition factors combined with the information gathered during the search phase (Hossler & Gallagher, 1987). Regardless of the efficiency with which students move through the three-step process, it is during the third stage that students choose one institution over another (Kim, 2004).

Hossler and Gallagher's model will be the basis for the current study. This study will examine how significant differences among high achieving students in each of the first two stages may impact the importance of the academic reputation, measured by the *USNWR*-assigned tier, of the college of first choice. Predisposition-related factors to be included as independent variables will be grouped within the categories of student and family characteristics (gender, ethnicity, parents' education levels, and family income) and the influence of others (parents, relatives, teachers, and counselors). Search-related factors considered for this study will be grouped as institutional characteristics (costs, financial aid, and academic reputation).

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College Choices of High Achieving Students

Given the breadth of the literature on college choice, the remainder of this chapter will focus on a review of prior studies that have applied college choice frameworks to the educational choices of high achieving students. A review of the literature suggests that the characteristics of students (e.g. gender, ethnicity, and family income), the characteristics of institutions (e.g. cost, location, reputation, and programs), and the influence of others (e.g. parents, teachers, and counselors) together influence the matriculation decisions of students (DesJardins, et al., 1999). Specifically, the research has supported the hypothesis that students of high socioeconomic status with high educational aspirations, high academic ability, and highly educated parents are more likely to choose institutions that cost more, are further from home, and are highly selective (Hossler, et al., 1989; Paulsen, 1990). Moreover, high-achieving students are more likely to attend selective universities and out-of-state universities than students with low or average achievement levels (Braxton, 1990).

Although the existing research related to college choice and matriculation is considerable, and despite the importance of such information, little research has been done to consider differences in the factors that are considered most important to students choosing to attend a highly selective (or higher-tiered) university and those whose first choice school is a less selective institution. The literature supports the notion that high-achieving high school students consider academic reputation to be among the most important when deciding where to go to college. However, when one reviews the trends in admissions of high-achieving students to Tier three and Tier four institutions, it is clear

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that these lower-tiered universities are consistently attracting greater numbers of academically attractive students. Of the 54 lower-tiered universities for which SAT scores were reported in the 2002 and 2007 editions of *Best Colleges*, 41 experienced an increase in the 25th percentile for incoming students, and the freshman class for 24 of those institutions increased SAT scores by 30 points or more, as reflected in Table 2.3. For those universities that are setting strategic goals to improve their position in the

Table 2.3 - Largest Positive Changes in 25th Percentile SAT Scores for Lower-Tier Universities from 2002-2007

School Name	2007 25th Percentile	2002 25th Percentile	2007 25th - 2002 25th
Temple University	1000	920	80
Texas Tech University	1040	970	70
University of Texas--Dallas	1120	1060	60
Rutgers--Newark	1020	960	60
Seton Hall University	1010	950	60
University of La Verne	930	870	60
University of South Florida	1030	970	60
Hofstra University	1060	1010	50
St. John's University	940	890	50
Georgia State University	990	940	50
Old Dominion University	960	910	50
Virginia Commonwealth University	960	920	40
Indiana U.-Purdue U.--Indianapolis	880	840	40
San Diego State University	980	940	40
University of Rhode Island	1020	980	40
Univ of Massachusetts--Boston	960	920	40
Northern Arizona University	960	920	40
Portland State University	930	890	40
University of North Texas	1000	960	40
Univ of Maryland--Baltimore County	1110	1080	30
Adelphi University	1000	970	30
University of Houston	950	920	30
Texas Woman's University	850	820	30
George Mason University	1000	970	30

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USNWR rankings, a study with a specific focus on the factors that influence the academically-talented students to less prestigious institutions would be considerably helpful.

According to economists, students who pay more to attend a selective college are making sound economic decisions, as every 100-point increase in a college's average SAT is associated with 3 to 7 percent higher earnings for its graduates (Kane, 1998). Dale and Krueger (1999) added that the payoff is greatest for students from disadvantaged family backgrounds, although those students are less likely to make the initial investment. Hoxby (1997) noted that students who invest in prestige earn their investments back several times over, but some researchers question the cause-and-effect of these results, arguing that the higher earnings may be correlated more with the traits and drive of high-achieving students and less to do with their college alma mater.

Moreover, Avery and Hoxby (2003) found that high-ability students were likely to be more analytic and long-sighted regarding their college investment; and advised that students are better off to refuse a full ride at a lower-ranked college and spend their money on the higher-ranked school. There are other non-tangible benefits of attending a higher-tiered school which are not calculated as easily, such as developing professional and social networks (Behrman, Kletzer, McPherson & Schapiro, 1998). Although high-achieving students have been found to behave as rational human capital investors, Avery and Hoxby (2003) identified three circumstances that impact rational investment behavior, namely:

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1. Credit constraints – The family income level is too high to qualify for need-based aid, and the family is unwilling to pay for a highly-selective college;

2. Misinformation – The student is naïve about the various levels of financial resources and subsequently chooses a college at which he accumulates less human capital than what could have been possible;

3. Lack of concern – The student simply is not concerned about maximizing his lifetime utility when choosing a college.

Existing literature in the area of college choice behavior can be categorized in a number of ways. The broadest category separates the literature into explorations of whether students attend college (access) and where students attend college (choice) (Hu & Hossler, 2000). Hossler, Braxton and Coopersmith (1989) further narrowed the field of college choice studies by students' decisions to (1) attend any type of higher education, (2) attend a vocational school, two-year institution or four-year institution, and (3) attend a specific institution over other reasonable options. In addition, researchers have investigated students' choices between (4) private versus public institutions (Hu & Hossler, 2000), (5) expensive versus less expensive institutions (Orfield, 1992), (6) first-choice versus lower-choice institutions (Chapman & Jackson, 1987), and (7) highly selective versus less selective institutions (Hearn, 1991).

Relative to the factors that tend to influence the types of decisions outlined in the previous paragraph, additional studies reveal further categorization of the college choice literature. Studies indicate that matriculation decisions are related to (1) students' individual and family characteristics (Brewer, et al., 1999; Hearn, 1987; Manski & Wise,

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1983; Paulsen, 1990); (2) institutional characteristics, such as financial considerations and academic reputation (Fuller, Manski, & Wise, 1982; Hossler & Gallagher, 1987; Weiler, 1994); and (3) the influences of significant others, including parents, relatives, teachers and counselors (Bradshaw, et al., 2001; Hossler, Schmit, & Vesper, 1999; Lillard & Gerner, 1999).

Student and Family Characteristics

When considering the relationship between the individual characteristics of students and college choice, the history of the literature demonstrates that race, gender and social class have the strongest relationship with educational attainment (Kinzie, et al., 2004). According to McDonough (1997), "African-Americans, women, and low-SES students are especially likely to attend less selective institutions even if their ability and achievements are high" (p. 5). Not surprisingly, Brewer, et al. (1999) found that students from high socioeconomic backgrounds and students who are academically talented are more likely to attend elite institutions.

Gender and Ethnicity

Prior research indicates that African American and Hispanic students are more sensitive than their white peers to the costs of higher education, are more responsive to grants and scholarships (Johnson, Stewart & Eberly, 1991; Hoyt & Brown, 2003), and "African Americans are more sensitive than other students to changes in tuition and financial aid, even after controlling for socioeconomic status and academic ability" (Kim,

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2004, p.45). In addition, African American students are less likely to attend selective institutions than are white students (Hearn, 1987), and they are significantly less likely to attend their first choice institution (Kim, 2004). Gender differences also exist among African American students, where the quality of social life and participation in athletics tends to be more important to males than to females (Briggs, 2006; Hubbard, 1999), and the economic benefits of a college education is more important to females than males (Hubbard, 1999).

In addition, whereas male students have been found in the past to have higher college aspirations than females, recent studies (Chenowith & Gallagher, 2004; Reynolds & Pemberton, 2001) have reported evidence to the contrary. With the exception of Hispanic females, the literature indicates that females have stronger academic goals than males; although Asian American males have been found to possess significantly higher college aspirations than females and all other ethnic male groups (Mau, 1995). The gender-ethnic group that appears to have the lowest college aspirations is the Native American male group. For both male and female students, Hispanics and Native Americans have demonstrated lower educational aspirations than white and African American students (Mau, 1995).

Socioeconomic Status

Socioeconomic status is another common category that researchers use to segment students in college choice studies. A number of research studies demonstrated the disparity between low and middle income students and high income students, with high

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income students being more likely to attend institutions which are more costly and more selective (Brewer, et al., 1999; Hearn, 1987; Manski & Wise, 1983; Paulsen, 1990). Prior research indicates that low-income and first-generation students are comparatively disadvantaged against their more affluent peers when it comes to the variety of colleges from which they are able to choose (Kinzie, et al., 2004). The basis of this argument comes from a number of sources, one being the increasing institutional and federal reliance on granting loans rather than grants.

In a study grounded in the status attainment perspective, Hossler and Stage (1992) hypothesized that family socioeconomic status had a direct relationship with parental encouragement and students' academic achievement. According to Sewell, Haller, and Portes (1969), who introduced the Wisconsin status attainment model, a basic question raised by status attainment research is "By what mechanisms are social origins translated into attainment outcomes?" (p. 83). Subsequently, Hossler and Stage (1992) argued that parental encouragement and expectations, along with high school experiences, directly influence college aspirations in students, regardless of gender, ethnicity and socioeconomic backgrounds. Further, they suggested that socioeconomic status has an indirect impact on a student's predisposition to attend college, as there is a positive relationship between socioeconomic status, students' academic success, and students' perceptions of the educational expectations that others have for them.

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Education Level of Parents

Being raised by parents who lack awareness of the college experience may put students at a disadvantage when it comes to making decisions about where to go to college and how to be successful once enrolled. Further, first-generation students have been found to receive less encouragement and support from their families than multi-generation students when it comes to college attendance (Arredondo, 1999). These first-generation students may grow up assuming that college is not a good fit for them or is not a realistic dream. However, students appear to have a higher likelihood of viewing college as realistic when their parents stress the importance of educational success (Ceja, 2004).

Research findings differ when reporting on behaviors of first-generation students in the college application process. McDonough (1994) reported that, compared with students who are raised by college graduates, first-generation students are more likely to limit the number of institutions to which they apply and to apply to nonselective institutions. However, a study of college-bound high school students in New Hampshire revealed no significant differences in the type or quality of college under consideration between students whose parents possessed postsecondary degrees and those whose parents had not completed a college education (Toutkoushian, 2001). In fact, first generation students were found to be equally likely as those with college-educated parents to consider attending a selective school.

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Institutional Characteristics

The relationship between students' preferences and institutional characteristics is a significant determinant of where students ultimately decide to attend college (Weiler, 1994). Hoyt and Brown (2003) reviewed twenty-two studies related to college choice in order to identify institutional factors that were most frequently cited as important to students. The views of over 30,000 students in 18 states were represented in the comprehensive review. Among the 22 studies examined, nine factors were identified that took first place as far as level of importance to students. Those nine factors, in order of frequency, were (1) academic reputation, (2) location, (3) quality of instruction, (4) availability of programs, (5) quality of faculty, (6) costs, (7) reputable program, (8) financial aid, and (9) job outcomes. Other variables which were included in the studies, but did not make the number one spot include (10) variety of courses offered, (11) size of the institution, (12) surrounding community, (13) availability of graduate programs, (14) student employment opportunities, (15) quality of social life, (16) class size, (17) graduate school outcomes, (18) extracurricular programs, (19) friendly/personal service, (20) affiliation, (21) admission requirements, and (22) attractiveness of campus facilities (p. 5).

It is important to note that the factors identified by Hoyt and Brown (2003) above were a result of the review of perceptions of students from a variety of segments, including high school students with a full range of academic abilities, community college students, non-traditional-age university transfer students, and even non-attendees of any college. Therefore, one may infer that the relative importance of the factors in the

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preceding paragraph will likely vary by specific market segment. The factors that appear to be important to high-achieving students include academic reputation, quality of the student body, and scholarship awards (Bradshaw, et al., 2001; Hoyt & Brown, 2003; Litten, 1982).

Location/Proximity to Home

The current generation of college-bound high school students is much more likely to attend college out-of-state than were previous generations. Whereas 93% of undergraduates attended college in their home states in 1949, that percentage dropped to 75% by 1995 (Hoxby, 1997). Students are more likely to attend college outside of their local market area when they are male, when they belong to a higher socioeconomic status, when their parents have higher education levels, and when they have high academic abilities and educational aspirations (Hoyt & Brown, 2003; Paulsen, 1990).

Cost and Availability of Financial Aid

There appears to be an ever-widening gap between the costs of higher education and the family and external resources available. For understandable reasons, the financial realities of a college education are likely to influence a student's choice of where to attend college; and the subject has drawn a great deal of attention from researchers (Braunstein, McGrath & Pescatrice, 1999; DesJardins, Ahlburg & McCall, 2006; Ehrenberg & Sherman, 1984; Hossler & Gallagher, 1987; Hossler, et al., 1999; Kim, 2004; McPherson & Schapiro, 1991; Parker & Summers, 1993). Much of the existing

research supports the notion that, regarding students' interests in developing human capital, students consider the trade-offs between current costs and future expectations of financial and non-financial benefits (Hill, 2008).

As a strategy to recruit greater numbers of high-achieving students, institutions may increase levels of educational spending per student. This is the case particularly at private institutions that can more easily raise tuition to address financial needs (Hoxby, 1997). For some Ivy League institutions, for example, annual educational spending exceeds $45,000 per student (Geiger, 2002). At elite private institutions, students carry much of the financial burden. Understanding that tuition increases may result in deterring the students they are trying to attract, many institutions accompany tuition increases with increased allocations for both need-based and merit-based financial aid. "The [institutions'] objectives are diverse – from a purely altruistic desire to relax constraints facing the needy to a college's self-interested desire to enroll high aptitude students who raise its profile or improve education for other students on campus" (Avery & Hoxby, 2003, p. 3). For high-ability students, assessing the best combination of multiple offers of financial assistance can be a daunting task, as they may qualify for both need-based and merit-based aid, both state-funded and privately-funded scholarships, federal work-study programs, and aid packages from each of the colleges in which they are interested. However, if a significant proportion of financial aid is in the form of loans, some of the most desirable institutions realistically may be out of reach for many high-achieving students.

There is some agreement within the literature that, while the availability of financial aid is considered important by most college-bound students, the impact of cost and financial aid decrease as students' income level and academic ability increase (Kim, 2004; Manski & Wise, 1983; Paulsen & St. John, 2002). This financial gap often discourages or prohibits low-income students from attending higher-tiered institutions, even when controlling for academic ability (Hearn, 1991). As financial considerations would appear to be an obvious factor likely to influence enrollment decisions, the author considers this in the design of the study by including in the sample only those students who are attending the university that was their first choice among all of the universities to which they applied.

Reputation and Prestige

Since the 1950's, when institutions began to geographically broaden their recruitment to a national market, high-achieving students have been drawn to elite institutions (Geiger, 2002). The general conclusion of the existing literature exploring college choice for high-achieving students is that academic reputation is consistently the primary factor in the college choice decision. Manski and Wise (1983) concluded from their study that students tend to select a college where the average SAT score is within 100 points of their own scores. In their study of students' decision to attend the University of North Dakota, which is listed in the third tier by *U.S. News & World Report* in the *2008 America's Best Colleges* edition, Goenner and Snaith (2004) found that academic reputation was the most important factor. Social life on the campus came in

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second in order of importance to students, except for out-of-state students. Similarly, results of a study of college freshmen at a large Midwestern university by Johnson, et al. (1991) indicated that academic reputation and quality of programs were the most important factors affecting the decision to attend.

Although some research on the importance of media rankings has been conducted, little is still known about the population of students which most heavily value such indices. Goenner and Snaith (2004), for one, found that for students attending the University of North Dakota, national media rankings did not play a major role in the college choice process for those students native to the region, but did seem to be important to students who came from out-of-state. Hossler and Foley (1995) hypothesize that rankings do not have an impact on the general college-bound student population, and that this non-interest is especially the case with non-traditional-age, low-income and high income students, suggesting that rankings may have some influence with middle-income students and those attending regional campuses.

Influence of Others

The choice of where to go to college is arguably one of the biggest decisions of a young adult's life. For high school students considering a college career, guidance from trusted loved ones and respected role models is needed to think through all of the considerations. Among those having some influence with students' choice of college are parents, other relatives, high school counselors and teachers.

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Several scholars (Levine & Nidiffer, 1996; Cabrera & LaNasa, 2000; Tierney & Venegas, 2006) have found parental influence to be a significant predictor of student matriculation. In Levine and Nidiffer's (1996) study of matriculation behaviors of low-income students, the researchers found that students who attended prestigious universities were more likely to receive motivational messages from parents than from counselors, peers and other educational role models. In addition, Cabrera and LaNasa (2000) found parental influence to have a direct and positive relationship with the formation and maintenance of college aspirations. Finally, according to a 2007 report by the National Postsecondary Education Cooperative (MacAllum, Glover, Queen & Riggs, 2007), "Regardless of socioeconomic status (SES) or ethnic and racial category, parents play the strongest role in the college choice and decision-making processes for traditional-aged students" (p. iii).

Despite the strong influence from parents, many students consider high school counselors to be an important source of information (Bradshaw, et al., 2001; Gonzalez, et al., 2003). The advice of high school counselors is more influential with students whose parents had little formal education and who came from lower SES backgrounds (MacAllum, et al., 2007). Lillard and Gerner (1999) explored the impact that a disrupted family has on the likelihood of students applying to and attending four-year colleges and selective four-year colleges and found that a disruption alone is not a significant indicator of the likelihood of students attending a particular type of institution. Rather, there was a relationship between the levels of resources available to the family and type of college choice, regardless of whether or not the parental unit was intact in the family.

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The Cooperative Institutional Research Program (CIRP)

The data for the study will be gathered from the Cooperative Institutional Research Program (CIRP) Freshman Survey for 2004. The CIRP Freshman Survey, managed by the Higher Education Research Institute (HERI) at the University of California at Los Angeles, is administered annually to over 400,000 entering freshmen at approximately 700 two-year and four-year colleges and universities (Higher Education Research Institute webpage, March 2008). The survey gathers information about (a) established behaviors in high school, (b) academic preparedness, (c) admissions decisions, (d) expectations for college, (e) interactions with peers and faculty, (f) student values and goals, (g) student demographic characteristics, and (h) concerns about financing college (HERI web site, retrieved June 2, 2008, from http://www.gseis.ucla.edu/heri/cirp.php). The 40-question survey is attached at the end of this research proposal as Appendix A.

