Fall 2008

Contributing Factors to the Bachelor's Degree Attainment of Males in the United States

Theresa Carol Novotny

CONTRIBUTING FACTORS TO THE BACHELOR'S DEGREE ATTAINMENT OF MALES IN THE UNITED STATES

by

THERESA CAROL BEEBE NOVOTNY

(Under the Direction of Abebayehu Tekleselassie)

ABSTRACT

The degree attainment of college students is a critical issue that institutions of higher education are considering. Colleges want to improve their retention, progression, and graduation rates for all students. Over the past decades men, based on the literature reviewed, have earned fewer degrees than women. In addition, men are not enrolling in college at the same rates as women. This study uses the NELS Database to analyze the factors that contribute to the degree attainment of men. The research used a logit model to determine the probability for the significant factors.

INDEX WORDS: Degree Attainment, Gender, Men, Bachelor's Degree, Higher Education, Colleges & Universities, Graduation Rates, National Education longitudinal Study, and Graduation Factors

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A Dissertation Submitted to the Graduate Faculty of Georgia Southern University in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF EDUCATION

STATESBORO, GEORGIA

2008

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Electronic Version Approved:
December 2008

DEDICATION

To my parents Clarence and Wilma Beebe; my grandmother, Carol Selby; my husband, Patrick Novotny; and my family and friends who have believed in my abilities and encouraged me throughout the entire process of earning my doctorate.

ACKNOWLEDGMENTS

I would like to thank the members of my dissertation committee for their assistance through the research and writing of this dissertation and for their many words of encouragement and support along the way. I especially want to thank Dr. Abebayehu Tekleselassie for his many insights and words of encouragement as the chair of my dissertation committee. Dr. Linda Arthur offered her much-appreciated support to me throughout my research and writing of this dissertation and read numerous drafts of my dissertation. I also want to extend my sincere gratitude and thanks to Dr. Michael Moore, whose many words of support and asking me some of the most important questions of my dissertation improved greatly the focus of my dissertation.

I would like to acknowledge and thank the National Center for Education Statistics (NCES) for their commitment to providing me with their data. NCES funding of their National Education Longitudinal Study (NELS) was invaluable to my research and I thank them for their commitment to funding such studies.

I want to extend my thanks to all of my past professors throughout my education for instilling in me the confidence to strive for excellence in my studies. I want to also thank all of my many friends and colleagues at Georgia Southern University who have been so supportive of me in the research and writing of this dissertation.

I extend my sincere thanks to Dr. Ellen Emerson for providing me a place to work in her office and her support of my research and especially my writing of this dissertation. Ellen's office was a quiet space to work and her constant encouragement assisted me through the process. I enjoyed our 6:45 A.M. drives to Savannah, GA on Saturdays to work in your office while you taught your classes.

I sincerely thank and appreciate the many warm words of encouragement and support from my dear friend, Andrea Schmal. Andrea and I have been friends since high school, and I could not have asked for a better friend who always was there when I needed to have a chapter proofread or just someone to talk with. I thank you so much Andrea for reading the many chapter drafts of this dissertation and for your tireless assistance with editing and proofreading my dissertation.

I want to give a special word of thanks to Dr. Tony Barilla of Georgia Southern University for assisting me with the logit equation. Tony's support in the final 6 months of my dissertation helped me to stay focused in the crucial final stages of my dissertation analysis and writing. I also thank another Georgia Southern University colleague and friend, Ms. Kelley Callaway, for editing and proofreading my completed dissertation. I will forever be appreciative and grateful for Kelley's final editing and proofreading of my completed dissertation.

To my parents who were always there to encourage all my educational endeavors and being supportive in the research and writing of this dissertation, I thank you for instilling in me the passion to learn and explore new ideas. You both taught me that by working hard and dedicating yourself to a project, you can accomplish anything you put your mind to. I am as appreciative and thankful for your love as I know you are proud of me in this accomplishment.

I extend a heartfelt and personal thank you to all my wonderful friends in my Thursday evening book club, Dr. Joanne Chopak-Foss, Dr. Ellen Emerson, Dr. Alice Hall, Mrs. Laura Samuels, Dr. Kathleen Comerford, Dr. Rebecca Ziegler, Dr. Nancy Malcom, Dr. Merry Gallagher, Ms. Joy Hamm, and to the past members of our group.

Thank you each and every one of you for your many words of encouragement and for always reminding me that there was a “light at the end of the tunnel”. You all have been my closest friends in Statesboro, and we have shared many memories together.

Finally, thank you to my best friend, my inspiration, my husband, Dr. Patrick Novotny. You have been my biggest supporter over the last several years for me to complete and earn my doctorate. You are an inspiration to me because of your extensive writing and your love of learning. I always knew you were there for me and willing to encourage me every step.

Sincerely-

Theresa Beebe Novotny

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CHAPTER 1

INTRODUCTION

In the United States since 1979, women have graduated and continue to graduate from college at a higher rate than men. Only 25.7 percent of men between the ages of 25 and 34 in the United States as of 2000 had earned a bachelor's degree (U.S. Department of Commerce, 2000). This is compared to 29.4 percent of women between 25 to 34 years of age in the United States as of 2000 who had earned a bachelor's degree (U.S. Department of Commerce, 2000). College enrollment for men increased by only 10 percent between the years 1992 and 2002, while the college enrollment of women increased at a rate of 18 percent (U.S. Department of Education, 2004b).

Prior to 1980, men in the United States earned more associate's and bachelor's degrees than women. Since 1980, women have outpaced men in earning associate's or bachelor's degrees. In 2003, women earned 58.31 percent of all associate's and bachelor's degrees in the United States conferred that year compared to men who earned just 41.69 percent of degrees (U.S. Department of Education, 2004a). Currently, men earn more doctoral degrees and professional degrees than women. However, the U. S. Department of Education predicts that by 2014, women will earn more doctoral degrees than men (U.S. Department of Education, 2004a).

Institutions of higher education have increased their enrollment, and therefore, the total numbers of associate's or bachelor's degrees awarded in the United States have increased since 1980. Over the last twenty-three years (1980-2003), the increase in the total number of women who obtained their degree was 171.67 percent compared to men who increased slightly less at 125.68 percent (U.S. Department of Education, 2004a).

These trends are consistent across all racial and ethnic groups. Peter and Horn (2005) found that women, no matter their racial or ethnic background, earned more associate's and bachelor's degrees than men. Black women earned 66 percent of the degrees conferred to all black college students in 2002 (Peter & Horn). The same is true for Hispanic, American Indian, and Asian women. Men earn fewer degrees across all ethnic groups than women, a strikingly consistent pattern from study to study and from year to year. White men in 2002 earned 43 percent of the degrees awarded to whites compared to the 57 percent of the degrees awarded to white women (Peter & Horn). In one of the widest disparities in this study, black men in 2002 earned only 34 percent of the total number of degrees awarded to blacks compared to 66 percent of degrees which were awarded to black women (Peter & Horn). Hispanic men in 2002 earned just 40 percent of all of the degrees awarded to Hispanics that year, with Hispanic women earning 60 percent of all degrees awarded to Hispanics (Peter & Horn). Asian men in 2002 were awarded slightly more than 45 percent of the degrees awarded to Asians, with Asian women earning 55 percent of the degrees (Peter & Horn).

Background of the Literature

Enrollment Trends for Undergraduate Students

Since 1979, the first year that women outnumbered men in college enrollment, women have continued to enroll at a higher rate than men at colleges and universities in the United States (U.S. Department of Education, 2004d). King (2000) found that male enrollment in higher education reached its highest number in the latter part of the 1960s and in the early years of the 1970s, presumably as a large number of young American men sought to avoid the draft into the armed services during the Vietnam War. In the

years after the early 1970s, enrollment of men in colleges and universities in the United States showed signs of beginning to decline as larger numbers of young men did not enroll in college upon graduation from high school. In 1979 young women, for the first time in the history of American higher education, outnumbered men in enrollment in America's colleges and universities (King, 2000). With the economic changes, and to some extent the financial prosperity felt by many middle class Americans in the years of the 1980s, some evidence suggests that young men either did not enroll in college or enrolled but soon left college to pursue financial and employment opportunities immediately (King, 2000). Over time, as young men either did not enroll in college to begin with or left prior to completion of their degree work, America's women quietly effected something of an unseen revolution in the history of American higher education, continuing to outpace men both in their enrollment in American colleges and universities as well as their completion of these degrees (King, 2000). Over the past 25 years black, white, Hispanic, Asian, and Native American women have high numbers both in college enrollment and in degree completion when compared to men (King, 2000).

Trends in High School Graduation and Enrollment in College

Students who enroll in college immediately after high school have a higher retention rate and are more likely to complete their college degrees than those students who postpone enrolling (Berkner, Cuccaro-Alamin, & McCormick, 1996; King, 2000). Economic levels (defined as family income) have a significant impact on whether a male or female enrolls in college after completing high school. As a student's family income increases, so does their enrollment in college with one significant exception: African-American males (King, 2000; Berkner, 2000).

In addition, King (2000) found among white men and women of traditional college age, there was little difference in enrollment (49% enrollment to 51% enrollment). The greatest difference in gender is between African-American men and women (37%to 63% enrollment) (King). The difference is slightly less for Asian-Americans, where men attend college at a higher rate (54% men and 46% women); and Hispanics (45% men and 55% women) (King). The gender gap is caused by the disparity of enrollment among African-American males and Hispanic males (King).

Persistence and Degree Attainment

Persistence is a concern for college campuses across the country. Researchers have identified over the years a number of factors that contribute to the persistence of students. Financial resources continue to be a major factor that will determine if a student enrolls in and persists through college (Berkner, 2000; Cabrera, Stampen, & Hansen, 1990; King, 2000; Leppel, 2002; Long, 1998; St. John, 1990; St. John, Kirshstein, & Noell, 1991). Financial aid has a more direct effect on persistence, including grants and scholarships. Other persistence indicators inlcude: having children (Leppel, 2002); involved with campus (Astin, 1993; Leppel, 2002); married (Leppel, 2002); living in a residence hall learning community (Edwards & McKelfresh, 2002); high school GPA (Smith, Edmister, & Sullivan, 2001); degree aspirations and economic status (Poter, 1989; Smith, Edmister, & Sullivan, 2001; King, 2000); age (Grosset, 1991); race and ethnicity (Hu & St. John, 2001); gender (Leppel, 2002; Tinto, 1993); employment on or off campus (Ehrenberg & Sherman, 1987); and institutional factors including size and type (Astin, Tsui, & Avalos, 1996). A student's first semester GPA is a strong predicative measure of persistence and degree attainment (Pascarella & Terenzini, 2005).

Nunez & Cuccaro-Alamin (1998) found first generation college students are at a greater risk of not completing their degrees than those students whose parents had some advanced education. First generation college students tend to have several risk indicators including economic status, more likely to enroll in a two-year institution (51%), and poor academic preparation (Nunez & Cuccaro-Alamin). However, Nunez and Cuccaro-Alamin did find that students whose parents had some advanced education but did not receive a degree did have a higher rate of degree attainment than those students whose parents had none. Among first generation college students, men were less likely to attain a degree compared to women. Only 64 percent of the men who were first-generation who enrolled in college earned their degree compared to 67 percent of the women (Nunez & Cuccaro-Alamin). When the researchers looked deeper and controlled for other variables at the gender difference, Nunez and Cuccaro-Alamin found a lower degree attainment (57%) when a first generation college student is African-American.

Institutional Characteristics

Studies have found that four-year institutions have a higher percentage of graduates than two-year institutions (Pascarella & Terenzini, 2005). Students who begin at a two-year institution are less likely to complete their degrees compared to those students who begin at a four-year institution (Nunez & Cuccaro-Alamin, 1998; Peter & Cataldi, 2005). Students who attend private colleges, small colleges, or gender-specific colleges tend to have higher graduation rates. Students who are engaged in their campus communities through social activities and involvement with faculty, both inside and outside the classroom, also have higher rates of graduation (Astin, 1984, 1993; Astin, Tsui, & Avalos, 1996; Pascarella & Terenzini, 1991, 2005). Highly selective admissions

processes also show a higher degree attainment (Pascarella & Terenzini, 1991, 2005). Women who attend a women's college and African-Americans who attend a predominantly black institution have a higher degree attainment than their counterparts who attend co-educational or predominantly white campuses (Astin, Tsui, & Avalos, 1996; Kane, 1994; Pascarella & Terenzini, 2005).

Men who attend private universities have the highest degree attainment at 70.5%. While men attending public universities have the lowest degree attainment at 36.1% (Astin, Tsui, & Avalos, 1996). Astin, Tsui, and Avalos also found that both private universities and public universities are attracting highly prepared students. Therefore, the researcher's hypothesis reasons for the lower degree attainment of men at public universities cannot be attributed solely to student preparedness for college (Astin, Tsui, & Avalos, 1996).

According to the Integrated Postsecondary Education Data System (IPEDS), graduation rates over a 6-year period are 56% compared to the 4-year period of 35% (Knapp, Kelly-Reid, & Whitmore, 2006). The study also found that when looking at institution type, the 6-year graduation rate for students seeking a bachelor's degree at public institutions is 53% and is 64% for private (Knapp et al). This is also consistent with the findings of Nunez & Cuccaro-Alamin (1998) that first-generation college students take longer to complete their degrees.

Institutions that provided institutional grants to their students had a higher retention rate than those institutions whose students did not receive grants (Horn & Peter, 2003). This was true across institutional type of public and private not-for-profit four-year institutions (87% of the students returned) (Horn & Peter, 2003). A major difference

was for students who attended highly selective public institutions and receive a high-merit grant: 97% returned for their second years compared to 90% of the students who did not receive grants (Horn & Peter, 2003). At public four-year institutions, institutional grants continue to have positive effects on the graduation rate of the students compared to students who did not receive a grant (Horn & Peter, 2003).

The social integration (involvement on campus and with faculty members) of a student had a positive effect on degree attainment (Astin, 1993). In addition to social integration, institutions that provided their students with a student orientation and first year program have had a positive effect on degree completion (Pascarella & Terenzini, 2005).

Institutions are developing intervention programs to improve the retention rate of their students. Research has shown that learning support or remedial programs do improve the retention of underprepared students (Weissman, Sikle, & Bulakowski, 1997). Academic intervention programs have shown an improvement in grades for participants, especially in high-risk classes (minority, lower socioeconomic groups, and first generations) (Pascarella & Terenzini, 2005). Comprehensive support programs, such as the Student Support Services through the TRIO program, have shown that student participation in the support programs does improve the persistence rate (Astin, 1993). Faculty interaction with an undergraduate research program has a positive influence on persistence, degree attainment, and graduate programs. For African-Americans and sophomores, faculty interaction had the strongest influence (Astin, 1993). Sax, Bryant, and Harper's (2005) study supports previous research that students of both genders who

had interactions with faculty were more inclined to stay at the institution, had self-confidence in their academic work, and saw their leadership ability.

Kuh, Kinzie, Schuh, Whitt, and Associate's (2005) found six institutional characteristics that increased graduation rates. Schools with higher graduations rates have had both accepted mission statements and educational philosophies that are understood by both faculty and staff members. A solid focus on student learning by the institution has also shown an increase in graduation rates. Institutions that have created an environment that enhances educational learning have improved the interaction among faculty and students and students and students. Kuh et al found that institutions with high graduation rates have programs that promote student success in all aspects of the college campus in terms of policies and procedures. Another practice of schools with higher graduation rates is their focus to look for ways to improve both the academic and out-of-classroom experiences for their students. Finally, all parts of campus, academic, student affairs, business affairs, and athletics are all engaged in improving the education experience and their student success (Kuh et al.).