The CIRP was selected because it has been identified as the most comprehensive of several broad-based instruments which survey freshmen on issues related to college choice. Other available surveys include the ACT Profile with six factors related to college choice, the Admitted Student Questionnaire (ASQ) Plus which includes 13 factors, and the National Center for Education Statistics' (NCES) National Educational Longitudinal Study of 1988 (NELS) offering 15 choice factors (Hoyt & Brown, 2003). The CIRP details 21 factors related to college choice. Another strength of the CIRP is its high response rate relative to other surveys. This can be attributed to many of the participating institutions asking students to complete the survey during a freshman orientation

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program. The strong level of responses on the CIRP minimizes issues of unrepresentativeness of respondents, as the CIRP may more closely resemble a census than a survey (Porter & Whitcomb, 2005).

Due to the strengths of comprehensiveness and representativeness, many researchers have turned to the CIRP to answer a variety of questions related to postsecondary education. In addition, the series of surveys offered by CIRP, including the Freshman Survey, Your First College Year, and the Senior Survey, provide opportunities for longitudinal studies. Administered at the point of college entry, the Freshman Survey gathers baseline data; while Your First College Year, given to students at the end of their freshman year, gathers information about institutional characteristics and student experiences in the college environment (Keup, 2004).

For example, a study on college student engagement and retention is most effectively assessed if the researcher can compare a college senior's responses with her responses as a new freshman, and conclusions can be made regarding whether the student's level of engagement is attributable to institutional policies and practices or to the characteristics of the student (Astin, 2005-2006). Further, Keup (2004) noted that multivariate analyses of data from the Freshman Survey and Your First College Year may provide important information about potential causal connections between variables. Research conducted by Astin and Lee (2003), for which CIRP survey data was used, indicated that 86 percent of the variance in student outcomes could be explained solely on entering student characteristics.

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Summary

Research has revealed that graduates from higher-tiered and private 4-year institutions generally earn higher salaries than graduates from other types of colleges, even when controlling for other characteristics (Leslie & Brinkman, 1988). Therefore, it would seem advantageous for a student to enroll in and graduate from a higher-tiered university if possible to do so. The literature review demonstrates that, for traditional-age high-achieving students, several factors affect the ultimate choice of where students choose to attend. There are individual characteristics of students and their families, such as gender, ethnicity and socioeconomic status, which appear to indicate some matriculation tendencies. Likewise, students develop perceptions and preferences about institutions from experiences, marketing efforts of the institutions, and media publications. Those institutional characteristics may include academic reputation, costs and financial aid, and social climate. Finally, college choice decisions of high-ability students are impacted by the influences of significant people in their lives, including parents, counselors and teachers.

CHAPTER 3

METHOD

This chapter describes the method used by the researcher to address the research questions. The section addresses the research design, including a description of the sample, the survey instrument and data collection plan; and it also describes the plan for data analysis using multiple regression. The purpose of the study was to examine whether differences exist between traditional-aged high achieving students who choose to attend higher-tiered universities and their peers who choose a lower-tiered university. The research questions and predictor variables for the study were chosen based on prior research that has been conducted relating to college choice. The researcher employed variables that have been identified in the literature as factors which high achieving students prioritize during the college choice experience.

Research Questions

A review of the research that has examined the college choice of high achieving students in U.S. postsecondary institutions provided the basis for the research questions addressed in this study. The following research questions guided the study:

1. To what extent do students' individual characteristics (e.g. gender and ethnicity) relate to college choice for high achieving students?

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2. To what extent do students' family characteristics (e.g. parents' education level and family income) relate to college choice for high achieving students?

3. To what extent do financial considerations associated with college (e.g. cost and financial aid) relate to college choice for high achieving students?

4. To what extent does academic reputation of the institution relate to college choice for high achieving students?

5. To what extent does the influence of significant others (e.g. parents, relatives, teachers, and counselors) relate to college choice for high achieving students?

Research Design

To answer this study's research questions, a causal-comparative research design was utilized. Causal-comparative methodology allows for the exploration of possible causes for the phenomenon being studied by comparing subjects for whom a characteristic is present (e.g. attendance at a higher-tiered university) with similar subjects for whom the characteristic is absent or present to a lesser degree (e.g. attendance at a lower-tiered university). The study applied a quantitative research design incorporating secondary analysis of data gathered by the Higher Education Research Institute (HERI) through the Cooperative Institutional Research Program (CIRP) Freshman Survey for 2004. Secondary analysis of the CIRP data was selected because the methodology provides an efficient and reliable means of obtaining data. The research methods chosen for this study are consistent with previous literature on factors influencing college choice. Among the areas discussed in this section are considerations

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when using secondary data, information about the CIRP Freshman Survey, and discussion regarding the data collection process.

Secondary Data Considerations

Secondary databases can serve as an excellent source of large sample sets of student data, but there are considerations concerning advantages and disadvantages that should be made by the researcher prior to committing to the use of secondary data. One of the principal advantages of using secondary data is the savings of time, costs, and resources. Data collection tends to be the most expensive aspect of a research project, and the use of secondary data allows the researcher to devote more attention to other issues related to the study (Moriarty, H. J., Deatrick, J. A., Mahon, M. M., Feetham, S. L., Carroll, R. M., Shepard, M. P., & Orsi, A. J., 1999). Researchers who use secondary data have the opportunity to eliminate several time-consuming steps in the research process such as developing the instrument, obtaining the sample, collecting the data, and preparing the data for analysis. Other advantages of conducting research using secondary data is the ability to study larger samples, to study more representative samples, and to include more variables than can be done in many studies that are based on primary data (Moriarty, et. al, 1999). Finally, when the study involves a national population, large sample sets provided by national databases can provide the power needed to make generalizations of the findings (Hilton, 1992).

Researchers must be cautious, however, when deciding to use secondary data sources, and note the disadvantages of such a choice. The first drawback has to do with

the lack of intimate knowledge that the researcher has of the data. Information on the instrument and procedures used to collect the data may not be readily available, raising questions of validity and reliability. In addition, the secondary dataset may not be a good fit for the purpose of addressing a new research question. For example, the researcher may make incorrect assumptions about the intended definition of certain terms used in the instrument. "In some cases, secondary analysts are able to change their concepts' definitions to match the original ones and still be faithful to their theoretical framework. In other cases, this is not possible—the concepts are too different and forcing the fit is not appropriate" (Moriarty, et. al, 1999, p. 148).

Researchers should also safeguard against forcing a match between the research study at hand and the identified secondary database (Kiecolt & Nathan, 1985). Moreover, the use of secondary data makes it more difficult to detect bias in the study, because the researcher did not participate in either the development and testing of the instrument or the identification of the sample (Moriarty, et. al, 1999). Finally, there may be issues of timeliness between the collection of the data and the completion of the secondary analysis, particularly if significant events occurred between the two processes that may impact the relevance and generalizability of the findings sample (Moriarty, et. al, 1999).

Survey Instrument

The data for the study were gathered from the Cooperative Institutional Research Program (CIRP) Freshman Survey for 2004. CIRP has been conducting national longitudinal studies of American college students since 1966 and has surveyed over eight

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million students. The CIRP Freshman Survey, managed by the Higher Education Research Institute (HERI) at the University of California at Los Angeles, is administered annually to over 400,000 entering freshmen at approximately 700 two-year and four-year colleges and universities (Higher Education Research Institute webpage, March 2008). The survey gathers information about (a) established behaviors in high school, (b) academic preparedness, (c) admissions decisions, (d) expectations for college, (e) interactions with peers and faculty, (f) student values and goals, (g) student demographic characteristics, and (h) concerns about financing college (HERI web site, retrieved June 2, 2008, from http://www.gseis.ucla.edu/heri/cirp.php). The 40-question survey is attached at the end of this research proposal as Appendix A.

The CIRP was selected because it has been identified as the most comprehensive of several broad-based instruments which survey freshmen on issues related to college choice. Other available surveys include the ACT Profile with six factors related to college choice, the Admitted Student Questionnaire (ASQ) Plus which includes 13 factors, and the National Center for Education Statistics' (NCES) National Educational Longitudinal Study of 1988 (NELS) offering 15 choice factors (Hoyt & Brown, 2003). The CIRP details 21 factors related to college choice. Another strength of the CIRP is its high response rate relative to other surveys. This can be attributed to many of the participating institutions asking students to complete the survey during a freshman orientation program. The strong level of responses on the CIRP minimizes issues of unrepresentativeness of respondents, as the CIRP may more closely resemble a census than a survey (Porter & Whitcomb, 2005).

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Validity and Reliability

As mentioned in the previous section, one of the disadvantages of using secondary data is that the researcher does not have first-hand information about the steps taken by the administrators of the database to maximize validity and reliability. The credibility of research studies depends greatly on the validity and reliability of the measures. For studies using surveys or questionnaires as the measurement instrument, validity refers to the accuracy of the inferences or interpretations one makes from the responses, and reliability refers to the consistency or accuracy of the responses. HERI has addressed these questions through a document posted on its website entitled "CIRP Freshman Survey: Reliability and Validity" (retrieved July 27, 2008, from http://www.gseis.ucla.edu/heri/PDFs/CIRP_Reliability_Validity.PDF). The document is attached as Appendix B.

A survey question is considered reliable if similar results are yielded when repeatedly administered to similar samples. HERI has made the assertion that the majority of questions in the CIRP Freshman Survey have exhibited a "great deal of stability" over the nearly forty years that the survey has been administered and that observed exceptions to this stability have been "linked to temporal trends or to real and meaningful exogenous shocks" (p. 1). In addition, HERI states that nearly 90 percent of the participating institutions are repeat participants, which helps to ensure sample consistency over time. Validity refers to the interpretation of survey responses and the degree to which the interpretation is supported by evidence and theory (Gall, Gall & Borg, 2007). HERI admitted that it has not conducted factor analysis for all survey items,

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but referred researchers to literature where the validity of the CIRP has been investigated (Astin, 1991, 1992; Luo & Jamieson-Drake, 2005).

Sample

Institutional participation of the CIRP Freshman Survey is voluntary. The scope of this study was limited to public and private national research universities as identified by *USNWR*. As not all national universities participated in the CIRP, the sample was drawn from the 97 universities which administered the survey in 2004, as listed in Appendix C. Participation in the 2004 Freshman Survey included 32 (33%) Tier one universities, 32 (33%) Tier two universities, 19 (20%) Tier three universities, and 14 (14%) Tier four universities. A glaring issue that the researcher addresses as a limitation is the disparity in participation between higher-tiered and lower-tiered universities. The researcher has failed to find any explanation for the gap in institutional participation, particularly between the highest-ranked and lowest-ranked universities.

Because this study is focused on the college choice behaviors of high achieving students, data were used from only those students who indicated that they had received scores at or above 660 on the critical reading portion of the SAT, and scores at or above 670 on the mathematics portion of the SAT. For students that did not report scores for both SAT verbal and SAT math, the research accepted data from students reporting an ACT composite score of 30 or greater. The scores of 660 and 670 were used as benchmarks because they represent the point at which students scored in the 90th percentile for the reading and math portions of the test (College Board website, accessed

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March 29, 2008). In addition, for their data to be used, students were required to have an A or A+ average in high school. Descriptive statistics for the students and institutions that were selected for inclusion in this study are reported in Chapter 4.

The researcher attempted to control for variables such as issues that arise for students who attended a university that was not their first choice. Student data were used only for students who indicated that they were attending their first choice college. This is important to maintain integrity in the examination of the factors which influence students to attend a lower-tiered university, because students truly are choosing to attend a university if the university is their first choice. If a student enrolled at a university that was his or her second, third, or further choice, the data would not be truly reflective of the institutional attributes that are most important to the student. While some important research has been done exploring the reasons that students do not enroll at their first-choice institution (Chapman & Jackson, 1987), this line of inquiry is outside the scope of the present study.

Finally, the study limited the sample to students enrolled full-time and those who are attending an institution located more than 100 miles from their home. There are unique issues and extraneous variables associated with students who choose to attend college part-time and similarly for those who choose to attend a school close to home. Many students may settle for a university that is within a short commute from home. Those students are not of interest for the purposes of this study, because issues related to convenience are unrelated to the nature of the questions this study seeks to address.

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Data Collection

The data for the study was gathered from the Higher Education Research Institute (HERI) at the University of California at Los Angeles, via the Cooperative Institutional Research Program (CIRP) Freshman Survey for 2004. The CIRP Freshman Survey is administered annually to over 400,000 entering freshmen at approximately 700 two-year and four-year colleges and universities (Higher Education Research Institute website, March 2008). Each year, HERI invites regionally accredited institutions of higher education (excluding proprietary, special vocational and semi-professional institutions) to participate in the CIRP survey. The national population for the survey is all baccalaureate degree-granting institutions which admit first-time freshmen. Participants represent public and private institutions, historically Black colleges and universities, and both religious and non-sectarian institutions.

Institutional contribution to the Integrated Postsecondary Education Data System (IPEDS) and a full-time freshman class size of 25 students are required for eligibility. Although institutional participation in the survey varies from year-to year, most of the postsecondary institutions that participate in the survey are repeat customers and typically ask students to complete the survey during freshman orientation (http://www.gseis.ucla.edu/heri/cirpoverview.php). Institutions may administer the survey in any of the following ways:

1. Proctored setting with paper questionnaires – This is the recommended method as it results in the highest response rate.

2. Mail-out survey with paper questionnaire

www.manaraa.com

3. Email notification of the web-survey option – New for 2008 survey

4. A combination of paper and web-based questionnaires – New for 2008 survey

The survey gathers information about: (a) established behaviors in high school, (b) academic preparedness, (c) admissions decisions, (d) expectations for college, (e) interactions with peers and faculty, (f) student values and goals, (g) student demographic characteristics, and (h) concerns about financing college (Higher Education Research Institute, 2008). The 40-question survey is attached at the end of this research proposal as Appendix A.

The CIRP Freshman Survey was selected because it was identified as the most comprehensive of the existing and available broad-based instruments that survey freshmen on issues related to college choice. Other available surveys include the ACT Profile with six factors related to college choice, the Admitted Student Questionnaire (ASQ) Plus which includes 13 factors, and the National Center for Education Statistics' (NCES) National Educational Longitudinal Study of 1988 (NELS) offering 15 choice factors (Hoyt & Brown, 2003). The CIRP details 21 factors related to college choice.

HERI publicizes procedures on its website for requesting information from its databases (http://www.gseis.ucla.edu/heri/gainaccess.php). Following is a list of items which are evaluated by HERI staff in determining whether to provide data for a particular study:

1. HERI data adequately matches the proposed research project;

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2. The study design is adequate to answer the questions being asked, theoretical grounding is evident, and the proposal provides sufficient detail about dependent and independent variables;

3. The proposal details the process by which the investigator will acquire appropriate institutional review board approval;

4. The intended plan specified by the investigator involves advancing scholarship; and

5. The research is conducted in a manner that minimizes conflicts with other research conducted by HERI staff or other investigators under previously approved projects.

National universities for which data are available from the 2004 CIRP were categorized into four ordinal groups: (1) Tier one, (2) Tier two, (3) Tier three, or (4) Tier four, according to their assignment by *USNWR*. The 2003 issue of *Best Colleges* placed a total of 248 universities into the "national universities" category, of which the top 51 were assigned a numerical rank and placed into Tier one; another 78 were placed unranked into Tier two; 65 were placed unranked into Tier three; and 55 institutions were unranked and placed into Tier four.

HERI makes available on its website a participation history for each of the surveys that it administers. USNWR ranking statuses from the 2003 issue of "America's Best Colleges" were assigned by the researcher to institutions participating in the 2004 Freshman Survey, and the information were provided to HERI. The researcher received a SPSS-formatted data file from HERI that includes 2004 Freshman Survey responses

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from (1) students who indicated that they had received scores at or above 660 on the critical reading portion of the SAT, and scores at or above 670 on the mathematics portion of the SAT, or the equivalent ACT score; (2) students who reported an A or A+ average in high school, (3) students who reported attending their college of first choice, (4) students who are enrolled full-time, and (5) students who are attending an institution located more than 100 miles from their home.

Description of Variables

Guided by theory and relevant existing literature, a limited number of variables from the CIRP 2004 Freshman Survey database were used to operationalize the constructs referenced within the research questions. This section will further describe the variables selected for this study, beginning with the ordinal outcome variable and concluding with a discussion of the various independent variables.

The outcome (or dependent) variable for this study is the tier level of the university at which a student is enrolled. The data received from the 2004 CIRP Freshman Survey included responses from students attending institutions classified by CIRP as public or private research universities. Each participating institution was assigned a tier level of one, two, three, or four, based upon its assignment by *USNWR* in its *2003 Best Colleges* edition.

The independent variables selected for this study are listed in Table 3.1 and are grouped according to major categories within the college choice literature. Studies indicate that students' enrollment decisions are related to: (1) students' individual and

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family characteristics (Brewer, et al., 1999; Hearn, 1987; Hearn, 1991; Manski & Wise, 1983; Paulsen, 1990); (2) students' preferences about the colleges they are considering (Fuller, Manski, & Wise, 1982; Hossler & Gallagher, 1987; Weiler, 1994); and (3) the influences of significant others, including parents, relatives, teachers and counselors (Bradshaw, et al., 2001; Hossler, Schmit, & Vesper, 1999; Lillard & Gerner, 1999). Coding of the variables is based on the structure of options available to students responding to the 2004 CIRP Freshman Survey.

Data Analysis

To provide some initial understanding of the differences between high achieving students enrolled at each of the four tiers of national universities, frequencies and descriptive statistics are presented to gain an understanding of the distribution of the data. In addition, a correlation matrix of all independent variables in the study is presented to demonstrate the resulting relationships between variables. Multivariate analyses involving multiple regression models were conducted to examine the predictive ability of the independent variables, while controlling for other variables in the model, in relation to choice of college for high-achieving students. Because the dependent variable is a set of ordinal outcomes (*USNWR* tier assignment), multiple regression is the preferred statistical method for understanding the relationship between the independent variables and students' matriculation behaviors.

The outcome variable is the student's choice of college, with four possible outcomes according to the tier category to which the university was assigned. Regression

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has commonly been used in studies of college choice research (Hu & Hossler, 2000).
First, using SPSS statistical software, a series of regression analyses were conducted to test the significance of observed differences among traditional-age high-achieving college freshmen in terms of (1) the students' individual characteristics, (2) the students' preferences about the colleges they are considering, and (3) the influences of others. The CIRP 2004 Freshman Survey includes several questions pertaining to the research questions that guide the study at hand. The researcher selected a group of variables from the questions included in the Freshman Survey, as listed in Table 3.1, and developed a plan for measuring the variables consisting of descriptive statistics and multiple regression.