Statement of the Problem

Existing scholarship has identified both institutional factors and characteristics of individual students as potential determinants of success in the completion of college degrees. Among the institutional factors contributing to graduation and completion of all degree requirements include whether or not the institution is a private educational institution, whether or not the institution is a gender-limited educational institution, whether or not these educational institutions place an emphasis on opportunities for in-class and extracurricular student engagement in campus life, whether or not the

institutions place an emphasis or priority upon financial scholarships and tuition assistance for students, and whether or not the educational institution has a predominately black student enrollment. Both financial scholarships and predominately black institutions have a positive influence on degree attainment.

Academic studies also have consistently identified the personal or individual characteristics of students themselves as correlating to the success in graduation and completion of all degree requirements, including the financial circumstances or disadvantage of students. Other characteristics include whether or not students are the traditional age (18-23 years) of college students, the extent of academic preparation of students as indicated by high school grade point average (GPA) and the degree of rigor in high school academic work. Additional personal characteristics are whether or not the students take a personal involvement in classroom and extracurricular involvement in campus activities and life.

While scholarly research has shown a great deal of insight into both the institutional characteristics of higher educational institutions, as well as the personal characteristics of individual students as they correlate or correspond with the extent of overall graduation rates, existing research to date has not explored the extent to which degree attainment has been shaped at a profound and significant level by gender. While academic studies of gender differences in degree attainment tend to consistently show a greater success in degree completion for females than males irrespective of most economic factors, these studies still tend to offer less insight into the differences in degree attainment by gender as compounded by racial, ethnic, and parental income. To date, scholarly research has fallen short in exploring the combination of both individual

and institutional characteristics as they correlates to the degree attainment of males and females.

Research Questions

1. To what extent do males and females differ in undergraduate degree attainment (bachelor's degrees)?
2. To what extent do males and females differ on family backgrounds as predictors of undergraduate degree attainment (race, family income, family size, parent's educational level)?
3. To what extent do males and females vary in their high school experiences as predictors of degree attainment (bachelor's degrees)?
4. To what extent do males and females differ on institutional factors as potential predictors for degree attainment (type of institution, size, in-state/out-of-state, tuition costs)?
5. To what extent do differences in potential predictors contribute to degree attainment for males and females?

Conceptual Framework

This study extends the research completed on degree attainment and institutional characteristics.

The Theory of Individual Departure (Tinto, 1987) provides insight into why students who enroll in higher education drop out of school. First, students must experience some degree of integration into campus culture to feel contacted to the institution and are less likely to dropout. Based on Tinto's research he proposes that campuses have two cultures - the academic culture and the social culture- which are both

critical for the student to become integrated into campus life. Students may succeed in one of the cultures but not the other. The formal system (academic) and the informal system (social) are crucial for students to utilize to be successful (Tinto, 1987). He expresses the college community is both "highly interdependent, interactive systems" (Tinto, 1987, p. 108) where events in one part will or could affect the other (i.e. the academic and social cultures).

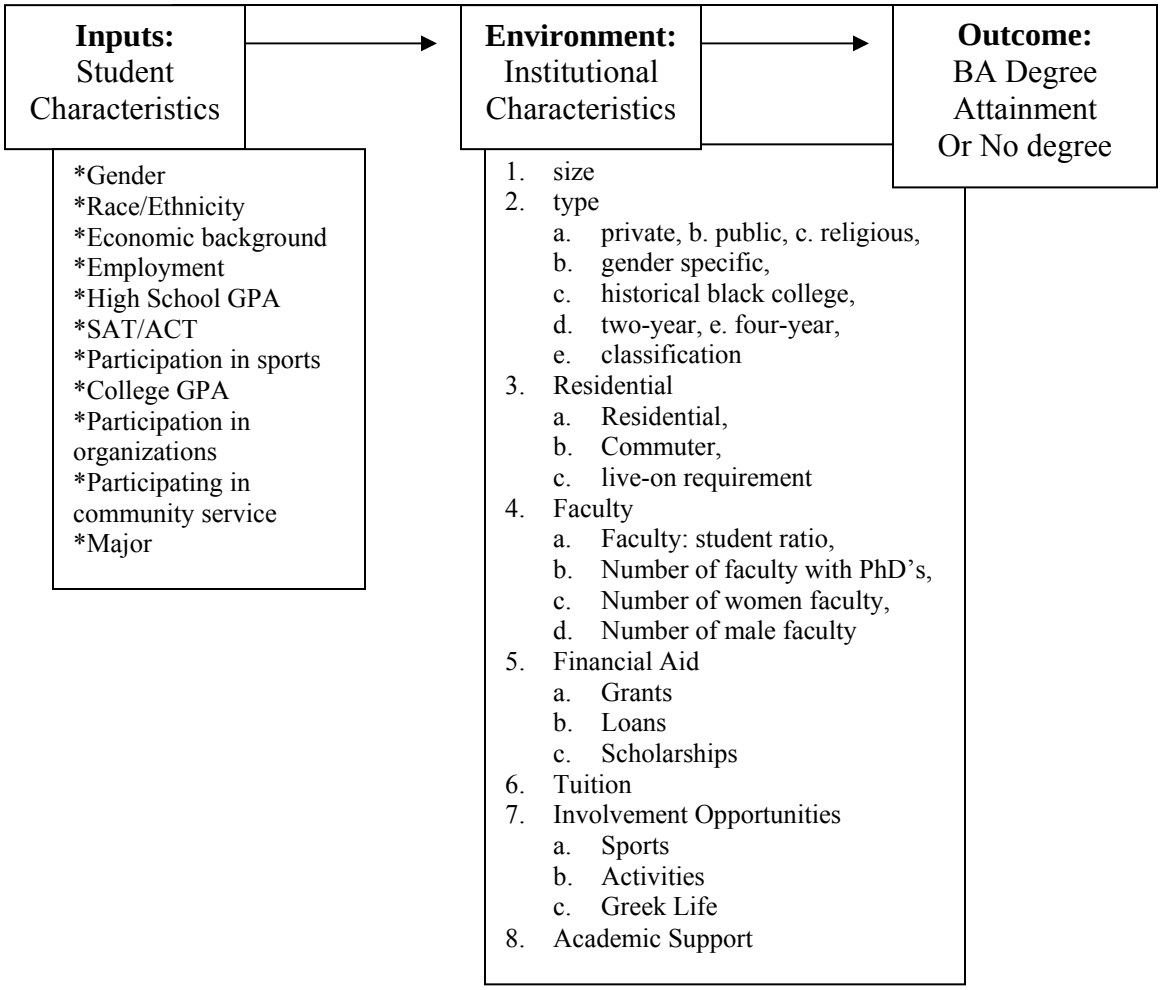
Astin's Theory of Involvement

Astin's (1975, 1984) Theory of Involvement contributes to the framework for this study. The theory of involvement looks at persistence of college students based on a longitudinal study. The theory considers involvement from both the academic and social systems. Five postulates of Astin's theory of involvement are 1) involvement means the investment of physical and psychological energy in various objects; 2) involvement is a continuum; therefore, the student can be highly involved or less involved in an object at different times; 3) involvement is both quantitative and qualitative; 4) the quality and quantity the student is involved is related to how much the student will learn and personally develop; and 5) "effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement" (p. 519).

When considering degree attainment, the researcher will consider Tinto's (1987) Theory of Individual Departure and Astin's (1975, 1984) Theory of Involvement to provide a more comprehensive understanding of why a student, male or female, chooses to persist to graduation rather than dropout. Astin's (1993) input, environment, and outcome (I-E-O) model will frame the research by considering the student characteristics as the inputs, the institution characteristics for the environment, and degree attainment as

the outcome. Astin has used the model to look at the changes in student behaviors from at the time of entering college to the point of leaving (Astin). Astin's research will provide the basis to determine which variables positively affect degree attainment for men.

Firgure 1.1 Conceptual Framework for I-E-O



Significance of the Study

The significance of the study is the potential to generalize institutional factors that contribute to degree attainment for undergraduate students to fill the gap as it pertains to gender. The implications of the study will potentially enhance the understanding of institutional leaders considering what institutional characteristics currently exist on their respective campuses to enhance degree attainment.

This research will allow institutions to consider what policies and practices are in place that may contribute to the low retention rate of men. It will provide additional information to consider the admission practices that may dissuade students from specific races, socioeconomic backgrounds, or genders from considering enrollment at the institutions. This information will allow institutions to consider the development of specific programs to focus on the academic advancement of men, identify the risk indicators early and encourage the students to participate in peer mentoring programs. It will also allow an institution to consider the development of new programs or services or to enhance an existing program to have a greater impact on campus or to develop a program that will improve the retention and persistence of their students and therefore increase the graduation rates. The research has the potential to provide a knowledge base for campuses to enhance the degree attainment of their male students.

The researcher is an aspiring faculty/administrator in academia and will benefit from the findings of this study in many ways by 1) enhancing her teaching in the academic setting and 2) understanding what contributes to degree attainment for male students.

Procedures

It is critical for higher education administrators to understand what factors may contribute to the degree attainment of men; especially since the overall number of men graduating with undergraduate degrees is shrinking.

Design

The researcher will conduct a quantitative study and will use the national databases from the United States Department of Education, National Center for Educational Statistics, the National Education Longitudinal Study (NELS). A descriptive study will be conducted to understand the personal characteristics and institutional characteristics that may contribute to degree attainment by male students.

Population

The participants in the NELS were initially surveyed in the 8th grade in 1988. A follow-up survey was conducted using the same participants in 1990, 1992, 1994, and 2000. NELS continued to study any participant from the first interview in 8th grade and followed them for six years after graduating from high school regardless if they graduated from high school and enrolled and graduated from college. The original study included 25,000 eighth graders (Crurtin, Ingles, Wu, Heuer, 2002).

The NELS: 88/00 final follow-up database in 2000 included 12,144 respondents who participated in the early surveys (Curtin, Ingles, Wu, Heuer, 2002). The participant demographic breakdown by gender and degree was 48% male and 52% female (variable: FASEX: Gender 20002). Thirty percent of the respondents had attained their bachelor's degrees (variable: F4HHGD: Highest PSE degree attained as of 2000), 7% had attainted their associate's degrees (variable: F4HHGD: Highest PSE degree attained as of 2000)

and 3% earned their master's degrees by the final survey (variable: F4HHGD: Highest PSE degree attained as of 2000). Thirty percent had not earned a degree (variable: F4HHGD: Highest PSE degree attained as of 2000).

Instrument

The NELS is a national survey completed by the United States Department of Education to collect information concerning persistence, degree attainment, work related issues, the impact of financial aid, and general educational outcomes in the United States. NCES oversaw the administration of the survey from the base year through when the third survey was administered through the National Opinion Research Center at the University of Chicago, and the fourth-year survey was completed by Research Triangle Institute (Curtin, Ingles, Wu, Heuer, 2002).

Analysis Tools

The researcher used the Statistical Package for Social Science (SPSS), version 15, computer software package to analyze the data. A descriptive analysis will be completed on each variable to provide a broader understanding of the participants in the national study. The descriptive analysis will use the relative weights as recommended by Thomas and Heck (2001). The relative weights will allow for statistical testing by maintaining the sample size and adjusting for the oversampling that is normal in large-sample survey data (Thomas & Heck).

The first part of the analysis is the descriptive analysis of the students' variables and institutional variables by degree attainment. This will provide an overall difference between students who obtained a degree and those who did not. SPSS was used to develop frequency distributions to address the research questions.

The second part of the analysis is to assess the significance of gender differences against the outcome variable of degree attainment. To assess this difference the researcher will use t-tests or chi-square analysis to describe and determine the significance on the outcome variable of degree attainment with individual institutional characteristics and individual personal characteristics.

Limitations

The researcher is unable to ensure the accuracy of the data by using a national database. Using the NELS data, the researcher is not able to access the restrictive data. The public version does not have the post-secondary transcript to analyze the college variables available with the restrictive data. The scope of the study will focus on the degree attainment of men.

Definition of Terms

Undergraduate degree: The attainment of an associate's or bachelor's degree.

Degree attainment: The completion of a program of study and graduation with a bachelor's degree or higher.

Two-year institutions: Institutions that offer associate's degrees. This will include community colleges and technical colleges.

Four-year institutions: Institutions that offer bachelor's degrees.

Institutions of higher education: For the purpose of this research paper, institutions of higher education will include colleges and universities, community colleges, technical colleges, and two year institutions.

Persistence: The student continued in school even though they stopped out or transferred to another institution.

Retention: The student returns to the same institution each year and graduates from their original institution without leaving.

Summary

Understanding the factors that contribute to the degree attainment of undergraduate men will potentially allow institutions of higher education to expand services to increase the graduation rates of men. To understand what factors contribute to the degree attainment of men will continue to enhance the offerings and enrollment management techniques implemented to retain and matriculate an institution's student. Men and women are showing different enrollment and graduate rate trends. Considering the men who have obtained their degrees will allow the researcher to compare personal and institutional characteristics to determine what characteristics are predictors for degree attainment to ensure institutions of higher education do not fail to provide the resources or programs to their students that may enhance the degree attainment of men.

CHAPTER 2

REVIEW OF LITERATURE

This chapter will briefly review the history of higher education prior to the 1980s and the role of gender. Then it will review the research of college enrollment and retention of students. This will lead to the discussion of what effects institutional characteristics have in the degree attainment of students. This will include a review of research concerning the institutional size, selectivity, type, the impact of mentoring programs, and athletics. From this discussion a review of what personal characteristics can predict the degree attainment of students will follow. The research will review gender, race, pre-college academic and collegiate academic achievement, parenthood, involvement on campus, living on campus, transferring, financial aid, and family income. After an exhaustive literature review, it is noted that little research has been conducted to consider the factors that contribute to the degree attainment of men as an overall group. Research exists on each of these factors and looks at college students as a whole group, some studies look specifically at women or by race or income only.

Higher Education and Gender Prior to the 1980s

Colleges started forming in the colonial states starting in 1636 with Harvard University and by 1796 the nine original colleges in the United States were formed. The colleges were similar in that all the students were white males and were from the middle and upper class (Cowley, 1991). By 1827, black education was beginning with three blacks receiving degrees from Middlebury, Amherst, and Bowdoin. Mount Holyoke Female Seminary opened in 1836 providing the first woman-only education in the United States. Prior to 1836 Oberlin College accepted 38 women (Cowley, 1991).

Only when the United States Congress passed the Land Grant Act of 1862 (Merrill Act) did higher education expand and increase in the number of institutions and the number of students who graduated in the United States. The reauthorization and changes to the Merrill Act of 1890, forced states to fund black institutions. Mississippi and Virginia were the first two states to allocate money from the land-grant to black colleges (Cowley, 1991; Lucas, 1994). The Merrill Act of 1890 increased the allocation of land to black colleges because in the original act states could not discriminate between white and black colleges, but the second act allowed them to maintain separate programs. By 1900, every southern state and boarder state had a black college (Lucas, 1994).

In 1900, there was a four percent or 250,000 increase in American 18-year-olds who attended college (Cohen, 1998). Although there was an increase in the number of students attending college, the demographics of the average college student did not change. The average college student was from the middle and upper class, white, male, and usually protestant (Cohen; Cowley, 1991; Lucas, 1994).

The Serviceman's Readjustment Act of 1944, the GI Bill, provided funding for service men returning from World War II (2.3 million men) to enroll in college (Goodchild & Wechsler, 1989). College attendance was encouraged due to worries of the large number of men who would seek employment opportunities after the war. The GI Bill allowed men who could not previously afford college a chance to attend. The GIs changed the face of college education in the United States by increasing enrollment in colleges and this trend continues today as colleges are educating more students (Goodchild & Weschsler). The same trends were noticed after each war following World War II (Lucas, 1994).