Summary

The purpose of the study was to examine whether differences exist between traditional-aged high-achieving students who choose to attend higher-tiered universities and their peers who choose a lower-tiered university experience. The researcher has proposed to explore the stated research questions by engaging in a causal-comparative research design that uses secondary data from 87 public and private research universities participating in the 2004 Freshman Survey administered by the Higher Education Research Institute. The researcher analyzed the data using descriptive statistics and multiple regression. The proposed methods are consistent with prior research in the area of college choice.

Table 3.1 - Independent Variable Construction and Coding Scheme

Variable name	Operational Definition
Student and Family Characteristics	
Gender	Q1: "Your sex"
Female	Reference group
Male	A dummy equal to 1 if the student is male
Ethnicity	Q25: "Please indicate your ethnic background."
White	Reference group
African American	A dummy equal to 1 if the student is an African American; 0 = other
Asian American	A dummy equal to 1 if the student is an Asian American; 0 = other
Hispanic	A dummy equal to 1 if the student is a Hispanic; 0 = other
Other ethnicity	A dummy equal to 1 if the student indicated a group not mentioned above; 0 = other
Parents Education	Q28: "What is the highest level of formal education obtained by your parents?"
Father's education	
High school graduate or less	Reference group
Some postsecondary education	Equal to 1 if the father attended college or other postsecondary school
College degree	Equal to 2 if the father has a college degree
Some graduate school	Equal to 3 if the father attended graduate school
Graduate degree	Equal to 4 if the father has a graduate degree
Mother's education	
High school graduate or less	Reference group
Some postsecondary education	Equal to 1 if the mother attended college or other postsecondary school
College degree	Equal to 2 if the mother has a college degree
Some graduate school	Equal to 3 if the mother attended graduate school
Graduate degree	Equal to 4 if the mother has a graduate degree
Family income	Q22: "What is your best estimate of your parents' total income last year? Consider income from all sources before taxes."
Less than $50K	Reference group
$50K-100K	Equal to 1 if family income is between $50,000 and $99,999
$100K-150K	Equal to 2 if family income is between $100,000 and $149,999
Greater than $150K	Equal to 3 if family income is greater than $150,000
Student Employment	Q40: "What is your best guess as to the chances that you will…Get a job to help pay for college expenses?"
Very little or no chance	Reference group
Some chance	Equal to 1 if "some chance" marked
Very good chance	Equal to 2 if "very good chance" marked

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Table 3.1 (continued) - Independent Variable Construction and Coding Scheme

Variable name	Operational Definition
Institutional Characteristics	
Institutional costs	Q37: "How important was [the cost of attending this college] in your decision to come here?"
Not important	Reference group
Somewhat important	Equal to 1 if cost of attendance was somewhat important
Very important	Equal to 2 if cost of attendance was very important
Financial aid	Q37: "How important was [the offer of financial assistance by the college] in your decision to come here?"
Not important	Reference group
Somewhat important	Equal to 1 if financial assistance was somewhat important
Very important	Equal to 2 if financial assistance was very important
Academic reputation	Q37: "How important was [the academic reputation of the college] in your decision to come here?"
Not important	Reference group
Somewhat important	Equal to 1 if academic reputation was somewhat important
Very important	Equal to 2 if academic reputation was very important
Media rankings	Q37: "How important was [rankings in national magazines] in your decision to come here?"
Not important	Reference group
Somewhat important	Equal to 1 if media rankings were somewhat important
Very important	Equal to 2 if media rankings were very important
Influence of Others	
Parental influence	Q29: "In deciding to go to college, how important to you was [your parents wanting you to go]?"
Not important	Reference group
Somewhat important	Equal to 1 if parental influence was somewhat important
Very important	Equal to 2 if parental influence was very important
Relative influence	Q37: "How important was [your relatives wanting you to come here] in your decision to come here?"
Not important	Reference group
Somewhat important	Equal to 1 if the influence of relatives was somewhat important
Very important	Equal to 2 if the influence of relatives was very important
Teacher influence	Q37: "How important was [advice from a teacher] in your decision to come here?"
Not important	Reference group
Somewhat important	Equal to 1 if teacher advice was somewhat important
Very important	Equal to 2 if teacher advice was very important
Counselor influence	Q37: "How important was [advice from a high school counselor] in your decision to come here?"
Not important	Reference group
Somewhat important	Equal to 1 if counselor advice was somewhat important
Very important	Equal to 2 if counselor advice was very important

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CHAPTER 4

RESULTS

The study applied a quantitative research design incorporating secondary analysis of data gathered by the Higher Education Research Institute (HERI) through the Cooperative Institutional Research Program (CIRP) Freshman Survey for 2004. Because both the researcher and the Higher Education Research Institute (HERI) wanted to maintain anonymity for both student and institutional responses, neither student nor institutional identifiers were provided by HERI to the researcher. To link the responses for the independent variables with the outcome variable of tier group, the researcher provided HERI with the tiers assigned to each institution according to the 2003 edition of America's Best Colleges; and HERI then added the outcome variable to the dataset prior to distributing the data to the researcher. The dataset was sent as an SPSS file to the researcher via email.

The scope of this study was limited to public and private national research universities as identified by *USNWR*. As not all national universities participated in the CIRP, the sample was drawn from the 97 universities that administered the survey in 2004, as listed in Appendix C. Participation in the 2004 Freshman Survey included 32 (33%) Tier One universities, 32 (33%) Tier Two universities, 19 (20%) Tier Three universities, and 14 (14%) Tier Four universities. As expected, due to the large proportion of participating Tier One institutions in the 2004 Freshman Survey, there was

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a large disparity in the number of eligible respondents among tier groups. The resulting dataset for the study included responses from 6,889 students. Seventy-seven percent (n=5,335) of the respondents were from Tier One institutions, compared to 16.7% (n=1,149) from Tier Two, 4.7% (n=324) from Tier Three, and 1.2% (n=81) from Tier Four institutions.

Student data were used only for students who indicated that they were attending their first choice college and that their selected institutions were located more than 100 miles from their homes. In addition, because this study focused on the college choice behaviors of high-achieving students, data were used only from those students who indicated that they had received scores at or above 660 on the Critical Reading portion of the SAT, and scores at or above 670 on the mathematics portion of the SAT. For students that did not report scores for both SAT verbal and SAT math, the researcher accepted data from students reporting an ACT composite score of 30 or greater. The scores of 660 and 670 were used as benchmarks because they represent the point at which students scored in the 90th percentile for the reading and math portions of the test (College Board website, accessed March 29, 2008). The ACT composite score of 30 was used because ACT and the College Board have identified a score of 30 on the ACT as comparable to a score of 1330-1350 on the combination of the SAT verbal score and SAT math score (ACT website, accessed December 4, 2008). In addition, for their data to be used, students were required to have an A or A+ average in high school. Descriptive statistics for the distribution of SAT verbal, SAT math, and ACT composite scores for each tier group are reported in Table 4.1.

To provide some initial understanding of the differences between high achieving students enrolled at each of the four tiers of national universities, frequencies and descriptive statistics are presented to gain an understanding of the distribution of the data. In addition, a correlation matrix of all independent variables in the study is presented to demonstrate the resulting relationships between variables. Multivariate analyses involving multiple regression models were conducted to examine the predictive ability of the independent variables, while controlling for other variables in the model, in relation to choice of college for high-achieving students.

Table 4.1 – Distribution of Sample SAT and ACT Scores by Tier of Institution

	Tier			
SAT/ACT Scores	1	2	3	4
SAT Verbal	*n=4,808*	*n=671*	*n=103*	*n=18*
Mean	723	711	716	704
Median	720	700	700	690
Mode	800	700	700	680
Standard Dev	43	39	42	36
Range	660-800	660-800	660-800	660-770
SAT Math	*n=4,808*	*n=671*	*n=103*	*n=18*
Mean	736	718	718	711
Median	730	710	710	700
Mode	800	700	720	700
Standard Dev	42	37	36	38
Range	670-800	670-800	670-800	670-800
ACT Composite	*n=527*	*n=478*	*n=221*	*n=63*
Mean	32	31	31	31
Median	32	31	31	31
Mode	32	30	30	30
Standard Dev	1	1	1	1
Range	30-36	30-35	30-36	30-34

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Descriptive Statistics

A review of the research that has examined the college choice of high achieving students in U.S. postsecondary institutions provided the basis for the research questions addressed in this study. The following research questions guided this study:

1. To what extent do students' individual characteristics (e.g. gender and ethnicity) relate to college choice for high achieving students?

2. To what extent do students' family characteristics (e.g. parents' education level and family income) relate to college choice for high achieving students?

3. To what extent do financial considerations associated with college (e.g. cost and financial aid) relate to college choice for high achieving students?

4. To what extent does academic reputation of the institution relate to college choice for high achieving students?

5. To what extent does the influence of significant others (e.g. parents, relatives, teachers, and counselors) relate to college choice for high achieving students?

Student and Family Characteristics

Gender and Ethnicity

Respondents included slightly more males (n=3,596, 52.2%) than females (n=3,286, 47.7%). Table 4.2 provides a summary of the number and percentage of female and male respondents by each of the four institutional tiers. The greatest differences observed were in Tier Two institutions, with 25% more males (n=638) than

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females (n=511), and in Tier Four institutions, with 31% more females (n=46) than males (n=35).

Table 4.2 – Distribution of Respondent Gender by Tier of Institution

Gender	Tier			
	1	2	3	4
Female	2563	511	166	46
% of Tier	48.1%	44.5%	51.2%	56.8%
Male	2765	638	158	35
% of Tier	51.8%	55.5%	48.8%	43.2%
No Response	7	0	0	0
% of Tier	0.1%			
Total	5335	1149	324	81

Note: X^2 (3, N=6,882) = 9.442, p=.024

The ethnic diversity of the sample in the current study was less than optimal. The sample of respondents was overwhelmingly comprised of white students (n=5,571, 80.9%). Table 4.3 provides a summary of the number and percentage of students within each ethnic group by each of the four institutional tiers. Respondents from Tier One institutions were more diverse than any other tier, with white students accounting for three out of four (n=4,112, 77.1%) respondents. Minorities comprised less than 7% of any other tier group. Representation of Black students was especially low, with only five (0.4%) in Tier Two, one (0.3%) in Tier Three, and zero in Tier Four. Compared with the lower-tiered institutions the Tier One institutions received responses from a strikingly higher percentage of Asian students. Nearly 15% (n=797) of the respondents from Tier

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One institutions identified themselves as Asian, compared to 3.2% (n=37) from Tier

Two, 3.1% (n=10) from Tier Three, and 2.5% (n=2) from Tier Four institutions.

Table 4.3 – Distribution of Respondent Ethnicity by Tier of Institution

	Tier			
Ethnicity	1	2	3	4
White	4112	1075	308	76
% of Tier	77.1%	93.6%	95.1%	93.8%
Black[a]	76	5	1	0
% of Tier	1.4%	0.4%	0.3%	0%
Asian[b]	797	37	10	2
% of Tier	14.9%	3.2%	3.1%	2.5%
Hispanic[c]	223	25	2	3
% of Tier	4.2%	2.2%	0.6%	3.7%
Other[d]	127	7	3	0
% of Tier	2.4%	0.6%	0.9%	0%
No Response	0	0	0	0
% of Tier				
Total	5335	1149	324	81

[a]Note: X^2 (3, N=6,889) = 11.177, p=.011
[b]Note: X^2 (3, N=6,889) = 155.255, p<.001
[c]Note: X^2 (3, N=6,889) = 19.708, p<.001
[d]Note: X^2 (3, N=6,889) = 18.941, p<.001

Socioeconomic Status

The frequency distribution indicated some distinct differences in family income

among tier groups. Table 4.4 demonstrates an inverse relationship between income level

and tier group. That is, the proportion of students indicating a family income of $150,000

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per year or greater is highest for Tier One students, and declines at each step of the tier ladder. Students attending Tier Four institutions were twice as likely to have a family income of $100,000 or less than were students attending Tier One institutions; with more than one in five (n=18, 22.2%) Tier Four students reporting a family income of $50,000 or less, compared with only one of every ten (n=550, 10.3%) students at Tier One institutions. There is a similar disparity when examining the other end of the income spectrum. Students attending Tier One institutions reported a family income of over $150,000 at nearly twice the rate (n=1,789, 33.5%) of Tier Two students (n=198, 17.2%), three times the rate of Tier Three students (n=37, 11.4%), and nearly seven times the rate of Tier Four students (n=4, 4.9%).

Table 4.4 – Distribution of Family Income by Tier of Institution

	Tier			
Family Income	1	2	3	4
Less than $50K	550	138	64	18
% of Tier	10.3%	12.0%	19.8%	22.2%
$50K-$100K	1348	419	139	38
% of Tier	25.3%	36.5%	42.9%	46.9%
$100K-$150K	1146	276	60	9
% of Tier	21.5%	24.0%	18.5%	11.1%
Over $150K	1789	198	37	4
% of Tier	33.5%	17.2%	11.4%	4.9%
No Response	502	118	24	12
% of Tier	9.4%	10.3%	7.4%	14.8%
Total	5335	1149	324	81

Note: X^2 (9, N=6,233) = 263.626, p<.001

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Relative to the response rate obtained from the sample for other independent variables, the response rate from students regarding family income was noticeably low. Nearly one of ten (n=656, 9.5%) students in the sample failed to respond to the question in the 2004 Freshman Survey regarding family income. The relatively large number of missing data may limit analyses and conclusions regarding family income and its relationship with the tier level of university that a student chooses to attend.

As conveyed in Table 4.5, the majority of students among all tier groups indicated that there was at least some chance that they would need to seek employment to help pay for college expenses, with students in Tier Four institutions indicating a stronger need than the students in other tier groups. Only three (3.7%) of the 81 students enrolled at

Table 4.5 – Student Employment Needs by Tier of Institution

Need for Student Employment	Tier			
	1	2	3	4
No/Little Chance	1325	225	97	3
% of Tier	24.8%	19.6%	29.9%	3.7%
Some Chance	1625	387	96	30
% of Tier	30.5%	33.7%	29.6%	37.0%
Very Good Chance	2221	519	121	48
% of Tier	41.6%	45.2%	37.4%	59.3%
No Response	154	18	10	0
% of Tier	2.9%	1.2%	3.1%	0%
Total	5335	1149	324	81

Note: X^2 (6, N=6,707) = 42.866, p<.001

Tier Four institutions responded that there was little to no chance that they would need to get a job to pay for their education. This low response rate from Tier Four students, in contrast to the responses from Tiers 1 (n=1,325, 24.8%), 2 (n=225, 19.6%), and 3 (n=97, 29.9%), indicates that the Tier Four students in the sample rarely perceived themselves as having a financial status that would allow them to study without working at least part time.

Education Level of Parents

As expected, students attending Tier One institutions reported the highest levels of education for their fathers, with over half of respondents (n=2,952, 55.3%) reporting that their fathers possessed a graduate degree. Further, the fathers of Tier One students were least likely to lack any college experience. Less than 6% (n=300) of fathers of students attending Tier One institutions lacked a college education; however, the percentage rises over 11% for fathers of students in Tiers 2 (n=131), 3 (n=45), and 4 (n=9). A summary of the education level for fathers of respondents by each of the four institutional tiers is provided in Table 4.6.

Similar to the results regarding the education level of fathers, students attending Tier One institutions reported the highest levels of education for their mothers, with over one-third of respondents (n=2,024, 37.9%) reporting that their mothers possessed a graduate degree. Contrary to the results for the fathers, the mothers of Tier Four students were least likely to lack a college education. For both fathers and mothers, Tier Three students had the highest percentage of parents with no college education. A summary of

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the education level for mothers of respondents by each of the four institutional tiers is

provided in Table 4.7.

Table 4.6 – Distribution of Father's Education Level by Tier of Institution

Father's Education	Tier			
	1	2	3	4
No College	300	131	45	9
% of Tier	5.6%	11.4%	13.9%	11.1%
Some College	407	156	55	14
% of Tier	7.6%	13.6%	17.0%	17.3%
College Degree	1638	458	130	42
% of Tier	30.7%	39.9%	40.1%	51.9%
Grad Degree	2952	397	93	16
% of Tier	55.3%	34.6%	28.7%	19.8%
No Response	38	7	1	0
% of Tier	0.7%	0.6%	0.3%	0%
Total	5335	1149	324	81

Note: X^2 (12, N=6,843) = 317.756, p<.001

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Table 4.7 – Distribution of Mother's Education Level by Tier of Institution

Mother's Education	Tier			
	1	2	3	4
No College	325	114	40	4
% of Tier	6.1%	9.9%	12.4%	4.9%
Some College	576	182	72	20
% of Tier	10.8%	15.8%	22.2%	24.7%
College Degree	2375	584	161	44
% of Tier	44.5%	50.8%	49.7%	54.3%
Grad Degree	2024	264	50	13
% of Tier	37.9%	23.0%	15.4%	16.1%
No Response	35	5	1	0
% of Tier	0.7%	0.4%	0.3%	0%
Total	5335	1149	324	81

Note: X^2 (12, N=6,848) = 216.871, p<.001

Eighty-six percent (n=4,590, 86%) of Tier One students reported that their fathers had earned some type of college degree. In comparison, 74.4% (n=855) of Tier Two students, 68.8% (n=223) of Tier Three students, and 71.7% (n=58) of Tier Four students reported having fathers with college degrees. The results for the mothers were similar, with 82% (n=4,399) of Tier One students reporting that their mothers had earned some type of college degree. In comparison, 73.8% (n=848) of Tier Two students, 65.1% (n=211) of Tier Three students, and 70.4% (n=57) of Tier Four students reported having mothers with college degrees. These results are summarized in Table 4.8, which also shows the distribution for students, by tier group, with both parents earning college degrees or with both parents lacking a college education.