Many women attended women's colleges prior to the 1970s because of the lack of support to further women's education due to the socially acceptable view of women's place in the community and in education. Women's college studies usually consisted of classical and liberal arts since they were not preparing for a specific vocation after college (Goodchild & Wechsler, 1989). Education was supposed to help women become better wives to their husbands. Women attending college had few privileges whether attending an all female college or being a woman who was attending a predominantly male college. Women had earlier curfews and limits on socialization. It was worse for females who attended predominately male colleges. These females would have to sit in the back of the classroom, many were not recognized by their professors and were excluded from campus activities. Although men had the advantage, the number of women attending college increased to about half of the undergraduate population by 1920 (Cohen, 1998).

African-Americans began to attend college during this time period in the 1920s. The curriculum taught consisted of learning basic skills. Although only the basics were taught, there was a considerable increase in the number of African-Americans attending college. Historically Black Colleges were either land-grant schools or private colleges established by philanthropic groups or churches. These institutions were a step down from the traditional colleges because they lacked supplies and money (Goodchild & Wechsler, 1989).

Higher Education After 1980

Since 1979, the first year that women outnumbered men in college enrollment, women have continued to enroll at a higher rate than men at colleges and universities in

the United States (U.S. Department of Education, 2004d). King (2000) found that male enrollment in higher education reached its highest number in the latter part of the 1960s and in the early years of the 1970s, presumably as a large number of young American men sought to avoid the draft into the armed services during the Vietnam War. In the years after the early 1970s, enrollment of men in colleges and universities in the United States showed the beginning signs of decline as larger numbers of young men did not enroll in college upon graduation from high school. By 1979, a historic first was achieved, as mentioned here, in that 1979 saw young women, for the first time in the history of American higher education, outnumber men in enrollment in America's colleges and universities (King). With the economic changes and to some extent the financial prosperity felt by many middle class Americans in the years of the 1980s, some evidence suggests that young men either did not enroll in college or enrolled but soon left college to pursue financial and employment opportunities immediately (King). Over time, as young men either did not enroll in college to begin with or left prior to completion of their degree work, America's women quietly effected something of an unseen revolution in the history of American higher education, continuing to outpace men both in their enrollment in American colleges and universities, as well as their completion of these degrees (King). As figures earlier have suggested, the powerful and far-reaching implications of these numbers have drawn attention and appreciation that these numbers show consistency across ethnic and racial differences. From black to white to Hispanic to Asian to Native American, young women have shown in the past 25 years historic and remarkably high numbers both in enrollment and in degree completion when compared to men of all of these racial and ethnic groups.

By 1991, it is estimated that 7.8 million women were attending college, which is double the number that attended from 1970 to 1990 (Lucas, 1994, p. 231). Enrollment in higher education by recent high school graduate rates started declining between 1997 and 2001 from 67 percent to 61.7 percent (Sum, Fogg, Harrington, Khaiwada, Palma, Pond, & Tobar, 2003). Today college attendance rates are up among all groups both by race, gender, and ethnicity with the largest gains among women (Sum et al, 2003). Still men are less likely to graduate from high school than women; thus fewer men will enroll in a college than women (Sum et al, 2003). Sum et al (2003) also found that the men who do graduate from high school are less likely to immediately enroll in a college. Sum et al states "[men] constitute a distinct minority of the nation's new college students" (p. 8). In 1970, the ratio of men to women in higher education was 68 women to 100 men (Sum et al, 2003). By 1978, the ratio was even and women have since outpaced men in higher education. By 2000, the ratio was 129 women to 100 men (Sum et al, 2003). When the researchers broke this down by race, the advances of women were even more striking compared to the men. For white women and men the ratio was 126 women to 100 men; for black women and men the ratio was 166 women to 100 men; and for Hispanic women and men the ratio was 130 women to 100 men (Sum et al, 2003). The most striking gap was among black women and men. Black women are outpacing black men in college enrollment (Sum et al, 2003). If more women are enrolling in college, their degree attainment rates will be higher than men, and institutions will have to develop programs to retain the men.

Overview of Retention Research

Lotkowski, Robbins, and Noeth (2004) completed a meta-analysis on 400 studies with 109 criteria relating to college persistence and graduation. From the 109 factors the meta-analysis found 11 factors that had a positive relationship to retention. These factors were academic-related skills, academic self-confidence, institutional commitment, social support, social involvement, institutional selectivity and financial support.

High school grade point average, socioeconomic status, and ACT Assessment scores were identified as the strongest academic predictors for persistence and graduation (Lotkowski, Robbins, & Noeth, 2004). But the researchers found that even if a student can master the course materials, if the student lacks in academic confidence, goals, commitment to the institution or social support, they had a higher risk of dropping out.

Additional factors that are strong factors related to retention were students who had developed academic-related skills (time management, study skills and habits), academic self confidence, and stated academic goals. After completing additional analyses of the variables, the researchers were able to determine that 17 percent of the variability of college retention can be explained when combining socioeconomic status, high school grade point average, and ACT Assessment scores with institutional commitment, goals, social support, academic self-confidence, and social involvement (Lotkowski, Robbins, & Noeth, 2004).

Additional retention research by Nippert (2000-2001) identified fourteen variables that account for 22 percent of the variance in predicting two-year college degree attainment. The fourteen variables were gender, their academic record in high school, involvement in campus activities, work status, their GPA in college, income of their

parents, social activities, satisfaction with both academics and social aspects of college, number of hours spent on academic pursuits and social pursuits, getting married, and choosing to re-enroll (Nippert). Out of these fourteen variables only two were directly related to the institutional college GPA, satisfaction with academics and involvement in campus activities. The remaining variables were the students' inputs and cannot be affected by the college. "Student degree attainment is influenced by changes in family status, financial aid, and self-knowledge about academic skills and interests that occur during the first year" (Dowd & Coury, 2006, p. 56).

The Toolbox Revisited

Adelman (2006) completed an extensive review of the national longitudinal student through the NELS: 88/2000, through a logistic regression found ten variables that were found significant in the degree attainment of students throughout all the regressions. The ten variables Adelman found that were significant in the degree attainment of students are: 1) Academic Resource quintile; 2) Socioeconomic Status quintile; 3) Attended multiple schools; 4) First calendar year GPA; 5) Earned summer term credits; 6) Ever worked part-time; 7) Trend in GPA; 8) Cumulative credits in college-level math; 9) Withdrawing from classes; and 10) Continuous enrollment (Adelman, 2006). The study also found that students who do not delay in entering college were more likely to complete their degree (Adelman, 2006).

Students earning less than 20 credits in their first year in college reduced their likelihood to graduate by 22.4 percent (Adelman, 2006). Attending summer school was significant in improving degree completion by 12 percent, because it increased the number of credit hours and the student was continuously enrolled (Adelman). Adelman

found there is a negative relationship for students who ever worked part-time and their degree attainment. Working part-time reduced the likelihood of earning a degree by 25 percent (Adelman, 2006). Another negative significant relationship with degree attainment is attending multiple schools. Attending multiple schools can reduce the student's chance of graduating by 15 percent (Adelman, 2006). There was no negative relationship found when students attend a two-year institution and than transfer to a four-year institution. As found in the other studies as a student's GPA does goes up, it has a 12 percent probability of increasing graduation rates (Adelman, 2006). The ratio for students withdrawing from classes or not earning credit in more than 20 percent of their coursework have a 49 percent greater chance of not graduating (Adelman, 2006). Even though many students will stop-out, research has shown that continuous enrollment does increase the probability of graduating by 43 percent (Adelman, 2006).

One-third of all traditional-age college freshmen will earn their degrees in four-years from the original institution they entered and by six years that rate increases to 54 – 58 percent (Adelman, 2006). Still when considering students who transfer, the six-year rate is between 62– 67 percent and when expanding the number of years to 8.5 years the degree attainment reaches 70 percent (Adelman, 2006). This 70 percent represents looking at the overall graduation rate for all students regardless if they only attended one institution or multiple institutions (Adelman, 2006).

Capaldi, Lombardi, and Yellen (2006) warn that the data collection methods used by institutions can skew the numbers when considering graduation rates. Institutions exclude students who do not begin the fall semester, are part-time students, or have transferred. Transfer students are counted against the retention and graduation rates of the

school they transferred from but are not included in the graduation rates for the institution they actually graduate from. This reporting is due to the methodology of the federal government reports. The reports exclude a large number of transfer students and part-time students (Capaldi & Lombardi, & Yellen, 2006).

Graduation from High School and Enrollment in College by Family Income, Gender and Race

Data from the Census Bureau October 1998 Current Population Survey shows that for dependent students as the family income level increases so do high school graduation rates, and in 1998, the overall high school graduation rate for men was 76.9 percent compared to 84.6 percent for females (Mortenson, 2000f). Delineating this further Mortenson (2000f) found that only 43.4 percent of men from families that earned less than $10,000 graduated from high school.

Of the men who graduate from high school only 69.3 percent went to college compared to 78.6 percent of women (Mortenson, 2000f). Based on income, 34.4 percent of college students were from families that earned more than $75,000 compared to families that earned less than $25,000 with only 13.7 percent enrolling in college even though this group made up 23.2 percent of the graduating high school class in 1998 (Mortenson, 2000f). Families that earned between $50,000 - $75,000 and $25,000 – $50,000 had about the same percentage of students in school at 26 percent (Mortenson, 2000f). At all income levels women entered college at a higher percentage (Mortenson, 2000f).

The highest participation rates in college based on income were students whose families earned greater than $75,000; 92.3 percent of the women entered college

compared to only 85 percent of the men. When controlling for gender and income, women still graduate both from high school and enroll in college at higher rates than do men. When controlling for just income, whites and Asians graduate from high school and enroll in college at higher rates than Blacks and Hispanics (Mortenson, 2000f).

Enrollment in Higher Education by Age, Gender, and Race

When the researchers analyzed the enrollment data by age, again the data showed that women have continued to outpace men since 1992. In 1992, for enrolled students between the ages of 18-24, the ratio was 36 percent women and 32.7 percent men, and by 2000, the gap was even wider with 38.4 percent women and 32.6 percent men (Sum et al, 2003). Women increased their enrollment numbers while overall the number of men who enrolled stayed the same (Sum et al, 2003). The greatest difference in enrollment was between black women and men. There is a 10.2 percentage point difference between black women and men in college enrollment (35.1 percent (women) to 24.9 percent (men) (Sum et al, 2003)).

It is not shocking since, as discussed earlier, women graduate from high school and enroll in college at a higher rate than men, that women are earning more degrees than men at every level of higher education. In 2000, women earned 151 degrees for every 100 awarded to men at the associate's degree level (Sum et al, 2003). At the bachelor's degree level in 2000, women were awarded 133 degrees for every 100 awarded to men (Sum et al, 2003).

Between 1992 and 2000, two-thirds of all students earned their undergraduate degree by the time they are 25 – 29 in age and one-third of all students left college before graduating (Mortenson, 2000a). The March 2000 Current Population Survey found for 25

to 29-year-olds 10,657,000 had enrolled in college and of this 6,895,000 (64.7 percent) had earned either an associate's or bachelor's degree (1,588,000 earned an associate's degree; 5,307,000 had earned their bachelor's) and 3,762,000 (35 percent) had no degree (Mortenson, 2000a). This data, which does not rely on four or six-year graduation data from colleges, found that slightly more men have earned a degree then women (50.7 percent to 49 percent) suggesting that men take longer to graduate or have different enrollment patterns than women (Mortenson, 2000a). This data further revealed that Asians and whites have the highest degree completion rates when their families were from high to medium income groups, and the lowest graduation completion rates were from the lowest incomes for all races/ethnicity and were black, Hispanic, or Native American (Mortenson, 2000a).

Fifty-one percent of all babies born each year are men, and there are more men than women until their 30s, when women outnumber men (Mortenson, 2000b). Mortenson (2000b) proposes that the lower degree attainment by men must be societal. Adelman (2006) found in his analyses of the National Education Longitudinal Study (NELS) 88/2000 study that being male reduces the probability a person will earn a bachelor's degree by 11 percent. McCormick and Horn (1996) found through their descriptive study of the NCES Baccalaureate and Beyond 93/94 Survey that men took longer to graduate from college than women. Women graduated at a higher percentage after four years than men (48 percent women; 37 percent men) (McCormick & Horn, 1996). The five-year graduation rates were 35 percent men to 29 percent women, and six-year rates were 13.5 percent men and 9 percent women (McCormick & Horn, 1996).

Institutional Characteristics that Encourage Degree Attainment

Volkwein and Szelest (1994) (see Volkwein, Szelest, & Lizotte, 1993; and Regan and Volkwein, 1993) identified five dimensions to evaluate an institution on what can contribute to the degree attainment of their students. The dimensions are: 1) the mission of the institution (type of institution and highest degree offered); 2) the size of the institution (enrollment, full-time faculty, library holdings); 3) the wealth of the institution (the ratio of students to faculty, revenue per student, expenditures per student for academic support, student and auxiliary services); 4) the diversity of the institution (on-campus housing, revenue from auxiliary units, the percentage of minority and foreign students and commuters); and 5) the selectivity of the institution (use of percentage of acceptance; SAT scores; faculty quality through salaries).

Astin (2005) developed a stepwise linear regression consisting of 56,818 students (first-time, full-time freshmen from the Fall 1994 incoming class) and found that the difference in graduation rates by institution is highly dependent on the student characteristics of the entering cohort at that institution, and two-thirds of the variance in graduation rates between institutions can be attributed to the differences in the student bodies between the institutions (Astin, 2005). Therefore, the difference in graduation rates between institutions is predominately contributed to the differences in the student bodies (Astin, 2005). Even though these differences are predominantly attributed to the student characteristics, Astin does not believe institutions should not make every effort to improve their graduation rates through programs and initiatives. The variables listed above may have more of an indirect effect on the institutions graduation rates.

Institutional characteristics can have an impact on the persistence and graduation rates of their students. Researchers have identified a number of factors that contribute to the persistence of students. Some persistence indicators are: being involved on campus (Astin, 1993; Leppel, 2002); having residence hall learning communities (Edwards & McKelfresh, 2002); and institutional factors including size and type (Astin, Tsui, & Avalos, 1996). Financial resources continue to be a major factor that will determine if a student enrolls in and persists through college, and institutions impact this factor through financial aid (Berkner, 2000; Cabrera, Stampen, & Hansen, 1990; King, 2000; Leppel, 2002; Long, 1998; St. John, 1990; St. John, Kirshstein, & Noell, 1991). Certain financial aid has a more direct effect on persistence, including grants and scholarships. The student's first semester GPA is a strong predictive measure of persistence and degree attainment (Adelman, 2006; Pascarella & Terenzini, 2005).

Institutional Type

Students who begin college at a two-year institution are less likely to complete their degree compared to those students who begin at four-year institutions (Nunez & Cuccaro-Alamin, 1998; Peter & Cataldi, 2005; Velez, 1985). Studies have found that four-year institutions have a higher percentage of graduates than two-year institutions (Pascarella & Terenzini, 2005). This is consistent even when considering a specific group of students. Hispanic students who begin at a four-year institution are significantly more likely to earn their bachelor's degrees than Hispanic students who begin at two-year institutions (Arbona & Nora, 2007). Students who attend private colleges, small colleges, or gender-specific colleges tend to have higher graduation rates (Astin, Tsui, & Avalos, 1996).