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Table 4.8 – Distribution of Parents' Education Level by Tier of Institution

Parents' Education	Tier			
	1	2	3	4
No College Degree				
Father	707	287	100	23
% of Tier	13.3%	25.0%	30.1%	28.4%
Mother	901	296	112	24
% of Tier	16.9%	25.8%	34.6%	29.6%
Both	385	162	57	15
% of Tier	7.2%	14.1%	17.6%	18.5%
College/Graduate Degree				
Father	4590	855	223	58
% of Tier	86.0%	74.4%	68.8%	71.7%
Mother	4399	848	211	57
% of Tier	82.5%	73.8%	65.1%	70.4%
Both	4074	721	168	49
% of Tier	76.4%	62.8%	51.9%	60.5%

Institutional Characteristics

Cost and Availability of Financial Aid

Table 4.9 summarizes the responses from high achieving students regarding the level of importance they placed on the costs of college when choosing to attend. One observation from a review of the distribution of responses is that the majority of students (n=3,002, 56.3%) enrolled at Tier One institutions found the costs of attendance to be unimportant regarding their matriculation decisions. The proportion of Tier One students

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finding costs unimportant is considerably higher than for students from Tier Two (n=302, 26.3%), Tier Three (n=63, 19.4%), and Tier Four (n=12, 14.8%) institutions who reported costs as not factoring into their ultimate college choice. Similarly, students attending Tier Four institutions indicated costs to be very important at nearly three times the rate (n=36, 44.4%) of students attending Tier One institutions (n=834, 15.6%).

Table 4.9 – Importance of College Costs by Tier of Institution

College Costs	Tier			
	1	2	3	4
Not Important	3002	302	63	12
% of Tier	56.3%	26.3%	19.4%	14.8%
Somewhat Important	1438	472	128	33
% of Tier	27.0%	41.1%	39.5%	40.7%
Very Important	834	363	129	36
% of Tier	15.6%	31.6%	39.8%	44.4%
No Response	61	12	4	0
% of Tier	1.1%	1.0%	1.2%	0%
Total	5335	1149	324	81

Note: X^2 (6, N=6,812) = 549.261, p<.001

Similar to the results of student responses to the importance of college costs in their matriculation decisions, the responses regarding the importance of financial aid also demonstrate that students attending the lower-tiered institutions were much more conscious of financial aid awards than were students attending the highest-tiered institutions. A summary of the responses from high achieving students regarding the level of importance they placed on the financial aid when choosing to attend is provided in

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Table 4.10. Interestingly, Tier Three students placed the greatest emphasis on financial aid, with three out of every four students (n=246, 75.9%) indicating that offers of financial aid were very important in their matriculation decisions. Similar to the results regarding college costs, most students attending Tier One institutions (n=2,808, 52.6%) indicated that financial aid awards were not considered in selecting the college to attend.

Table 4.10 – Importance of Financial Aid by Tier of Institution

Financial Aid	Tier			
	1	2	3	4
Not Important	2808	217	17	8
% of Tier	52.6%	18.9%	5.3%	9.9%
Somewhat Important	917	318	56	30
% of Tier	17.2%	27.7%	17.3%	37.0%
Very Important	1543	601	246	43
% of Tier	28.9%	52.3%	75.9%	53.1%
No Response	67	13	5	0
% of Tier	1.3%	1.1%	1.5%	0%
Total	5335	1149	324	81

Note: X^2 (6, N=6,804) = 767.177, p<.001

Reputation and Prestige

When it comes to the importance of academic reputation to high achieving students when selecting a college, the results of this study support the existing research that asserts that academic reputation is the most important factor. A description of the responses from students regarding the level of importance placed on academic reputation

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may be found in Table 4.11. The majority of students in all tier groups indicated that the academic reputation of students' college of choice was a very important factor in their decision to attend, although there are observable differences between tier groups. Students enrolled at the higher-tiered institutions were most likely to rate academic reputation as very important, with 86.9% (n=4,638) of Tier One students and 73.4% (n=843) of Tier Two students responding accordingly. The proportion of students who considered academic reputation as very important then drops to 53.7% (n=174) of Tier Three students and 55.6% (n=45) of students attending a Tier Four institution. Virtually none (less than 1%) of the students at Tier One universities responded that academic reputation was not at all important in their college choice decision.

Table 4.11 – Importance of Academic Reputation by Tier of Institution

Academic Reputation	Tier			
	1	2	3	4
Not Important	42	19	13	6
% of Tier	0.8%	1.7%	4.0%	7.4%
Somewhat Important	614	277	135	30
% of Tier	11.5%	24.1%	41.7%	37.0%
Very Important	4638	843	174	45
% of Tier	86.9%	73.4%	53.7%	55.6%
No Response	41	10	2	0
% of Tier	0.8%	0.9%	0.6%	0%
Total	5335	1149	324	81

Note: X^2 (6, N=6,836) = 401.892, p<.001

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In addition to gathering information regarding academic reputation, the research also collected student responses to the importance of media rankings in their matriculation decisions. A summary of the responses is contained in Table 4.12. The greatest degree of importance on media rankings was indicated by the students enrolled at Tier One institutions, with over 80% (n=4,297) of respondents in that group responding that media rankings were at least somewhat important in their decision to enroll at the particular university. Students in the lower-tiered groups indicated the least interest and placement of importance on the media's ranking of postsecondary institutions, with two-thirds (n=53, 66.3%) of students attending Tier Four institutions indicating that these rankings were not at all important.

Table 4.12 – Importance of Media Rankings by Tier of Institution

Media Rankings	Tier			
	1	2	3	4
Not Important	979	422	183	53
% of Tier	18.6%	37.2%	57.2%	66.3%
Somewhat Important	2420	527	108	21
% of Tier	45.9%	46.5%	33.8%	26.3%
Very Important	1877	185	29	6
% of Tier	35.6%	16.3%	9.1%	7.5%
No Response	59	15	4	1
% of Tier	1.1%	1.3%	1.2%	1.2%
Total	5335	1149	324	81

Note: X^2 (6, N=6,810) = 549.593, p<.001

Influence of Others

Following student and family characteristics and institutional characteristics, the influence of others was explored as a factor affecting the college choices of high achieving students. There are four groups of "others" that were investigated, including parents, relatives, teachers, and counselors. The descriptive data in Table 4.13 demonstrate smaller differences among the tier groups than with other independent variables that have been discussed, with anywhere from 31% to 40% of the students in each tier group indicating that the influence of their parents was very important in their college decision.

Table 4.13 – Importance of Parental Influence by Tier of Institution

Parental Influence	Tier			
	1	2	3	4
Not Important	1459	286	75	13
% of Tier	27.4%	24.9%	23.2%	16.1%
Somewhat Important	2104	470	145	34
% of Tier	39.4%	40.9%	44.8%	42.0%
Very Important	1730	388	103	33
% of Tier	32.4%	33.8%	31.8%	40.7%
No Response	42	5	1	1
% of Tier	0.8%	0.4%	0.3%	1.2%
Total	5335	1149	324	81

Note: X^2 (6, N=6,840) = 11.981, p=.062

The descriptive data contained in Table 4.14 convey the responses from students regarding the importance of the influence of relatives in their decision to attend their college of first choice. A comparison of the responses among tier groups indicates less variance on this variable than for most of the other variables in this study. No more than 6% of students within any of the tier groups indicated that the influence of relatives was very important, while approximately two-thirds of students within any given tier group responded that the influence of relatives was not a factor that influence their choice of which college to attend.

Table 4.14 – Importance of Relative Influence by Tier of Institution

Relative Influence	Tier			
	1	2	3	4
Not Important	3373	787	210	55
% of Tier	63.2%	68.5%	64.8%	67.9%
Somewhat Important	1593	312	95	22
% of Tier	29.9%	27.2%	29.3%	27.2%
Very Important	318	37	17	3
% of Tier	6.0%	3.2%	5.3%	3.7%
No Response	51	13	2	1
% of Tier	1.0%	1.1%	0.6%	1.2%
Total	5335	1149	324	81

Note: X^2 (6, N=6,822) = 20.319, p=.002

The influence of teachers and counselors, according to the high achieving students in the sample, appears to be no more important than the influence of relatives. Tables 4.15 and 4.16 summarize the students' responses to the importance of teachers and

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counselors respectively in their matriculation decisions. No more than 5% of the respondents considered the influence of teachers to be very important; and no more than 7% indicated similar levels of importance for counselors. Although the majority of students in all tier groups responded that the influence of teachers and counselors was not important in their college enrollment decisions, the highest proportion of students indicating such sentiments for both "other" came from the students at Tier Four institutions. Students attending Tier One institutions, on the other hand, responded slightly more frequently than the students in other tier groups that the influence of counselors and teachers were somewhat or very important in their college choice process.

Table 4.15 – Importance of Teacher Influence by Tier of Institution

	Tier			
Teacher Influence	1	2	3	4
Not Important	3509	859	254	65
% of Tier	65.8%	74.8%	78.4%	80.3%
Somewhat Important	1507	257	63	15
% of Tier	28.3%	22.4%	19.4%	18.5%
Very Important	258	20	4	0
% of Tier	4.8%	1.7%	1.2%	0%
No Response	61	13	3	1
% of Tier	1.1%	1.1%	0.9%	1.2%
Total	5335	1149	324	81

Note: X^2 (6, N=6,811) = 72.264, p<.001

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Table 4.16 – Importance of Counselor Influence by Tier of Institution

Counselor Influence	Tier			
	1	2	3	4
Not Important	3394	839	222	68
% of Tier	63.6%	73.0%	68.5%	84.0%
Somewhat Important	1524	255	85	9
% of Tier	28.6%	22.2%	26.2%	11.1%
Very Important	350	40	12	3
% of Tier	6.7%	3.5%	3.7%	3.7%
No Response	67	15	5	1
% of Tier	1.3%	1.3%	1.5%	1.2%
Total	5335	1149	324	81

Note: X^2 (6, N=6,801) = 58.195, p<.001

Correlations for Independent Variables

A review of the correlation coefficients of the variables indicates that there are numerous relationships that are significant at the 0.01 level. One will note that there are correlation coefficients as small as 0.031 that are marked as statistically significant. The large sample size used for this study (n=6,889) produced many statistically significant correlations that account for so little variance that they are of little practical use. Table 4.17 exhibits the correlation coefficients for all variables examined in the study.

There were only two independent variables that did not show a statistically significant relationship with the dependent variable of tier group, namely gender (r=-.003) and influence of a parent (r=.029). Of all of the dependent variables, the institutional characteristics of financial aid (r=.304), rankings (r=-.268), costs (r=.266),

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and academic reputation (*r*=-.234) were most strongly correlated with tier group. These results indicate a significant relationship between students who responded that college costs and financial aid awards were very important and their attendance at a lower-tiered (i.e. Tier Three or Four) university. Conversely, the correlation coefficients indicate a significant relationship between students who responded that an institution's academic reputation and placement in the rankings were very important and their attendance at a higher-tiered (i.e. Tier One or Two) university.

Student and Family Characteristics

Gender was found to have significant relationships with three of the independent variables. The negative correlation (*r*=-.104) implies a significant relationship between being male and responding affirmatively of the likelihood of having to work to pay for college. In addition, as it relates to their matriculation decision of high achieving students, a significant relationship was found between being male and the importance placed on the influence of parents (*r*=-.046) and the influence of teachers (*r*=-.035).

The results indicated several statistically significant relationships between parents' education level and other independent variables. Father's education level was found to be positively related to Asian ethnicity (*r*=.103) but negatively related to Hispanic ethnicity (*r*=-.074). In other words, there is a significant relationship between being Asian and having a father with a relatively high level of education; and there is a significant relationship between being Hispanic and having a father with a relatively low level of education. No significant relationship was found between Asian ethnicity and

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mother's level of education, but, similar to the fathers, there was a negative relationship between Hispanic ethnicity and mother's education level (r=-.047).

Not surprisingly, the education level for both fathers and mothers showed strong positive correlations with family income (FatherEd=.389; MotherEd= .295), which validates the notion that higher education levels yield higher income levels. The correlation coefficient matrix further indicates other statistically significant relationships involving family income. In addition, family income was found to be positively related to the importance of an institution's academic reputation (r=.067) and placement in media rankings (r=.109), as well as with the influence of parents (r=.049) and relatives (r=.049)

There is a significant negative, albeit weak, relationship between family income and the ethnic categories of Black (r=-.045), Asian (r=-.069), and Hispanic (r=-.044), which indicates that identification with any of those three ethnic groups is negatively related to income. Family income was also found to be negatively related to the chances that students would have to work to pay for college (r=-.303); and the importance of college costs (r=-.264) and financial aid (r=-.457) in the choice of where to enroll. No relationship of significance was found between family income and gender (r=.013), ethnicity other than white, Black, Asian, or Hispanic (r=-.010), or the influence of teachers (r=-.011) or counselors (r=.014).

Table 4.17 - Matrix of Correlation Coefficients

	Variable	1	2	3	4	5	6	7	8	9
1	Tier	1.00								
2	Gender	-.003	1.00							
3	EthBlack	-.038**	-.016	1.00						
4	EthAsian	-.136**	-.034**	-.017	1.00					
5	EthHisp	-.047**	-.005	.043**	-.045**	1.00				
6	EthOther	-.047**	-.003	.080**	-.022	.033**	1.00			
7	FatherEd	-.204**	-.003	-.008	.103**	-.074**	.029*	1.00		
8	MotherEd	-.164**	-.009	.004	.014	-.047**	.014	.460**	1.00	
9	Income	-.187**	.013	-.045**	-.069**	-.044**	-.010	.389**	.295**	1.00
10	Employ	.031**	-.104**	.018	-.006	.023	-.017	-.157**	-.106**	-.303**
11	Costs	.266**	-.020	.027*	.012	-.003	-.009	-.146**	-.115**	-.264**
12	FinAid	.304**	-.008	.048**	-.031**	.041**	.007	-.260**	-.204**	-.457**
13	AcadRep	-.234**	-.024*	-.022	-.026*	.005	-.011	.037**	.030*	.067**
14	Rankings	-.268**	-.005	.012	-.026*	.020	.025*	.069**	.033**	.109**
15	InfParent	.029*	-.046**	-.005	.049**	-.022	-.024	.049**	.016	.049**
16	InfRel	-.038**	-.016	.014	.047**	.002	.024*	.056**	.039**	.049**
17	InfTeach	-.099**	-.035**	.001	.041**	.022	.021	-.017	-.017	-.011
18	InfCouns	-.079**	.019	.003	.022	.031*	-.020	-.010	-.013	.014

* Correlation is significant at the 0.05 level
** Correlation is significant at the 0.01 level

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Table 4.17 - Matrix of Correlation Coefficients (cont.)

	Variable	10	11	12	13	14	15	16	17	18
1	Tier									
2	Gender									
3	EthBlack									
4	EthAsian									
5	EthHisp									
6	EthOther									
7	FatherEd									
8	MotherEd									
9	Income									
10	Employ	1.00								
11	Costs	.116**	1.00							
12	FinAid	.209**	.493**	1.00						
13	AcadRep	.027*	-.048**	-.050**	1.00					
14	Rankings	-.028*	-.038**	-.088**	.292**	1.00				
15	InfParent	.004	.044**	.003	.058**	.100**	1.00			
16	InfRel	-.043**	.044**	-.012	.066**	.121**	.316**	1.00		
17	InfTeach	.007	.054**	.047**	.078**	.110**	.125**	.311**	1.00	
18	InfCouns	-.026*	.100**	.064**	.060**	.119**	.118**	.168**	.459**	1.00

* Correlation is significant at the 0.05 level
** Correlation is significant at the 0.01 level

Institutional Characteristics

The importance of cost of attending the institution of choice was found to be positively correlated with the following variables: the likelihood that the student will need to work to pay for school (r=.116), and the influences of parents (r=.044), relatives (r=.044), teachers (r=.054), and counselors (r=.100). The importance of cost of attending the institution of choice was found to be negatively correlated with the following variables: the education level of fathers (r=-.146), the education level of mothers (r=-.115), family income (r=-.264), the importance of academic reputation (r=-.048), and the importance of media rankings (r=-.038). No statistically significant relationship was found between the costs of attendance and ethnicity.

The directional relationships for the importance of financial aid are generally reflective of those relationships involving the importance of cost of attendance, as the relationship between the two responses was very positive (r=.493). One exception to this observation has to do with the two variables' relationships with ethnicity. Although no statistically significant relationship was found between the costs of attendance and ethnicity, there were significant positive correlations reported between the importance of financial aid and the ethnic groups of Black (r=.048) and Hispanic (r=.041). However, there was a negative relationship between the importance of financial aid and being Asian. Another exception to the similarity in correlation coefficients for costs and financial aid has to do with their relationship with the importance of the influences of others. There was no relationship between the importance of financial aid and the importance of the influences of parents (r=.003) and relatives (r=-.012), although

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significant positive relationships were found between those two variables and the cost of college.

There was a significant positive correlation between the importance of academic reputation and the importance of media rankings (r=.292). Therefore, as one might expect, the relationships between the two variables and other variables in this study have many similarities. One exception to this has to do with the variable of Asian ethnicity. Although no statistically significant relationship (at the p=.01 level) was found between being Asian and the importance of academic reputation, Asian ethnicity holds a significant positive relationship with the importance of media rankings (r=.095). Except for the Asian ethnic group, no relationship was found between ethnicity and academic reputation or ethnicity and media rankings.

Influence of Others

Male students were more likely than female students to indicate a high level of importance place on the influence of others in their decision of which college to attend. Although no significant relationships were found for females, male students indicated a statistically significant level of importance placed on the influence of parents (r=-.046) and the influence of teachers (r=-.035). Except for the Asian ethnic group, no relationship was found between ethnicity and the influence of others. However, significant positive relationships were found between Asian identification and the influence of parents (r=.049), the influence of relatives (r=.047), and the influence of teachers (r=.041).

The importance of the influence of parents was found to be positively correlated

with the following independent variables: father's education ($r=.049$), family income ($r=.049$), the importance of institutional costs ($r=.044$), the importance of academic reputation ($r=.058$), and the importance of media rankings ($r=.100$). There was no relationship between the influence of parents and mother's education ($r=.016$) or the importance of financial aid ($r=.003$).

The importance of the influence of relatives was found to be positively correlated with the following independent variables: father's education ($r=.056$), mother's education ($r=.039$), family income ($r=.049$), the importance of institutional costs ($r=.044$), the importance of academic reputation ($r=.066$), and the importance of media rankings ($r=.121$). There was a negative relationship between the influence of relatives and the likelihood of student employment ($r=-.043$).

Neither the variable of the influence of teachers nor the variable of the influence of counselors held a significant relationship with the education levels of fathers or mothers, family income, or the likelihood of student employment. The importance of the influence of teachers was found to be positively correlated with the following independent variables: the importance of institutional costs ($r=.054$), the importance of financial aid ($r=.047$), the importance of academic reputation ($r=.058$), and the importance of media rankings ($r=.100$). Similarly, the importance of the influence of counselors was found to be positively correlated with the following independent variables: the importance of institutional costs ($r=.100$), the importance of financial aid ($r=.064$), the importance of academic reputation ($r=.060$), and the importance of media rankings ($r=.119$).

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Multiple Regression Analysis

All 17 of the independent variables within the broader groups of student and family characteristics, institutional characteristics, and influence of others, were regressed on the dependent variable of institutional tier group. The results of the regression associating tier of first choice university for high achieving students from the predictor variables related to student and family characteristics, institutional characteristics, and the influence of others, is presented in Table 4.18. The sample for the regression analysis consisted of 6,889 high achieving students who scored in the top 10% of SAT test-takers, or the equivalent ACT result, and graduated from high school with an A average.

Variables were included into the stepwise regression equation in order of the proportion of variance added by the variable. Betas for variables that are in the model, as well as those variables that did not enter the equation, were examined as each new variable entered the equation. Fourteen variables entered the equation, including ethnicity (4 variables), father's education, mother's education, student employment, institutional costs, financial aid, academic reputation, media rankings, parental influence, teacher influence, and counselor influence. All fourteen variables in the model were significant predictors at the p<.001 level.

Three variables did not enter the regression equation, namely gender, family income, and influence of a relative. The obtained R^2 value was .245, suggesting that nearly 25% of the variability in tier level was accountable by the set of independent variables. The adjusted R^2 value was .243. Cohen's (1992) effect size was computed to be 32, which can be interpreted as a large effect using Cohen's guidelines, where .02=small, .15=medium, and .35=large.

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Table 4.18 – Unstandardized Regression Coefficients for Models

			Unstandardized Regression Coefficient (*b*) at Step:													
Model	Variable	Constant (α)	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	FinAid	1.110	.210	.195	.192	.140	.137	.119	.121	.121	.123	.119	.120	.121	.126	.127
2	Rankings	1.341		-.204	-.165	-.167	-.157	-.153	-.147	-.152	-.150	-.150	-.149	-.146	-.146	-.145
3	AcadRep	1.747			-.244	-.238	-.248	-.245	-.238	-.241	-.242	-.241	-.243	-.243	-.239	-.241
4	Costs	1.700				.120	.124	.121	.124	.121	.119	.119	.119	.122	.123	.122
5	EthAsian	1.735					-.225	-.207	-.202	-.205	-.210	-.215	-.217	-.217	-.216	-.218
6	FatherEd	1.887						-.051	-.052	-.053	-.055	-.042	-.042	-.042	-.044	-.043
7	InfTeach	1.896							-.091	-.099	-.097	-.097	-.097	-.072	-.071	-.070
8	InfParent	1.856								.056	.055	.055	.055	.057	.057	.057
9	EthHisp	1.858									-.201	-.203	-.197	-.193	-.193	-.189
10	MotherEd	1.914										-.032	-.032	-.032	-.032	-.032
11	EthBlack	1.917											-.293	-.292	-.291	-.275
12	InfCouns	1.920												-.054	-.057	-.058
13	EthOther	1.957													-.034	-.034
14	Employ	1.961														-.179

Note: All statistics are significant at p<.001

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The unstandardized regression coefficient (*b*) may be defined as the expected change in the dependent variable (*Y*) associated with a unit change in the independent variable (*X*), as demonstrated in the following simple linear equation:

$$Y = \alpha + bX + e$$

where *Y* equals the raw score on the dependent variable (i.e. tier level); α equals the intercept, or constant; *b* equals the regression coefficient; *X* equals the raw score on the independent variable; and *e* equals the error, or residual. For the model in this study, the standard error was .531, which indicates that predictions of tier level of institution tended to be off by about one half of a level.

To get a further sense of the contribution of each independent variable to the prediction of tier level of institution attended, standardized regression coefficients were calculated. If the scores for the dependent (*Y*) and independent (*X*) variables were standardized to *z* scores, one would use a standardized regression coefficient (β). As in the case of *b*, β is interpreted as the expected change in *Y* associated with a unit change in *X*. Further, a unit change in *X*, when it has been standardized, refers to a change of one standard deviation in *X*. Standardized regression coefficients for each of the fourteen independent variables in the model are listed in Table 4.19. The regression coefficients for all fourteen variables in the model were found to be statistically significant at p<.001.

As demonstrated in Table 4.19, the importance of financial aid uniquely accounted for the largest proportion of variability in the model. The R^2 for this variable was .092, which indicates that 9% of the variability of institutional tier level can be attributed to the importance of financial aid. As the entire model of 14 variables had an

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Table 4.19 - Standardized Regression Coefficients for Models

				Standardized Regression Coefficient (β) at Step:														
Model	Variable	Model R²	R2 Change	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	FinAid	.092	.092	.304	.282	.278	.205	.199	.172	.176	.175	.178	.173	.175	.176	.177	.183
2	Rankings	.148	.056		-.239	-.189	-.192	-.179	-.175	-.167	-.172	-.170	-.170	-.168	-.165	-.164	-.164
3	AcadRep	.176	.028			-.174	-.169	-.175	-.173	-.169	-.170	-.171	-.170	-.172	-.171	-.172	-.170
4	Costs	.193	.017				.150	.154	.151	.154	.151	.149	.148	.149	.152	.152	.153
5	EthAsian	.207	.014					-.119	-.109	-.106	-.108	-.111	-.113	-.114	-.115	-.116	-.115
6	FatherEd	.218	.011						-.111	-.113	-.116	-.120	-.095	-.095	-.095	-.093	-.097
7	InfTeach	.225	.007							-.085	-.092	-.091	-.091	-.090	-.068	-.066	-.066
8	InfParent	.229	.005								.068	.067	.067	.067	.070	.069	.069
9	EthHisp	.233	.004									-.062	-.063	-.061	-.060	-.058	-.058
10	MotherEd	.236	.003										-.058	-.057	-.057	-.058	-.058
11	EthBlack	.238	.003											-.051	-.051	-.048	-.047
12	InfCouns	.240	.002												-.052	-.054	-.056
13	EthOther	.241	.001													-.038	-.039
14	Employ	.243	.001														-.040

Note: All statistics are significant at p<.001

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R^2 of .243, the importance of financial aid uniquely accounted for over one-third of the variability for the entire model.

Further, the four variables with the largest changes in R^2 to the model make up nearly 80% of the total variance of the model in predicting tier level of institution. Specifically, over 19% of the variance (R^2=.193) in tier level of first choice institution was accountable by the four variables related to institutional characteristics, namely the importance of financial aid (R^2 change=.092), the importance of media rankings (R^2 change=.056), the importance of academic reputation (R^2 change=.028), and the importance of costs (R^2 change=.017). Ten additional variables were added to the model based on the statistical significance of the F scores; however, those ten variables accounted for only 5% of the variance of the outcome variable, namely tier level of first choice institution.

Summary

The scope of this study was limited to public and private national research universities as identified by *USNWR*. The sample was drawn from the 97 universities which administered the survey CIRP Freshman Survey in 2004, as listed in Appendix C. To provide some initial understanding of the differences between high achieving students enrolled at each of the four tiers of national universities, results were reported in three ways, including (1) frequencies and descriptive statistics, (2) a correlation matrix, and (3) multiple regression models.

As expected, due to the large proportion of participating Tier One institutions, there was a large disparity in the number of eligible respondents among tier groups. The

resulting dataset for the study included responses from 6,889 students. Seventy-seven percent (n=5,335) of the respondents were from Tier One institutions, compared to 16.7% (n=1,149) from Tier Two, 4.7% (n=324) from Tier Three, and 1.2% (n=81) from Tier Four institutions. Although the gender representation for the sample resembled what the researcher expected, the ethic diversity of the sample in the current study was less than optimal. The sample of respondents was overwhelmingly comprised of white students (n=5571, 80.9%).

All 17 of the independent variables within the broader groups of student and family characteristics, institutional characteristics, and influence of others, were regressed on the dependent variable of institutional tier group. Variables were included into the stepwise regression equation in order of the proportion of variance added by the variable. Fourteen variables entered the equation, including ethnicity (4 variables), father's education, mother's education, student employment, institutional costs, financial aid, academic reputation, media rankings, parental influence, teacher influence, and counselor influence. Three variables did not enter the regression equation, namely gender, family income, and influence of a relative. The importance of financial aid accounted for the largest proportion of variability in the model. Further, over 19% of the variance (R^2=.193) in tier level of first choice institution was accountable by the four variables related to institutional characteristics, namely the importance of financial aid, the importance of media rankings, the importance of academic reputation, and the importance of costs. Further analyses and discussion of the results are included in Chapter 5.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

This chapter discusses the major findings of this multivariate research study. Particular attention is given to the interpretation of research questions posed for the study and how the results relate to the college choice models examined in Chapter 2. Implications for future educational research and implications for policy and practice will be discussed. The chapter will close with concluding remarks from the researcher.

The first sections of this chapter address the results of the study as they relate to the review of the literature and specifically how they address the research questions that have guided this study:

1. To what extent do students' individual characteristics (e.g. gender and ethnicity) relate to college choice for high achieving students?

2. To what extent do students' family characteristics (e.g. parents' education level and family income) relate to college choice for high achieving students?

3. To what extent do financial considerations associated with college (e.g. cost and financial aid) relate to college choice for high achieving students?

4. To what extent does academic reputation of the institution relate to college choice for high achieving students?

5. To what extent does the influence of significant others (e.g. parents, relatives, teachers, and counselors) relate to college choice for high achieving students?

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Relationship between Individual and Family Characteristics and College Choice

The first research objective was to explore the relationship between students' individual characteristics (e.g. gender and ethnicity) and college choice for high achieving students, as follows:

Research Question #1: To what extent do students' individual characteristics (e.g. gender and ethnicity) relate to college choice for high achieving students?

When considering the relationship between the individual characteristics of students and college choice, the literature supports the notion that race, gender and social class have a strong relationship with educational attainment. Although gender was not identified as a statistically significant factor for the regression model, differences in gender representation were observed in the frequency distribution (see Table 4.2). The greatest differences observed were in Tier Two institutions, with 25% more males (n=638) than females (n=511), and in Tier Four institutions, with 31% more females (n=46) than males (n=35). The results of frequency distribution are in line with McDonough's (1997) findings that, regardless of academic ability and achievements, women are less likely to attend highly selective institutions.

Prior research suggests that African-American students tend to enroll in less selective institution and that Hispanic students have demonstrated lower educational aspirations than African-American students (Mau, 1995). In addition, African-American and Hispanic students have been found to be more sensitive than their white peers to the costs of higher education, and, therefore, are more responsive to grants and scholarships (Johnson, Stewart & Eberly, 1991; Hoyt & Brown, 2003). With the exception of Hispanic

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females, the literature indicates that females have stronger academic goals than males; although Asian American males have been found to possess significantly higher college aspirations than females and all other ethnic male groups (Mau, 1995).

The strikingly low representation of Black and Hispanic students in the sample for the current study made it difficult to draw strong relationships between a student's identification as Black or Hispanic and attendance at a selective institution. Frequency distributions displayed in Table 4.3 show low representation of students from these two ethnic groups across all four tiers, with no Black students represented in the sample for Tier Four institutions. However, both factors were statistically significant when regressed against the outcome variable of tier institution and, therefore, were included in the final regression model.

Compared with the lower-tiered institutions the Tier One institutions received responses from a noticeably higher percentage of Asian students. Nearly 15% (n=797) of the respondents from Tier One institutions identified themselves as Asian, compared to 3.2% (n=37) from Tier Two, 3.1% (n=10) from Tier Three, and 2.5% (n=2) from Tier Four institutions. Except for the Asian ethnic group, no relationship was found between ethnicity and the influence of others. However, significant positive relationships were found between Asian identification and the influence of parents (r=.049), the influence of relatives (r=.047), and the influence of teachers (r=.041).

The second research question related to the relationship between family characteristics and college choice for high achieving students, as follows:

Research Question #2: To what extent do students' family characteristics (e.g. parents' education level and family income) relate to college choice for high achieving students?

Socioeconomic status is a common factor that researchers have identified to segment students in college choice studies. A number of research studies have supported the premise that students from high socioeconomic backgrounds and students who are academically talented are more likely to attend elite institutions (Brewer, et al., 1999; Hearn, 1987; Manski & Wise, 1983; Paulsen, 1990) and that low-income and first-generation students are comparatively disadvantaged against their more affluent peers when it comes to the variety of colleges from which they are able to choose (Kinzie, et al., 2004).

Consistent with other college choice research findings, the frequency distribution for the current study indicates an inverse relationship between income and tier level (see Table 4.4). That is, as the increments of family income increase, the tier level decreases. Students attending Tier Four institutions were twice as likely to report a family income of $100,000 or less than were students attending Tier One institutions; with more than one in five (22.2%) Tier Four students reporting a family income of $50,000 or less, compared with only one of every ten (10.3%) students at Tier One institutions. There is a similar disparity when examining the other end of the income spectrum. Students attending Tier One institutions reported a family income of over $150,000 at nearly twice the rate (33.5%) of Tier Two students (17.2%), three times the rate of Tier Three students (11.4%), and nearly seven times the rate of Tier Four students (4.9%).

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Previous research has found that first-generation students tend to receive less encouragement and support from their families than multi-generation students when it comes to college attendance (Arredondo, 1999). Students appear to have a higher likelihood of viewing college as realistic when their parents stress the importance of educational success (Ceja, 2004). Research findings are inconsistent when reporting on behaviors of first-generation students in the college application process. McDonough (1994) reported that, compared with students who are raised by college graduates, first-generation students are more likely to limit the number of institutions to which they apply and to apply to nonselective institutions. However, a study of college-bound high school students in New Hampshire revealed no significant differences in the type or quality of college under consideration between students whose parents possessed postsecondary degrees and those whose parents had not completed a college education (Toutkoushian, 2001). In fact, first generation students were found to be equally likely as those with college-educated parents to consider attending a selective school.

As expected from the sample data for the current study, students attending Tier One institutions reported the highest levels of education for their parents, with over half of respondents (55.3%) reporting that their fathers possessed a graduate degree and nearly 38% reporting graduate degree attainment for their mothers (see Table 4.7). Further, the fathers of Tier One students were least likely to lack any college experience. Less than 6% of fathers of students attending Tier One institutions lacked a college education; however, the percentage rises to more than 11% for fathers of students in Tiers 2, 3, and 4. Contrary to the results for the fathers, the mothers of Tier Four students were

least likely to lack a college education. For both fathers and mothers, Tier Three students had the highest percentage of parents with no college education.

An examination of the correlation coefficient matrix (see Table 4.17) indicates several statistically significant relationships between parents' education level and other dependent variables. Not surprisingly, the education level for both fathers ($r=.389$) and mothers ($r=.295$) showed strong positive correlations with family income, which supports the notion that higher education levels yield higher income levels. Somewhat unexpected, however, was that the influence of parents in choosing a college was found to have a significant positive correlation with father's education level ($r=.049$) but not with mother's education level ($r=.016$).

Relationship between Institutional Characteristics and College Choice

The third research objective was to explore the relationship between the cost of college and the importance of financial aid awards and college choice for high achieving students, as follows:

Research Question #3: To what extent do financial considerations

associated with college (e.g. cost and financial aid) relate to college

choice for high achieving students?

The financial realities of a college education are likely to influence a student's choice of where to attend college; and much of the existing research supports the notion that students consider the trade-offs between current costs and future expectations of financial and non-financial benefits. As a strategy to recruit greater numbers of high achieving students, institutions may increase levels of educational spending per student.

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This is the case particularly at private institutions that can more easily raise tuition to address financial needs (Hoxby, 1997). Understanding that tuition increases may result in deterring the students they are trying to attract, many institutions accompany tuition increases with increased allocations for both need-based and merit-based financial aid. For high-ability students, assessing the best combination of multiple offers of financial assistance can be a daunting task, as they may qualify for both need-based and merit-based aid, both state-funded and privately-funded scholarships, federal work-study programs, and aid packages from each of the colleges in which they are interested.

The current study investigated the extent that the costs of college and offers of financial aid influenced the tier level of attendance for high achieving students. Regardless of tier group, the majority of students in the sample among all tier groups indicated that there was at least some chance that they would need to seek employment to help pay for college expenses, with students in Tier Four institutions indicating a stronger need than the students in other tier groups (see Table 4.4). Not surprisingly, there is a significant positive correlation between the need for student employment to pay for college and both the importance of college costs and the importance of financial aid. Only three (3.7%) of the 81 students enrolled at Tier Four institutions responded that there was little to no chance that they would need to get a job to pay for their education.

Compared with the other independent variables explored in this study, costs (r=.266) and financial aid (r=.304) were strongly correlated with tier group, both in a positive direction. These results would tend to support the claim that students who responded that college costs and financial aid awards were very important were likely to attend a lower-tiered (i.e. Tier Three or Four) university. As demonstrated in Table 4.19,

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the variable of *importance of financial aid* uniquely accounted for the largest proportion of variability in the model. Specifically, 9% of the variability of institutional tier level can be attributed to the importance of financial aid. As the entire model of 14 variables had an R^2 of .243, the importance of financial aid uniquely accounted for over one-third of the variability for the entire model. The variable of *importance of college costs* accounted for 1.7% of the variability in predicting tier group.

This study affirms the results of previous studies on college choice, but fills a gap in understanding the matriculation decisions of high achieving college-bound students. There is some agreement among scholars that, while the availability of financial aid is considered important by most college-bound students, the impact of cost and financial aid decrease as students' income level and academic ability increase and that this financial gap often discourages or prohibits low-income students from attending higher-tiered institutions, even when controlling for academic ability. The current study examined the responses only of students with high levels of academic ability and found the availability of financial aid to be the single most important factor in predicting whether students will attend a higher-tiered or lower-tiered university. The importance of financial aid accounted for over five times the variability of the importance of college costs. Therefore, although college costs were found to be a significant predictor of the tier level of university attended, it was of secondary importance compared with the attention to financial aid by high achieving students.

Students were more likely to view financial aid awards as a key matriculation factor if they were Black or Hispanic, had parents who possess relatively low levels of postsecondary education, and came from a relatively lower income family. These

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students were also likely to respond that the influence of a teacher or counselor was important in their choice of college. On the other hand, they were less likely to belong to an Asian ethnic group or to view the academic reputation or media rankings for the school as important in their decision to attend.

The fourth research question went to the heart of the study to explore the importance of academic reputation to high achieving students and whether differences exist among students who attend higher-tiered versus lower-tiered universities, as follows:

Research Question #4: To what extent does academic reputation of the institution relate to college choice for high achieving students?