Men have the highest degree attainment from private universities (70.5 percent), with public universities having the lowest level of degree attainment (36.1 percent) (Astin, Tsui, & Avalos, 1996). Women who attend women's colleges and African-Americans who attend predominantly black institutions have higher degree attainment than their counterparts who attend co-educational or predominantly white campuses (Astin, Tsui, & Avalos, 1996; Kane, 1994; Pascarella & Terenzini, 2005).

Institution Size

Researchers have found institutional size to have varying degrees of impact on the institutions graduate rates. The research is not conclusive if institutional size has a direct or indirect on retention and degree attainment. Institutional size was found not to have a relationship to retention based on a meta-analysis after reviewing 400 studies (Lotkowski, Robbins, & Noeth, 2004). However, other researchers found that size does have potentially a different effect for specific groups of students. Astin, Tsui, and Avalos (1996) analyzed the Cooperative Institutional Research Programs incoming cohort of freshmen in fall of 1985, and who obtained their degree by the summer of 1989, and found that size did affect degree attainment for white and Hispanic/Latino students but not for other groups. Pascarella and Terenzini (2005) determined that size may play a role in the students' social integration at the institution, which therefore, can influence the degree attainment of the institution's students. However, Huffman and Schneiderman (1997) found that size of an institution did have a negative effect on graduation rates when controlling for variables. The researchers also found that as the student-to-faculty ratio increased there is a significant correlation to graduation rates (Huffman & Schneiderman, 1997). The size of an institution was found to have a significant indirect

effect on degree attainment for black men mainly due to the inability to connect with faculty at a large institution (Pascarella, Smart, & Stoecker, 1989).

Full-Time and Part-Time Faculty

Hiring part-time faculty to reduce the institution's faculty/student ratios can actually have a negative effect on graduation, due to the lack of students becoming integrated on campus (Benjamin, 2002). Harrington & Schibik (2001) found that freshmen that took a larger percentage of credit hours from part-time faculty were less likely to graduate than students who were in classes with full-time professors. Ehrenberg and Zhang (2004) found that as four-year institutions increase their part-time faculty by 10 percent, it reduces their graduation rates by 2.65 percent (as cited in Jacoby (2006)). Many institutions' part-time faculty do not have terminal degrees, are not as available as full-time faculty, and may offer less academically-challenging classes (Jacoby, 2006). As faculty/student ratios are decreased the graduation rates for students at two-year institutions increase between 21 percent to 25 percent. However, the increase in part-time faculty has a negative effect on the graduation rates at community colleges so institutions should increase full-time faculty to reduce the faculty/student ratios (Jacoby, 2006).

Public or Private Institution

The six-year graduation rate for students seeking a bachelor's degree at a private university is 64 percent and from a public school is 53 percent (Knapp, Kelly-Reid, & Whitmore, 2006). This is consistent with the findings of Astin, Tsui, and Avalos (1996), Mortenson (2000d), Velez (1985), that private universities are graduating a higher percentage of their students. Astin, Tsui, & Avalos (1996) determined that both private universities and public universities are attracting highly prepared students. Therefore, the

lower degree attainment at public universities cannot be contributed solely to student preparedness for college. McCormick and Horn (1996) analyzed NCES Longitudinal Data from the B& B Student Survey and found students who attend not-for-profit private four-year institutions were more likely to graduate in four years than students attending public institutions (57 percent vs. 27 percent).

However, when analyzing the six-year graduation rate, Astin & Oseguera (2002) found that the degree attainment of students increased to 58.8 percent and 61.6 percent for students who were still enrolled after six years. When considering the six-year graduate rates the difference between public institutions and private institutions diminishes. Astin and Oseguera interpreted this to mean that students who chose to attend a public institution may take longer to complete their degrees than students attending a private institution.

Institutional selectivity and institutional expenditures represent a 65 percent variance in graduation rates at private institutions. There is a direct relationship at private institutions with expenditures and graduation rates (Gansemer-Topf & Schuh, 2006). Muraskin, Lee, Wilner, and Scott-Swail (2004) found that private four-year institutions at all levels of selectivity also graduate a higher number of low-income students at all four types of Carnegie Classifications than do public institutions (80 - 57 percent for private and 59 – 39 percent for public).

Scott, Bailey, and Kienzl (2006) analyzed the six-year graduation rates of students based on retention variables and controlled for the retention variables using the Oaxaca Decomposition Model to compare the graduation rates between public and private institutions. Using the Oaxaca Decomposition Model, the only significant institutional

factor for private colleges was instructional expenditures per student. For every $1,000 increase in the instructional expenditure at a private college, the graduation rates for students increased by .44 percent (Scott, Bailey & Kienzl, 2006). When the researchers ran the same regression on public institutions an increase of $1,000 per student in instructional expenses had a two percent gain in graduation rates (Scott, Bailey & Kienzl, 2006). The increase in instructional expenditures had a greater impact on graduation rates for public institutions versus private institutions (Scott, Bailey, & Kienzl, 2006).

Consistent instructional expenditures (faculty and teaching) and academic support (libraries, campus computing, advising, tutoring) were associated with a significant and positive relationship with degree attainment at private institutions (Gansemer-Topf & Schuh, 2006). Scott, Bailey, and Kienzl (2006) found that public institutions did perform better than private institutions when controlling for student input factors which were found to be highly associated with the differences in graduation rates between public and private institutions.

Selectivity

In the analysis of the NELS:88/2000 study, institutional selectivity was not statistically significant in the degree attainment of the students (Adelman, 2006). As other researchers have stated, selectivity may have a positive indirect effect on degree attainment (Astin, 2005; Velez, 1985; & Adelman, 2006). Institutions with highly selective admissions processes show higher degree attainment (Pascarella & Terenzini, 2005; Kim, Rhoades, & Woodard, 2003; Lotkowski, Robbins, & Noeth, 2004). According to Astin's research (2005), institutional selectivity had the highest correlation to degree attainment when considering college characteristics. This trend may be

explained by selective institutions having access to more resources to support academic success programs, and by the academic and financial backgrounds of the students attending these institutions (Astin). Scott, Bailey, and Kienzl (2006) also suggest that the higher graduation rates at private institutions are due to the student characteristics.

Velez (1985) suggests that highly selective institutions have the ability to attract students from high economic backgrounds. These students tend to attend high schools with strong academic preparation and typically have parents who are college educated. Due to the cost of most highly selective institutions students who enroll in these institutions tend to be from demographic groups that historically have achieved high rates of degree attainment. Velez further explains that the higher degree attainment rates may be due to the ability of their students to live on campus and find employment on campus that increases their connections with campus (Velez, 1985).

For black men and women, high academic achievement (grade point average and membership in academic honor societies) and institutional selectivity or prestige had a significant positive effect on degree attainment (Pascarella, Smart, & Stoecker, 1989). The positive effect can also be found when looking specifically at first-generation college students who attend private institutions; this group was 34 percent less likely to drop out compared to first generation college students who attend public institutions (Ishitani, 2006). Students who receive the Pell Grant and attend a selective institution have a higher graduation rate than those at other types of institutions even when controlling for students' SAT scores and if they attended a public or private institution (Mortenson, 2000d; Muraskin, Lee, Wilner, & Scott-Swail, 2004)

Historically Black Colleges & Universities and Historically White College & Universities

Pascarella, Smart, and Stoecker (1989) analyzed the Cooperative Institutional Research Program (CIRP) survey from 1971 and the follow-up survey nine years later in 1980, and found that an institution's status as a historically black college or university (HBCU) had little impact on the degree attainment for students versus a historically white college or university (HWCU). Black women attending an HBCU saw a positive indirect effect on their degree attainment (Pascarella, Smart, & Stoecker, 1989). Faculty interaction at a HBCU or a HWCU was found to have a significant positive relationship on degree attainment for black men (Pascarella, Smart, & Stoecker, 1989).