Access to college and university information through mass media has had a noticeable impact on the manner in which application and admissions processes are approached. Not only are institutions concerned about the number of students they can enroll, but they are particularly interested in high achieving students due to the enhancements that these students can contribute to an institution's reputation. Recruitment of the best and brightest students is critical for positive development of an institution's academic reputation. Moreover, universities pay attention to their placement in the rankings because rankings and prestige are important to academically attractive students who want to attend prestigious institutions. There is some consensus among researchers that institutional prestige and academic reputation are of primary importance to high ability students when choosing a college. However, the literature in this area offers little guidance to enrollment management professionals at lower-tiered universities

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as to the factors that persuade some high achieving students to attend lower-tiered universities.

The results of this study support the existing research that asserts that academic reputation is an important factor of matriculation for high achieving students. The majority of students in the sample, in all tier groups, indicated that academic reputation of the students' college of choice was a very important factor in their decision to attend, although there were noticeable differences between tier groups (see Table 4.11). Students enrolled at the higher-tiered institutions were most likely to rate academic reputation as very important, with 86.9% of Tier One students and 73.4% of Tier Two students responding accordingly. The proportion of students who considered academic reputation as very important then drops to 53.7% of Tier Three students and 55.6% of students attending a Tier Four institution. Virtually none (less than 1%) of the students at Tier One universities responded that academic reputation was not at all important in their college choice decision.

In addition to gathering information regarding academic reputation, the study also collected student responses to the importance of media rankings in their matriculation decisions. Although research exists on the importance of media rankings, little is known about the population of students which most heavily value such indices. Researchers that have studied the influence of media rankings on matriculation have concluded that students are most likely to find them important if they are of traditional college age, from middle income families, and are planning to attend a school outside of their region (Goenner and Snaith, 2004; Hossler and Foley, 1995).

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Four out of five students attending Tier One institutions responded that media rankings were at least somewhat important in their decision to enroll at the particular university (see Table 4.12). Students in the lower-tiered groups indicated the least interest and placement of importance on the media's ranking of postsecondary institutions, with two-thirds (66.3%) of students attending Tier Four institutions indicating that these rankings were not at all important. Similarly, according to the correlation coefficient matrix, there was a significant relationship between students who considered placement in the rankings to be very important and students who attended higher-tiered (i.e. Tier One or Two) universities. Also, it is worth noting that a significant relationship was revealed between Asian students and the importance of rankings. No significant relationship was identified for any other ethnic group.

Relationship of the Influence of Others to College Choice

Following student and family characteristics and institutional characteristics, the *influence of others* was explored as a factor affecting the college choices of high achieving students. There are four groups of "others" that were investigated in the current study, including parents, relatives, teachers, and counselors.

Research Question #5: To what extent does the influence of significant others (e.g. parents, relatives, teachers, and counselors) relate to college choice for high achieving students?

The choice of where to go to college is arguably one of the most important decisions of a young adult's life. For high school students considering a college career, guidance from trusted loved ones and respected role models is needed to think through all

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of the considerations. Prior studies have concluded that parental encouragement and expectations influence college aspirations in students, regardless of gender, ethnicity and socioeconomic backgrounds (Hossler and Stage, 1992), that parental influence is a significant predictor of student matriculation, and that students who attend prestigious universities are more likely to receive motivational messages from parents than from counselors, peers and other educational role models (Levine and Nidiffer, 1996). In addition to the strong influence from parents and relatives, some scholars have found that a number of students consider high school counselors and teachers to be an important source of information (Bradshaw, et al., 2001; Gonzalez, et al., 2003), particularly for students from lower SES backgrounds and whose parents had little formal education (MacAllum, et al., 2007).

Compared with the outcomes related to *student and family characteristics* and *institutional characteristics*, the frequency distribution for the current study reflects little variation among student responses in each of the four tier groups related to the importance of the *influence of others*. The frequency of students who indicated that the influence of their parents was very important in their college decision ranged from 31% to 40% among tier groups. No more than 6% of students within any of the tier groups indicated that the influence of relatives was very important, while approximately two-thirds of students within any given tier group responded that the influence of relatives was not a factor that influence their choice of which college to attend. The influence of teachers and counselors, according to the high achieving students in the sample, the influence of relatives seems to be minor (see Tables 4.15 and 4.16).

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When the four variables were regressed against the outcome variable of tier level, three of the variables were found to have a significant relationship and were therefore included in the model. The variables of *influence of teachers* (R^2=.007), *influence of parents* (R^2=.005), and *influence of counselors* (R^2=.002), collectively accounted for 1.4% of the variability in the model for predicting tier level of attended school for high achieving students. The variable of *influence of relatives* was not included in the model. A review of the standardized regression coefficients for the three variables in the model reflects inconsistencies in the direction with which the variables influence the outcome of institutional tier level. There is a negative relationship between the *influence of teachers* (β = -.066) and tier level and, similarly, a negative relationship between the *influence of counselors* (β = -.056) and institutional tier group. Conversely, the *influence of parents* (β = .069) has a positive relationship with institutional tier level.

These results indicate that those students who were most influenced by teachers and counselors tended to enroll at a higher-tiered university. This finding is inconsistent with previous research that linked the influence of teachers and counselors with students of low SES backgrounds and attendance at lower-tiered universities. For students whose parents have had little or no experience with postsecondary education, it is understandable that teachers and counselors would become a replacement advocate and role model for higher education. In addition, these professionals may help students navigate through the admission and enrollment process if parents lack the ability or willingness to take on those responsibilities.

Table 5.1 provides a summary of the results of the study, indicating the factors that were determined to possess significant relationships with the outcome variable for

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tier level. As observed from the table, the results from this study support prior research that found relationships between high achieving students and certain individual characteristics, family characteristics, institutional characteristics, and the influences of others. The purpose of this study was to identify differences among the students attending the higher-tiered universities and their peers who chose to attend a lower-tiered university. The strongest predictor of enrollment at a lower-tiered university was whether the student considered the availability of financial aid to be very important in choosing a college. The importance of financial aid was followed by the importance of costs of college. The final predictor was the influence of a parent.

Table 5.1 – Summary of Relationships between Independent and Dependent Variables

Variable	Higher-Tiered	Lower-Tiered
Student/Family Characteristics		
Gender	-	-
Ethnicity	Asian	-
Parents Education	High	Low
Income	High	Low
Institutional Characteristics		
Costs	-	Very important
Financial Aid	-	Very important
Academic Reputation	Very important	
Media Rankings	Very important	
Influence of Others		
Parents	-	Important
Relatives	-	-
Teachers	Important	-
Counselors	Important	-

Validation of the College Choice Model

The three-stage choice model developed by Hossler and Gallagher (1987) was the basis for this study. Hossler, et al. (1989) defined the college choice experience as a "complex, multi-stage process during which an individual develops aspirations to continue formal education beyond high school, followed later by a decision to attend a specific college, university or institution of advanced vocational training" (p. 234). Hossler and Gallagher's (1987) model outlines three stages of the college choice process:

1. Predisposition: students' decisions/aspirations to enroll in postsecondary education.

2. Search: the process of considering types of institutions to which to apply.

3. Choice: the selection of an institution to attend.

The first stage of predisposition is defined as the phase in which students decide whether or not to pursue formal education after high school. Factors that have been found to predispose students toward college include socioeconomic status, students' academic achievement, parents' education levels, ethnicity, gender, encouragement from high school counselors and teachers, and parental expectations and encouragement (Hossler & Stage, 1992). During the search stage, students engage in accessing information on specific colleges in order to further examine the opportunities and benefits. It is within this phase that students are most likely to consider external and institutional information sources. Factors that may be considered by students at this second phase include cost of attendance, availability and offers of financial assistance, and academic reputation. The third stage of college choice is the application of the predisposition factors combined with the information gathered during the search phase (Hossler & Gallagher, 1987).

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This study examined how differences among high achieving students in each of the first two stages may impact the level of prestige, measured by the *USNWR*-assigned tier, of the college of first choice. The design of the study included predisposition-related factors of student and family characteristics (gender, ethnicity, parents' education levels, and family income) and the influence of others (parents, relatives, teachers, and counselors). Search-related factors considered for this study were grouped as institutional characteristics (costs, financial aid, and academic reputation).

Results of the current study indicate that for high achieving students the second stage in the model tends to be a better predictor than the first stage in predicting the outcome of college choice. The four variables associated with institutional characteristics were found, through both correlation and regression analyses, to be more significant predictors of college choice than any of the other variables that were included as part of this study. Specifically, over 19% of the variance (R^2=.193) in tier level of first choice institution was accountable by the four variables related to institutional characteristics, namely the importance of financial aid (R^2 change=.092), the importance of media rankings (R^2 change=.056), the importance of academic reputation (R^2 change=.028), and the importance of costs (R^2 change=.017). This finding is significant as Hossler and Gallagher's (1987) model has not been applied specifically to the matriculation phenomenon for high achieving students interested in attending national research universities.

Implications for Future Research

Prior to this study, the specific scope of factors related to the tier level of college of first choice for high achieving students were unknown and unmeasured. The CIRP 2004 Freshman Survey, the survey instrument used for this study, provided the source of secondary data to address factors related to student and family characteristics, institutional characteristics, and the influence of others. While the factors selected for inclusion in this study were grounded in the literature, there are other factors that likely contribute to the outcome of college choice that were not possible to include, as not all factors of interest were captured by the CIRP.

This researcher does not necessarily recommend that changes be made to the Freshman Survey to include an endless array of college choice factors. Rather, it is suggested that future research related to the relationship between the college choices of high achieving students and student and family characteristics, institutional characteristics, and the influence of others, not rely solely on the data which can be provided by the Freshman Survey to answer these research questions. The CIRP Freshman Survey has been an effective tool for providing useful information for researchers interested in the factors related to matriculation; however, the 2004 survey did not provide any way to capture data related to the importance of college athletic programs or the influence of peers. The literature suggests that these two factors, among others, may assist in the explanation of the relationship between college choice and institutional characteristics and the influence of others.

The CIRP Freshman Survey gathers some intriguing information that was not related to the scope of the present study. Further investigation into some of these factors

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is recommended. A complete copy of the 2004 Freshman Survey may be found in Appendix A. Some examples of survey questions that may lend themselves to future research include:

1. What is the highest academic degree that you intend to obtain?

2. For the activities below, indicate which ones you did during the past year. (Response choices include but are not limited to: attended a religious service; was bored in class; participated in organized demonstrations; smoked cigarettes; drank beer; felt overwhelmed by all I had to do; felt depressed; and performed volunteer work.)

3. Rate yourself on each of the following traits as compared with the average person your age. (Response choices include but are not limited to: academic ability; artistic ability; compassion; courage; drive to achieve; generosity; and time management).

4. During your last year in high school, how much time did you spend during a typical week doing the following activities? (Response choices include but are not limited to: studying/homework; socializing with friends; talking with teachers outside of class; exercise or sports; and partying.)

5. Please indicate the importance to you personally of each of the following. (Response choices include but are not limited to: becoming an authority in my field; influencing the political structure; raising a family; being very well off financially; helping to promote racial understanding; and working to find a cure to a health problem.)

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The questions summarized above hold potential to address research questions which are related to other theoretical constructs outside the scope of this study. However, researchers who are interested in other aspects of college choice behaviors may find the CIRP data useful.

Future research should build upon the investigation of the factors that influence specific institutional enrollment decisions of academically talented students. One possibility is to explore behavioral and personality characteristics of these bright students in relation to their choice of college. It would also be interesting to build a study that investigates self-perceptions of high achieving students, and how those self-perceptions impact their matriculation decisions.

Implications for Practice

The phenomenon of choosing a college continues to attract the attention of scholars. Consequently, the results of college choice studies are of particular interest to college and university administrators tasked with shaping the profile of their entering freshman classes. There is pressure on public institutions in particular to maintain broad access policies; but these pressures are often in conflict with some colleges' and universities' desires to restrict access to high-achieving students in order to improve academic reputation and rankings. Because of the attention given to academic reputation, the recruitment of high achieving students continues to be a challenge for national universities that consistently find themselves in the third or fourth tier according to the rankings of *USNWR's* annual edition of *Best Colleges*.

The existing literature on the subject of college choice and high achieving students demonstrates that high achieving students differ from the general student population as far as the manner in which they approach the college choice process and the factors that are most important to them (Bradshaw, Espinosa & Hausman, 2001). There is also some agreement within the literature on college choice that the criterion that typically grabs the top spot is college quality (Chapman & Jackson, 1987). The literature has been limited in providing a broad and comprehensive understanding of the college choice decisions of high-ability students who choose to attend lower-tiered institutions. The present study addressed these gaps within the literature. The results of this study should be of particular interest to lower-tiered universities.

Because student selectivity is one of the few indicators considered among the ranking criteria over which institutions have some amount of control, the universities that have made prestige a priority have made strategic changes to their admissions criteria. Some colleges and universities have adjusted and improved their recruitment and enrollment procedures by incorporating strategies related to financial aid and early admission. Public universities, which historically have a reputation for access and open admission, are now turning away a larger and larger proportion of their applicants in the name of increased quality.

The results of this study should bring encouragement to enrollment management professionals at lower-tiered universities, as the strongest predictors of college choice are factors within the control of the institutions. The four institutional variables of financial aid awards, media rankings, academic reputation, and college costs, were respectively found to account for the strongest levels of variability within the regression model.

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Although ten other variables associated with student characteristics, family characteristics, and the influence of others were significant enough to enter the model, the four variables associated with institutional characteristics rose to the top. The implication of this finding is that colleges and universities may attract more high achieving students if they can offer attractive financial aid packages and keep the costs of attendance competitive with other national research universities. A final strategy would be to increase outreach efforts to high school counselors and teachers, as they may serve as an advocate for the institution.

Limitations

Although the results of this study have shed some light on the differences among high achieving students who choose to attend colleges categorized in various tier levels, there are some limitations of the study that should be acknowledged when interpreting the data and drawing conclusions with the findings.

First, the disparity of the number of cases per tier group limits the extent to which conclusions can be drawn. As expected, due to the large proportion of participating Tier One institutions in the 2004 Freshman Survey, there was a large disparity in the number of eligible respondents among tier groups. In addition, the proportion of students who met the standardized test score criteria noticeably decreased with each change in tier group. The resulting dataset for the study included responses from 6,889 students. Seventy-seven percent (n=5,335) of the respondents were from Tier One institutions, compared to 16.7% (n=1,149) from Tier Two, 4.7% (n=324) from Tier Three, and 1.2% (n=81) from Tier Four institutions. With the constraints that were placed on the eligible

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sample, such as distance from home and attendance at the students' first choice school, it is not surprising to yield 81 cases from the 14 participating Tier Four institutions.

A second limitation to the findings of this study is the amount of missing data for some of the independent variables, particularly related to the variable of family income. Relative to the response rate obtained from the sample for other independent variables, the response rate from students regarding family income was noticeably low. Nearly one of ten (n=656, 9.5%) students in the sample failed to respond to the question in the 2004 Freshman Survey regarding family income. The relatively large number of missing data may limit analyses and conclusions regarding family income and its relationship with the tier level of university that a student chooses to attend.

Conclusion

Studies that have investigated college choice factors for high-achieving students repeatedly cite academic reputation as one of the top indicators of choice. These results fail to provide an indication as to why some high-achieving students choose to attend universities with a less prestigious reputation than the more highly prestigious options available to them. An exploration of the factors related to the individual characteristics and institutional preferences of high ability students who choose to enroll in a non-selective university is not only an interesting research question but also an issue of relevance to state policymakers and college administrators. The present study adds to the body of literature related to college choice by exploring differences between high achieving students who attend higher-tiered universities and high achieving students who attend lower-tiered universities.

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The three-stage choice model developed by Hossler and Gallagher (1987) was the basis for this study. Hossler and Gallagher's (1987) model outlines three stages of the college choice process:

1. Predisposition: students' decisions/aspirations to enroll in postsecondary education.

2. Search: the process of considering types of institutions to which to apply.

3. Choice: the selection of an institution to attend.

Results of the current study indicate that for high achieving students the second stage in the model has more influence than the first stage in predicting the outcome of college choice. The four variables associated with institutional characteristics were found, through both correlation and regression analyses, to be more significant predictors of college choice than any of the other variables that were included as part of this study. This finding is significant as Hossler and Gallagher's (1987) model has not been applied specifically to the matriculation phenomenon for high achieving students interested in attending national research universities.

The results of this study support the existing research that asserts that academic reputation is an important factor of matriculation for high achieving students. The majority of students in the sample, in all tier groups, indicated that academic reputation of the students' college of choice was a very important factor in their decision to attend; however, students enrolled at the higher-tiered institutions most frequently indicated that academic reputation was very important. The regression analysis confirmed a significant relationship between a student's attitude toward the importance of academic reputation and the tier level of his first choice college. Specifically, the results of the study indicated

a significant relationship between students who considered academic reputation to be very important and students who attended higher-tiered (i.e. Tier One or Two) universities.

In addition to gathering information regarding academic reputation, the study also collected student responses regarding the importance of media rankings in their matriculation decisions. Researchers that have studied the influence of media rankings on matriculation have concluded that students are most likely to find them important if they are of traditional college age, from middle income families, and are planning to attend a school outside of their region (Goenner and Snaith, 2004; Hossler and Foley, 1995). The results of the study indicated a significant relationship between students who considered placement in the rankings to be very important and students who attended higher-tiered (i.e. Tier One or Two) universities.

This study found the availability of financial aid to be the most important factor in predicting whether students will attend a higher-tiered or lower-tiered university. Students who consider the availability of financial aid to be very important tend to attend lower-tiered universities. The importance of financial aid accounted for over five times the variability of the importance of college costs. Therefore, although college costs and academic reputation were found to be significant predictors of the tier level of university attended, they were of secondary importance compared with the attention to financial aid awards by high achieving students.

This study affirms the results of previous studies on college choice, but fills a gap in understanding the matriculation decisions of high achieving college-bound students. There is some agreement among scholars that, while the availability of financial aid is

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considered important by most college-bound students, the impact of cost and financial aid decrease as students' income level and academic ability increase and that this financial gap often discourages or prohibits low-income students from attending higher-tiered institutions, even when controlling for academic ability.

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APPENDICES

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Appendix A - 2004 CIRP Freshman Survey

PLEASE PRINT NAME AND PERMANENT/HOME ADDRESS (one letter or number per box)   000001 ■

	FIRST	MI	LAST	When were you born?
NAME:				
ADDRESS:				Month (01-12) Day (01-31) Year
CITY:		STATE: ZIP: PHONE:		

2004 STUDENT INFORMATION FORM

MARKING DIRECTIONS

Your responses will be read by an optical mark reader. Please,

- Use a pencil or black or blue pen.
- Fill in the oval completely.
- Erase cleanly any marks you wish to change or "X" out mark if in pen.

CORRECT MARK   INCORRECT MARKS
○ ● ○ ○   ✓ ✗ ⊘ ➤

PLEASE PROVIDE YOUR ID NUMBER (as instructed) | **Mark here if directed** GROUP CODE A | GROUP CODE B

(number grids 0–9)

1. Your sex: ○ Male   ○ Female

2. How old will you be on December 31 of this year? (Mark one)
16 or younger. . .○   21-24 . . . . . .○
17 . . . .○   25-29 . . . . . .○
18 . . . .○   30-39 . . . . . .○
19 . . . .○   40-54 . . . . . .○
20 . . . .○   55 or older . .○

3. Is English your native language?
○ Yes   ○ No

4. In what year did you graduate from high school? (Mark one)
2004 . . . .○   Did not graduate but
2003 . . . .○   passed G.E.D. test .○
2002 . . . .○   Never completed
2001 or earlier.○   high school . . . . . .○

5. Are you enrolled (or enrolling) as a:
(Mark one)   Full-time student? . .○
             Part-time student?. .○

6. How many miles is this college from your permanent home? (Mark one)
5 or less ○   11-50 ○   101-500 ○
6-10 ○   51-100 ○   Over 500 ○

7. What was your average grade in high school? (Mark one)
A or A+ ○   B ○   C ○
A– ○   B– ○   D ○
B+ ○   C+ ○

8. From what kind of secondary school did you graduate? (Mark one)
○ Public school (not charter or magnet)
○ Public charter school
○ Public magnet school
○ Private religious/parochial school
○ Private independent college-prep school
○ Home school

9. What were your scores on the SAT I and/or ACT?
SAT VERBAL . . . .
SAT MATH . . . .
ACT Composite . . . .

10. Citizenship status:
○ U.S. citizen
○ Permanent resident (green card)
○ Neither

11. Prior to this term, have you ever taken courses for credit at this institution?
○ Yes   ○ No

12. Since leaving high school, have you ever taken courses at any other institution? (Mark all that apply in each column)

	For Credit	Not for Credit
Yes, at a community/junior college	○	○
Yes, at a 4-yr. college or university	○	○
Yes, at some other postsecondary school (For example, technical, vocational, business)	○	○

13. During your last year of high school what proportion of the time did you live with: (Mark one in each row)

	All	Most	Some	None
Mother	A	M	S	N
Father	A	M	S	N
Stepmother	A	M	S	N
Stepfather	A	M	S	N
Grandparent	A	M	S	N
Legal guardian	A	M	S	N
Other adult(s)	A	M	S	N

14. Where do you plan to live during the fall term? (Mark one)
With my family or other relatives . . . .○
Other private home, apartment or room . . . .○
College residence hall . . . .○
Fraternity or sorority house . . . .○
Other campus student housing . . . .○
Other . . . .○

15. Is this college your: (Mark one)
First choice? . . . . . .○   Less than third
Second choice? . . .○   choice?. . . . . . .○
Third choice? . . . . .○

16. To how many colleges other than this one did you apply for admission this year?
None ○   1 ○   4 ○   7-10 ○
        2 ○   5 ○   11 or more ○
        3 ○   6 ○

17. During high school (grades 9-12) how many years did you study each of the following subjects? (Mark one for each item)

	None	1/2	1	2	3	4	5 or more
English	○	○	○	○	○	○	
Mathematics	○	○	○	○	○	○	
Foreign Language	○	○	○	○	○	○	
Physical Science	○	○	○	○	○	○	
Biological Science	○	○	○	○	○	○	
History/Am. Govt.	○	○	○	○	○	○	
Computer Science	○	○	○	○	○	○	
Arts and/or Music	○	○	○	○	○	○	

18. Do you have a disabilty? (Mark all that apply)
None . . . .○
Hearing . . . .○
Speech . . . .○
Orthopedic . . . .○
Learning disability . . . .○
Health-related . . . .○
Partially sighted or blind . . . .○
Other . . . .○

19. What is the highest academic degree that you intend to obtain? (Mark one in each column)

	Highest Planned	Highest Planned At This College
None	○	○
Vocational certificate	○	○
Associate (A.A. or equivalent)	○	○
Bachelor's degree (B.A., B.S., etc.)	○	○
Master's degree (M.A., M.S., etc.)	○	○
Ph.D. or Ed.D.	○	○
M.D., D.O., D.D.S., or D.V.M.	○	○
J.D. (Law)	○	○
B.D. or M.DIV. (Divinity)	○	○
Other	○	○

20. Are your parents: (Mark one)
Both alive and living with each other? . .○
Both alive, divorced or living apart? . . . .○
One or both deceased?. . . . .○

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21. How much of your first year's educational expenses (room, board, tuition, and fees) do you expect to cover from each of the sources listed below? (Mark one answer for each possible source)

	None	Less than $1,000	$1,000-2,999	$3,000-5,999	$6,000-9,999	$10,000+
Family resources (parents, relatives, spouse, etc.)	○	○	○	○	○	○
My own resources (savings from work, work-study, other income)	○	○	○	○	○	○
Aid which need not be repaid (grants, scholarships, military funding, etc.)	○	○	○	○	○	○
Aid which must be repaid (loans, etc.)	○	○	○	○	○	○
Other than above	○	○	○	○	○	○

22. What is your best estimate of your parents' total income last year? Consider income from all sources before taxes. (Mark one)

- ○ Less than $10,000
- ○ $10,000-14,999
- ○ $15,000-19,999
- ○ $20,000-24,999
- ○ $25,000-29,999
- ○ $30,000-39,999
- ○ $40,000-49,999
- ○ $50,000-59,999
- ○ $60,000-74,999
- ○ $75,000-99,999
- ○ $100,000-149,999
- ○ $150,000-199,999
- ○ $200,000-249,999
- ○ $250,000 or more

23. Current religious preference: (Mark one in each column)

	Yours	Father's	Mother's
Baptist	Ⓨ	Ⓕ	Ⓜ
Buddhist	Ⓨ	Ⓕ	Ⓜ
Church of Christ	Ⓨ	Ⓕ	Ⓜ
Eastern Orthodox	Ⓨ	Ⓕ	Ⓜ
Episcopalian	Ⓨ	Ⓕ	Ⓜ
Hindu	Ⓨ	Ⓕ	Ⓜ
Islamic	Ⓨ	Ⓕ	Ⓜ
Jewish	Ⓨ	Ⓕ	Ⓜ
LDS (Mormon)	Ⓨ	Ⓕ	Ⓜ
Lutheran	Ⓨ	Ⓕ	Ⓜ
Methodist	Ⓨ	Ⓕ	Ⓜ
Presbyterian	Ⓨ	Ⓕ	Ⓜ
Quaker	Ⓨ	Ⓕ	Ⓜ
Roman Catholic	Ⓨ	Ⓕ	Ⓜ
Seventh Day Adventist	Ⓨ	Ⓕ	Ⓜ
Unitarian/Universalist	Ⓨ	Ⓕ	Ⓜ
United Church of Christ/Congregational	Ⓨ	Ⓕ	Ⓜ
Other Christian	Ⓨ	Ⓕ	Ⓜ
Other Religion	Ⓨ	Ⓕ	Ⓜ
None	Ⓨ	Ⓕ	Ⓜ

24. Do you consider yourself a Born-Again Christian?

○ Yes   ○ No

25. Please indicate your ethnic background. (Mark all that apply)

- White/Caucasian ○
- African American/Black ○
- American Indian/Alaska Native ○
- Asian American/Asian ○
- Native Hawaiian/Pacific Islander ○
- Mexican American/Chicano ○
- Puerto Rican ○
- Other Latino ○
- Other ○

26. For the activities below, indicate which ones you did during the past year. If you engaged in an activity frequently, mark Ⓕ. If you engaged in an activity one or more times, but not frequently, mark Ⓞ (Occasionally). Mark Ⓝ (Not at all) if you have not performed the activity during the past year. (Mark one for each item)

	Frequently	Occasionally	Not at all
Attended a religious service	Ⓕ	Ⓞ	Ⓝ
Was bored in class	Ⓕ	Ⓞ	Ⓝ
Participated in organized demonstrations	Ⓕ	Ⓞ	Ⓝ
Tutored another student	Ⓕ	Ⓞ	Ⓝ
Studied with other students	Ⓕ	Ⓞ	Ⓝ
Was a guest in a teacher's home	Ⓕ	Ⓞ	Ⓝ
Smoked cigarettes	Ⓕ	Ⓞ	Ⓝ
Drank beer	Ⓕ	Ⓞ	Ⓝ
Drank wine or liquor	Ⓕ	Ⓞ	Ⓝ
Felt overwhelmed by all I had to do	Ⓕ	Ⓞ	Ⓝ
Felt depressed	Ⓕ	Ⓞ	Ⓝ
Performed volunteer work	Ⓕ	Ⓞ	Ⓝ
Played a musical instrument	Ⓕ	Ⓞ	Ⓝ
Asked a teacher for advice after class	Ⓕ	Ⓞ	Ⓝ
Discussed politics	Ⓕ	Ⓞ	Ⓝ
Voted in a student election	Ⓕ	Ⓞ	Ⓝ
Socialized with someone of another racial/ethnic group	Ⓕ	Ⓞ	Ⓝ
Came late to class	Ⓕ	Ⓞ	Ⓝ
Used the Internet for research or homework	Ⓕ	Ⓞ	Ⓝ
Performed community service as part of a class	Ⓕ	Ⓞ	Ⓝ
Used a personal computer	Ⓕ	Ⓞ	Ⓝ
Discussed religion/spirituality: In class	Ⓕ	Ⓞ	Ⓝ
With friends	Ⓕ	Ⓞ	Ⓝ
With family	Ⓕ	Ⓞ	Ⓝ
Worked on a local, state, or national political campaign	Ⓕ	Ⓞ	Ⓝ
Maintained a healthy diet	Ⓕ	Ⓞ	Ⓝ
Stayed up all night	Ⓕ	Ⓞ	Ⓝ
Missed school because of illness	Ⓕ	Ⓞ	Ⓝ

27. For each item, please mark Yes or No:

	Yes	No
Did your high school require community service for graduation?	Ⓨ	Ⓝ
Have you participated in: A summer research program?	Ⓨ	Ⓝ
A health science research program sponsored by a university?	Ⓨ	Ⓝ

28. What is the highest level of formal education obtained by your parents? (Mark one in each column)

	Father	Mother
Grammar school or less	○	○
Some high school	○	○
High school graduate	○	○
Postsecondary school other than college	○	○
Some college	○	○
College degree	○	○
Some graduate school	○	○
Graduate degree	○	○

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29. In deciding to go to college, how important to you was each of the following reasons? (Mark one answer for each possible reason)

	Very Important	Somewhat Important	Not Important
My parents wanted me to go	Ⓥ	Ⓢ	Ⓝ
I could not find a job	Ⓥ	Ⓢ	Ⓝ
Wanted to get away from home	Ⓥ	Ⓢ	Ⓝ
To be able to get a better job	Ⓥ	Ⓢ	Ⓝ
To gain a general education and appreciation of ideas	Ⓥ	Ⓢ	Ⓝ
There was nothing better to do	Ⓥ	Ⓢ	Ⓝ
To make me a more cultured person	Ⓥ	Ⓢ	Ⓝ
To be able to make more money	Ⓥ	Ⓢ	Ⓝ
To learn more about things that interest me	Ⓥ	Ⓢ	Ⓝ
To prepare myself for graduate or professional school	Ⓥ	Ⓢ	Ⓝ
To get training for a specific career	Ⓥ	Ⓢ	Ⓝ
To find my purpose in life	Ⓥ	Ⓢ	Ⓝ

30. How would you characterize your political views? (Mark one)

- ○ Far left
- ○ Liberal
- ○ Middle-of-the-road
- ○ Conservative
- ○ Far right

31. Rate yourself on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself. (Mark one in each row)

	Highest 10%	Above Average	Average	Below Average	Lowest 10%
Academic ability	○	○	○	○	○
Artistic ability	○	○	○	○	○
Compassion	○	○	○	○	○
Computer skills	○	○	○	○	○
Cooperativeness	○	○	○	○	○
Courage	○	○	○	○	○
Creativity	○	○	○	○	○
Drive to achieve	○	○	○	○	○
Emotional health	○	○	○	○	○
Forgiveness	○	○	○	○	○
Generosity	○	○	○	○	○
Kindness	○	○	○	○	○
Leadership ability	○	○	○	○	○
Mathematical ability	○	○	○	○	○
Physical health	○	○	○	○	○
Public speaking ability	○	○	○	○	○
Religiousness	○	○	○	○	○
Self-confidence (intellectual)	○	○	○	○	○
Self-confidence (social)	○	○	○	○	○
Self-understanding	○	○	○	○	○
Spirituality	○	○	○	○	○
Time management	○	○	○	○	○
Understanding of others	○	○	○	○	○
Writing ability	○	○	○	○	○

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Appendix A - 2004 CIRP Freshman Survey (cont).

32. Mark only three responses, one in each column.

- **M** Your mother's occupation
- **F** Your father's occupation
- **Y** Your probable career occupation

NOTE: If your father or mother is deceased, please indicate his or her last occupation.

Occupation	Y	F	M
Accountant or actuary	Y	F	M
Actor or entertainer	Y	F	M
Architect or urban planner	Y	F	M
Artist	Y	F	M
Business (clerical)	Y	F	M
Business executive (management, administrator)	Y	F	M
Business owner or proprietor	Y	F	M
Business salesperson or buyer	Y	F	M
Clergy (minister, priest)	Y	F	M
Clergy (other religious)	Y	F	M
Clinical psychologist	Y	F	M
College administrator/staff	Y	F	M
College teacher	Y	F	M
Computer programmer or analyst	Y	F	M
Conservationist or forester	Y	F	M
Dentist (including orthodontist)	Y	F	M
Dietitian or nutritionist	Y	F	M
Engineer	Y	F	M
Farmer or rancher	Y	F	M
Foreign service worker (including diplomat)	Y	F	M
Homemaker (full-time)	Y	F	M
Interior decorator (including designer)	Y	F	M
Lab technician or hygienist	Y	F	M
Law enforcement officer	Y	F	M
Lawyer (attorney) or judge	Y	F	M
Military service (career)	Y	F	M
Musician (performer, composer)	Y	F	M
Nurse	Y	F	M
Optometrist	Y	F	M
Pharmacist	Y	F	M
Physician	Y	F	M
Policymaker/Government	Y	F	M
School counselor	Y	F	M
School principal or superintendent	Y	F	M
Scientific researcher	Y	F	M
Social, welfare or recreation worker	Y	F	M
Therapist (physical, occupational, speech)	Y	F	M
Teacher or administrator (elementary)	Y	F	M
Teacher or administrator (secondary)	Y	F	M
Veterinarian	Y	F	M
Writer or journalist	Y	F	M
Skilled trades	Y	F	M
Laborer (unskilled)	Y	F	M
Semi-skilled worker	Y	F	M
Unemployed	Y	F	M
Other	Y	F	M
Undecided	Y		

33. Mark one in each row:

- ① Disagree Strongly
- ② Disagree Somewhat
- ③ Agree Somewhat
- ④ Agree Strongly

Statement				
There is too much concern in the courts for the rights of criminals	④	③	②	①
Abortion should be legal	④	③	②	①
The death penalty should be abolished	④	③	②	①
Marijuana should be legalized	④	③	②	①
It is important to have laws prohibiting homosexual relationships	④	③	②	①
Racial discrimination is no longer a major problem in America	④	③	②	①
Realistically, an individual can do little to bring about changes in our society	④	③	②	①
Wealthy people should pay a larger share of taxes than they do now	④	③	②	①
Colleges should prohibit racist/sexist speech on campus	④	③	②	①
Same-sex couples should have the right to legal marital status	④	③	②	①
Affirmative action in college admissions should be abolished	④	③	②	①
The activities of married women are best confined to the home and family	④	③	②	①
Federal military spending should be increased	④	③	②	①
Colleges have the right to ban extreme speakers	④	③	②	①
If two people really like each other, it's all right for them to have sex even if they've known each other for only a very short time	④	③	②	①
The federal government should do more to control the sale of handguns	④	③	②	①

34. Below is a list of community service/volunteer activities. Indicate which of these you participated in during high school. (Mark all that apply)

- None ○
- Tutoring/teaching ○
- Counseling/mentoring ○
- Environmental activities ○
- Child care ○
- Elder care ○
- Hospital work ○
- Substance abuse education ○
- Other health education ○
- Services to the homeless ○
- Community improvement/construction ○
- Conflict mediation ○
- Service to my religious community ○
- Other community service ○

35. During your last year in high school, how much time did you spend during a typical week doing the following activities?

Hours per week:	None	Less than 1 hour	1-2	3-5	6-10	11-15	16-20	Over 20
Studying/homework	○	○	○	○	○	○	○	○
Socializing with friends	○	○	○	○	○	○	○	○
Talking with teachers outside of class	○	○	○	○	○	○	○	○
Exercise or sports	○	○	○	○	○	○	○	○
Partying	○	○	○	○	○	○	○	○
Working (for pay)	○	○	○	○	○	○	○	○
Volunteer work	○	○	○	○	○	○	○	○
Student clubs/groups	○	○	○	○	○	○	○	○
Watching TV	○	○	○	○	○	○	○	○
Household/childcare duties	○	○	○	○	○	○	○	○
Reading for pleasure	○	○	○	○	○	○	○	○
Playing video/computer games	○	○	○	○	○	○	○	○
Prayer/meditation	○	○	○	○	○	○	○	○

36. Do you have any concern about your ability to finance your college education? (Mark one)

- None (I am confident that I will have sufficient funds) ○
- Some (but I probably will have enough funds) ○
- Major (not sure I will have enough funds to complete college) ○

37. Below are some reasons that might have influenced your decision to attend this particular college. How important was each reason in your decision to come here? (Mark one answer for each possible reason)

- **V** Very Important
- **S** Somewhat Important
- **N** Not Important

Reason			
My relatives wanted me to come here	V	S	N
My teacher advised me	V	S	N
This college has a very good academic reputation	V	S	N
This college has a good reputation for its social activities	V	S	N
I was offered financial assistance	V	S	N
The cost of attending this college	V	S	N
High school counselor advised me	V	S	N
Private college counselor advised me	V	S	N
I wanted to live near home	V	S	N
Not offered aid by first choice	V	S	N
This college's graduates gain admission to top graduate/professional schools	V	S	N
This college's graduates get good jobs	V	S	N
I was attracted by the religious affiliation/orientation of the college	V	S	N
I wanted to go to a school about the size of this college	V	S	N
Rankings in national magazines	V	S	N
Information from a website	V	S	N
I was admitted through an Early Action or Early Decision program	V	S	N
A visit to the campus	V	S	N

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Appendix A - 2004 CIRP Freshman Survey (cont).

38. Below is a list of different undergraduate major fields grouped into general categories. Mark only one oval to indicate your probable field of study.

ARTS AND HUMANITIES
Art, fine and applied . . . . ①
English (language and literature) . . . . ②
History . . . . ③
Journalism . . . . ④
Language and Literature (except English) . . . . ⑤
Music . . . . ⑥
Philosophy . . . . ⑦
Speech . . . . ⑧
Theater or Drama . . . . ⑨
Theology or Religion . . . . ⑩
Other Arts and Humanities . . ⑪

BIOLOGICAL SCIENCE
Biology (general) . . . . ⑫
Biochemistry or Biophysics . . . . ⑬
Botany . . . . ⑭
Environmental Science . . . . . ⑮
Marine (Life) Science . . . . . . ⑯
Microbiology or Bacteriology . . . . ⑰
Zoology . . . . ⑱
Other Biological Science . . . . ⑲

BUSINESS
Accounting . . . . ⑳
Business Admin. (general) . . . ㉑
Finance . . . . ㉒
International Business . . . . . . ㉓
Marketing . . . . ㉔
Management . . . . ㉕
Secretarial Studies . . . . ㉖
Other Business . . . . ㉗

EDUCATION
Business Education . . . . . . ㉘
Elementary Education . . . . . ㉙
Music or Art Education . . . . . ㉚
Physical Education or Recreation . . . . ㉛
Secondary Education . . . . . . ㉜
Special Education . . . . ㉝
Other Education . . . . ㉞

ENGINEERING
Aeronautical or Astronautical Eng. . . . . ㉟
Civil Engineering . . . . ㊱
Chemical Engineering . . . . . . ㊲
Computer Engineering . . . . . . ㊳
Electrical or Electronic Engineering . . . . ㊴
Industrial Engineering . . . . . . ㊵
Mechanical Engineering . . . . ㊶
Other Engineering . . . . ㊷

PHYSICAL SCIENCE
Astronomy . . . . ㊸
Atmospheric Science (incl. Meteorology) . . . . . . ㊹
Chemistry . . . . ㊺
Earth Science . . . . ㊻
Marine Science (incl. Oceanography) . . . . ㊼
Mathematics . . . . ㊽
Physics . . . . ㊾
Statistics . . . . ㊿
Other Physical Science . . . . �51

PROFESSIONAL
Architecture or Urban Planning . . . . ㊾
Home Economics . . . . ㊿
Health Technology (medical, dental, laboratory) . . . . �54
Library or Archival Science . . �55
Medicine, Dentistry, Veterinary Medicine . . . . . . �56
Nursing . . . . �57
Pharmacy . . . . �58
Therapy (occupational, physical, speech) . . . . �59
Other Professional . . . . �60

SOCIAL SCIENCE
Anthropology . . . . �61
Economics . . . . �62
Ethnic Studies . . . . �63
Geography . . . . �64
Political Science (gov't., international relations) . . . . �65
Psychology . . . . �66
Social Work . . . . �67
Sociology . . . . �68
Women's Studies . . . . �69
Other Social Science . . . . . . �70

TECHNICAL
Building Trades . . . . �71
Data Processing or Computer Programming . . . �72
Drafting or Design . . . . �73
Electronics . . . . �74
Mechanics . . . . �75
Other Technical . . . . �76

OTHER FIELDS
Agriculture . . . . �77
Communications . . . . �78
Computer Science . . . . �79
Forestry . . . . �80
Kinesiology . . . . �81
Law Enforcement . . . . �82
Military Science . . . . �83
Other Field . . . . �84
Undecided . . . . �85

39. Please indicate the importance to you personally of each of the following:
(Mark one for each item)

Ⓝ Not Important
Ⓢ Somewhat Important
Ⓥ Very Important
Ⓔ Essential

Becoming accomplished in one of the performing arts (acting, dancing, etc.) . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Becoming an authority in my field . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Obtaining recognition from my colleagues for contributions to my special field . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Influencing the political structure . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Influencing social values . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Raising a family . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Having administrative responsibility for the work of others . . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Being very well off financially . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Helping others who are in difficulty . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Making a theoretical contribution to science . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Writing original works (poems, novels, short stories, etc.) . . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Creating artistic work (painting, sculpture, decorating, etc.) . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Becoming successful in a business of my own . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Becoming involved in programs to clean up the environment . . . Ⓔ Ⓥ Ⓢ Ⓝ
Developing a meaningful philosophy of life . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Participating in a community action program . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Helping to promote racial understanding . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Keeping up to date with political affairs . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Becoming a community leader . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Integrating spirituality into my life . . . . Ⓔ Ⓥ Ⓢ Ⓝ
Improving my understanding of other countries and cultures . . . Ⓔ Ⓥ Ⓢ Ⓝ
Working to find a cure to a health problem . . . . Ⓔ Ⓥ Ⓢ Ⓝ

40. What is your best guess as to the chances that you will:
(Mark one for each item)

Ⓝ No Chance
Ⓛ Very Little Chance
Ⓢ Some Chance
Ⓥ Very Good Chance

Change major field? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Change career choice? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Participate in student government? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Get a job to help pay for college expenses? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Work full-time while attending college? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Join a social fraternity or sorority? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Play varsity/intercollegiate athletics? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Make at least a "B" average? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Participate in student protests or demonstrations? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Transfer to another college before graduating? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Be satisfied with your college? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Participate in volunteer or community service work? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Seek personal counseling? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Communicate regularly with your professors? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Socialize with someone of another racial/ethnic group? . . . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Participate in student clubs/groups? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Strengthen your religious beliefs/convictions? . . . . Ⓥ Ⓢ Ⓛ Ⓝ
Participate in a study abroad program? . . . . Ⓥ Ⓢ Ⓛ Ⓝ

41. Do you give the Higher Education Research Institute (HERI) permission to include your ID number should your college request the data for additional research analyses?   ○ Yes   ○ No

The remaining ovals are provided for questions specifically designed by your college rather than the Higher Education Research Institute. If your college has chosen to use the ovals, please observe carefully the supplemental directions given to you.

42. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   49. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   56. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
43. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   50. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   57. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
44. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   51. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   58. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
45. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   52. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   59. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
46. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   53. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   60. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
47. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   54. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   61. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ
48. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   55. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ   62. Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

○○○○○○○○○○○○○○○○○○○
DO NOT WRITE IN THIS AREA

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THANK YOU!

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Appendix B: CIRP Freshman Survey: Reliability and Validity

CIRP Freshman Survey: Reliability and Validity

HERI often receives questions from outside researchers asking about the 'reliability' and 'validity' of the CIRP surveys. The text below clarifies those two concepts and provides information about how they relate to the surveys conducted by the Cooperative Institutional Research Program.

Reliability refers to the *accuracy* of a given measurement. A reliable survey question, then, is one that yields similar results when administered repeatedly to similar samples or populations. Since the CIRP Freshman Survey has been administered for nearly forty years, it is possible to observe the stability of survey questions administered to different cohorts year after year. The vast majority of CIRP Freshman Survey questions exhibit a great deal of stability over time. In other words, in repeated trials the aggregate results remain very similar (allowing for modest fluctuations due to sampling error). Changes that are observed do not represent wild or random fluctuations, but can be linked to temporal trends or to real and meaningful exogenous shocks (the events of September 11th, for example). While nothing can be done to completely eliminate fluctuations caused by sampling error, several factors help ensure that such effects are minimized. Nearly 90 percent of the institutions in the CIRP Freshman Survey sample, for example, are repeat participants. This helps to ensure that the sample is highly consistent from year to year. Secondly, to correct for 'response bias' that occurs due to fluctuations in the annual sample, the data are stratified and weighted by institutional type and gender. For more information about calculating the margin-of-error for aggregate percentages from the CIRP Freshman Survey, please refer to the attached document, "The Precision of the Normative Data and Their Comparisons."

Validity, by contrast, refers to whether a given survey question actually taps into the true underlying concept it attempts to measure. In other words, how well does the measure correlate with some unknown underlying 'reality'? Factor analysis is one way for researchers to test the validity of certain constructs. By clustering related items together in scales or indices, for example, researchers can examine how well those related items 'hold together' in a statistical sense (this 'scale reliability' is most commonly measured using Chronbach's Alpha or measured using factor loadings derived from factor analyses). While HERI has not performed in-depth factor analysis for every item on the CIRP Freshman Survey, several published works have investigated the matter. In What Matters in College, (Astin, 1992), for example, 'student types' were constructed based on

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select items from the CIRP Freshman Survey (the leader, the scholar, the hedonist, etc). Astin found that the 'student types' held together quite well with most of the scale reliability coefficients in excess of .70. For more information, see also Astin's Assessment for Excellence (Astin, 1991). Another article, 'Linking Student Precollege Characteristics to College Development Outcomes: The Search for a Meaningful Way to Inform Institutional Practice and Policy', by Jiali Luo and David Jamieson-Drake also contains several factors constructed using CIRP Freshman Survey items. The article can be found at: http://airweb.org/page.asp?page=266. HERI intends to perform a more in-depth factor analytical exploration of the CIRP Freshman Survey when time permits. However, at this time, we have not completed such analyses.

The information above refers mostly to the CIRP Freshman Survey which has the longest history and the highest participation rate and largest sample size of all of HERI's surveys. Our other surveys (the College Senior Survey and the Your First College Year survey) are administered on a much smaller scale and are not usually representative at the national-level. However, despite not being nationally representative, a large number of the questions on these two surveys are the same or very similar to the CIRP Freshman Survey. Therefore, it is safe to assume that most of the information provided above applies to these other surveys as well -- the primary difference being that the margins of error (as found in the attached document) are likely to be slightly larger due to the considerably smaller sample sizes.

Appendix E

The Precision of the Normative Data and Their Comparisons

A common question asked about sample surveys relates to the precision of the data, which is typically reported as the accuracy of a percentage "plus or minus x percentage points." This figure, which is known as a confidence interval, can be estimated for items of interest if one knows the response percentage and its standard error.

Given the CIRP's large normative sample, the calculated standard error associated with any particular response percentage will be small (as will its confidence interval). It is important to note, however, that traditional methods of calculating standard error assume conditions which, (as is the case with most real sample survey data), do not apply here. Moreover, there are other possible sources of error which should be considered in comparing data across normative groups, across related item categories, and over time. In reference to the precision of the CIRP data, these concerns include:

1) Traditional methods of calculating standard error assume that the <u>individuals</u> were selected through simple random sampling. Given the complex stratified design of the CIRP, where whole <u>institutions</u> participate, it is likely that the actual standard errors will be somewhat larger than the standard error estimates produced through traditional computational methods. In addition, while every effort has been made to maximize the comparability of the institutional sample from year to year (repeat participation runs about 90 percent), comparability is reduced by non–repeat participation and year–to–year variation in the quality of data collected by continuing institutional participants. While the CIRP stratification and weighting procedures are designed to minimize this institutional form of "response bias," an unknown amount of non–random variation is introduced into the results.

2) The wording of some questions in the survey instrument, the text and number of response options, and their order of presentation have changed over the years. We have found that even small changes can produce large order and context effects. Given this, the *exact* wording and order of items on the survey instrument (which is produced as Appendix B) should be examined carefully prior to making comparisons across survey years.

3) Substantial changes in the institutional stratification scheme were made in 1968, 1971, 1975 and 2000. These changes resulted in a revision of the weights applied to individual institutions between 1966 and 2005. Stratification cell assignments of a few institutions may also change from time to time, but the scale of these changes and their effect on the national normative results are likely to be small in comparison to other sources of bias.

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Since it is impractical to report statistical indicators for every percentage in every CIRP norms group, it is important for those who are interested to be able to estimate the precision of the data. Toward this end, Table E1 provides estimates of standard errors for norms groups of various sizes and for different percentages[1] which can be used to derive confidence interval estimates.

For example, suppose the item we are interested in has a response percentage of 18.7 percent among students at all nonsectarian four-year colleges (a normative group that is about 49,000 in size). First, we choose the <u>column</u> that is closest to the observed percentage 18.7 – in this case "20%".[2] Next, we select the <u>row</u> closest to the unweighted sample size of 49,000 – in this case "50,000". With a sample size of about 50,000 and a percentage that is close to 20, the estimated standard error would be .179.

To calculate the confidence interval at the 95% probability level, we multiply the estimated standard error by the critical value of t for the unweighted sample size (which, for all CIRP norms groups, will be equal to 1.96 at the .05 level of probability).[3] In this example, we would multiply the estimated standard error of .179 by 1.96, which yields .350. If we round this figure to a single decimal point we would then estimate our confidence interval to be 18.7 ± .4. In practical terms, this confidence interval means that if we were to replicate this survey using the same size sample, we would expect that the resulting percentage would fall between 18.3 percent and 19.1 percent 95 times out of 100.

Table E1
Estimated Standard Errors of Percentages for Norms Groups of Various Sizes

Unweighted size of norms groups	1%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
500	.445	.975	1.342	1.597	1.789	1.936	2.049	2.133	2.191	2.225	2.236
1,000	.315	.689	.949	1.129	1.265	1.369	1.449	1.508	1.549	1.573	1.581
2,500	.199	.436	.600	.714	.800	.866	.917	.954	.980	.995	1.000
5,000	.141	.308	.424	.505	.566	.612	.648	.675	.693	.704	.707
7,500	.115	.252	.346	.412	.462	.500	.529	.551	.566	.574	.577
10,000	.099	.218	.300	.357	.400	.433	.458	.477	.490	.497	.500
15,000	.081	.178	.245	.292	.327	.354	.374	.389	.400	.406	.408
25,000	.063	.138	.190	.226	.253	.274	.290	.302	.310	.315	.316
50,000	.044	.097	.134	.160	.179	.194	.205	.213	.219	.222	.224
75,000	.036	.080	.110	.130	.146	.158	.167	.174	.179	.182	.183
100,000	.031	.069	.095	.113	.126	.137	.145	.151	.155	.157	.158
150,000	.026	.056	.077	.092	.103	.112	.118	.123	.126	.128	.129
275,000	.019	.042	.057	.068	.076	.083	.087	.091	.093	.095	.095

NOTE: Assumes simple random sampling.

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[1] Calculated by $\sqrt{\dfrac{x\%(100-x\%)}{N}}$, where x is the percentage of interest and N is the population count from Table A3, column 2.

[2] Since the distribution of the standard errors is symmetrical around the 50 percent mid–point, for percentages over 50 simply subtract the percentage from 100 and use the result to select the appropriate column. For example, if the percentage we were interested in was 59, 100 – 59 percent yields 41, so we would use the column labeled '40%'.

[3] To calculate the confidence interval at the 99% probability level the critical t value is 2.56.

Appendix C - National Universities participating in the 2004 Freshman Survey[a]

Tier 1	Tier 2	Tier 3	Tier 4
Boston College	American University	Duquesne University	Adelphi University
Brandeis University	Baylor University	Hofstra University	Biola University
Brown University	Catholic University of America	Indiana U of Pennsylvania	Cleveland State University
California Inst of Tech	Clarkson University	Mississippi State University	Georgia State University
Carnegie-Mellon Univ	Colorado State University	Northeastern University	Idaho State University
Case Western Reserve U	Florida State University	Oklahoma State U	North Dakota State Univ
Cornell University	Fordham University	Oregon State University	Northern Arizona University
Duke University	Iowa State University	Saint John's Univ-Queens	Oakland University
Emory University	Loyola University of Chicago	South Dakota State University	Texas A&M Univ-Kingsville
Georgia Inst of Tech	Marquette University	Southern Illinois Univ	Texas Woman's University
Johns Hopkins University	Miami University	Texas Tech University	Univ of Arkansas-Little Rock
Massachusetts Inst of Tech	Michigan Tech University	Univof Arkansas-Fayetteville	Univ of Louisiana at Lafayette
New York University	Ohio State University	University of Idaho	Univ of Mass-Boston
Northwestern University	Purdue University	University of Illinois-Chicago	University of Toledo
Rensselaer Polytechnic Inst	Rutgers U-New Brunswick	University of New Mexico	
Rice University	Rutgers University-Newark	University of North Dakota	
Tulane University	Seton Hall University	Univ of Wisconsin-Milwaukee	
Univ of California-Davis	Southern Methodist University	Utah State University	
Univ of California-Irvine	SUNY-Binghamton	Wayne State University	
Univ of California-LA	SUNY-Stony Brook		
Univ of California-San Diego	SUNY-University at Buffalo		
Univ of Calif-Santa Barbara	Texas A & M University		
University of Chicago	Texas Christian University		
University of Michigan	University of Alabama		
Univ of N Carolina-Chapel Hill	Univ of California-Riverside		
University of Notre Dame	Univof California-Santa Cruz		
University of Pennsylvania	University of Kentucky		
University of Rochester	Univ of Mass-Amherst		
University of Southern Cal	University of Pittsburgh		
University of Virginia	University of San Diego		
Vanderbilt University	University of Vermont		
Wake Forest University	Virginia Tech		

[a]Universities participating in the CIRP according to the Higher Education Research Institute website, accessed March 30, 2008, from http://www.gseis.ucla.edu/heri/PDFs/vdeck.pdf.
[b]The tier assigned to each institution is based upon the *2003 Best Colleges* edition by *U.S. News & World Report.*

ABOUT THE AUTHOR

Holly J. Schoenherr received a Bachelor's degree in Criminal Justice from Kent State University and a Master's degree in Business Administration from the University of South Florida. Ms. Schoenherr began her professional career as a social worker, serving inner-city youth and families in Columbus, Ohio. With two of her colleagues, she ventured into the creation of The Leadership and Challenge Center, an adventure-based training program serving both non-profit and for-profit organizations in areas of leadership, communication, and strategic planning. She has served as a human resources executive for a professional employment organization, an international corporation, and a public research university. Currently serving as Special Assistant to the Provost at the University of South Florida, Ms. Schoenherr's portfolio includes communications, faculty and executive searches, human resources, facilities planning and space allocations, and service on several university-wide committees and workgroups.