This study was conducted again by Kim and Conrad (2006), and the findings were similar; there were no significant differences in the rate of graduation for black students attending a HBCU or a HWCU. The research did find that seminars and research with faculty had a positive correlation with graduation (Kim & Conrad, 2006). Black students were 1.5 times more likely to participate with faculty on research projects and have seminars for classes at HBCUs compared to HWCUs (Kim & Conrad, 2006). This is a consistent finding with other research that has found students who are engaged with faculty adjust to campus and this influences their graduation rates (Astin, 1981, 2005; Pascarella & Terenzini, 1991).

Major

In a University of Iowa study, students who were majoring in engineering and business had higher graduation rates than students in the social science majors (DesJardins, Kim & Rzonca, 2002-2003). Smyth and McArdle (2004) found men were more likely to graduate from engineering, science, and math fields than women when looking at 23 highly selective institutions. The authors found that ethnicity and gender

interactions were not significant and the strongest predictor for the graduation rate was the high school GPA and the SAT math scores that accounted for 10 percent of the variance (Smyth & McArdle).

Degree choice can have an impact on the student's graduation. Allied health professions, fine arts, and engineering were found to have a negative effect on graduation rates (Astin, 2005). Declaring a major can improve the graduation rates of students not enrolled in remedial classes by 22 percent, but changing a major can have a negative impact on persistence and graduation (Kreysa, 2006). Students who declare a professional major in their first year in school have an increase probability of graduating between a 5.6 to 6.1 percent (Singell & Stater, 2006).

Living On Campus vs. Commuting

Living on campus was found to be the greatest impact a college can have on a student's persistence and degree attainment (Pascarella & Terenzini, 2005 & Astin, 2005). Students who live on campus in previous research have been more engaged with campus life, are more satisfied with the campus environment, and interact with faculty and professional staff at a higher rate (Pascarella & Terenzini, 2005). Research has shown that students who are more engaged in all aspects of campus life and interact with faculty, have a higher degree attainment than other students (Astin, 1981, 2005; Pascarella & Terenzini, 1991).

There is a negative effect on graduation rates for students who commute compared to students who live-on campus (Scott, Bailey, & Kienzl, 2006; Mortenson, 1997; DesJardins, Ahlburg, & McCall, 2002; and Astin & Oseguera, 2002). Mangold, Bean, and Adams (2003) and Huffman and Schneiderman (1997) found that students'

living arrangements did have a statistically significant effect on graduation rates. By living on campus students enhance their integration into campus life both socially and intellectually (Mangold, Bean & Adams, 2003; Pascarella & Terenzini, 1991). In fact, as the number of students living on campus increased so did the institutions' graduation rates (Huffman & Schneiderman, 1997).

Mentoring Programs Sponsored by Campuses

The University of Maryland-Baltimore County sponsors a mentoring program for students majoring in science and engineering, the Meyerhoff Scholarship Program. The program accepts 45 students per year and participants receive four-year comprehensive financial support by maintaining a grade point average of a B. The program has seen a 94 percent graduation rate among the students who received a scholarship (Girves, Zepeda, & Gwathmey, 2005).

Students involved in a mentoring and block-scheduling program at the University of Arkansas were found to have significantly higher graduation rates than students who did not participate in a mentoring program (Mangold, Bean, Adams, Schwab, & Lynch, 2002-2003). Kim and Alvarez (1995) found students who participate in research with a faculty member improved their self-confidence both academically and socially. This is consistent with the findings of Astin (1984) and Pascarella and Terenzini (1991) that faculty interaction and out-of-class interactions can improve the graduation rate of students through the socialization of the student and connecting them to the campus community. Faculty interaction had a significant positive effect on black men (Pascarella, Smart, & Stoecker, 1989).

First-generation and low income students who participated in the Ronald McNair Program, a federal program that provides mentoring and research opportunities to first-generation, low-income, and minority students, by providing opportunities to produce research under the direction of a professor and attending workshops and meetings to discuss graduate school, were more likely to be retained at their institutions compared to other first-generation or low-income students by 92.2 percent (Ishiyama & Hopkins, 2002-2003). Students who participated in the McNair Program were found to have statistically significant graduation rates when compared to other first-generation, low-income students. The faculty mentoring was found to have a strong positive effect on the students, along with the promotion of research and guidance (Ishiyama & Hopkins). It was found that Pell Grant recipients had the highest graduation rates from institutions that had active advising programs, smaller class sizes, the TRIO Program, Student Support Services, peer tutors and mentors (Muraskin, Lee, Wilner, & Scott-Swail, 2004). All the programs connect students with mentors, either faculty or peers, to help the students adjust to campus or receive help since research has show many Pell Grant recipients were under-prepared in high school and tend to have lower test scores (Muraskin, Lee, Wilner, & Scott-Swail, 2004).

Research on Student Characteristics Concerning Retention and Degree Attainment

The characteristics of a student's background prior to enrolling in college and the characteristics after entering college can affect a student's graduation rate. Arredondo and Knight (2005) and Astin and Oseguera (2002) identified students' gender, high school GPA, their SAT scores, and their race/ethnicity as predictors to graduation rates. Two-thirds of the variance in graduation rates between institutions can be attributed to the

differences in the student bodies (personal characteristics) between the institutions (Astin, 2005).

The strongest predictors for degree attainment were high school grade point average, socioeconomic status, and ACT Assessment scores (Lotkowski, Robbins, & Noeth, 2004). Nippert (2000-2001) identified fourteen variables that account for 22 percent of the variance in predicting two-year college degree attainment. Eleven of the variables are related to personal characteristics: gender, high school record, campus involvement, work status, college GPA, family income, social activities, satisfaction with both academics and social aspects of college, number of hours spent on academic pursuits and social pursuits, getting married, and choosing to re-enroll (Nippert). Dowd and Coury (2006) research found non-traditional students to have a negative predicting factor for degree attainment. A student's aspiration level, in the NELS 88:94 Survey, was significant in determining if the student would attend college, and students with high levels of aspiration were most likely to attend a four-year college (Kim & Schneider, 2005). The students' own motivations affect their enrollment and degree completion rates.

Race/Ethnicity

Black, Native American, and Hispanic students are less likely to graduate after five years compared to Asian American and white students who are still enrolled. Men and underrepresented populations are still enrolled at higher rates then women after five years (Kim, Rhoades, & Woodard, 2003). It takes longer for non-whites and Asian Americans to graduate from college (Kim, Rhoades, & Woodard, 2003). Being a minority reduces a student's chance of earning a bachelor's degree by 17 percent

(Adelman, 2006). Degree attainment is largely influenced by the student's academic preparation and socioeconomic situation (Astin & Oseguera, 2002).

Analyzing the NELS 1988:1994, for enrollment and graduation rates from HBCUs, Bennett and Xie (2003) found that black and white students from high socioeconomic backgrounds attend college at the same rates. However, when the students are from the lower socioeconomic standings, more blacks attend college than whites. Bennett and Xie also found no significant interaction between gender and race, but they did find a significant interaction between race and socioeconomics. Adelman (2006) did not find race to have a statistically significant effect on degree attainment in any of the logistic regressions he ran using the NELS:88/2000 to determine what variables are significant in degree attainment based on the criterion of the statistical model. However, Adelman suggests it could be acting indirectly through other variables.

Hispanic men (Zarate & Gallimore, 2005) and black men (Smith & Fleming, 2006) were influenced in college enrollment by their parents' expectations and actions. Both research studies found that mothers were a strong influence in their sons' lives. For both Hispanic men and black men, the parents, typically mothers, wanted their sons to go to college but expected them to find their own way and help the family. However, when asked about their daughters, the parents both expected their daughters to attend college and helped their daughters find and apply to a college so the girls could be independent and financially stable after graduation (Zarate & Gallimore, 2005; Smith & Fleming, 2006).

Utilizing the NELS:88/2000 Database which included 866 Latino students (45 percent were men and 55 percent were women), of which 11 percent earned a certificate

or license, 12 percent an associate's degree, 26 percent earned their bachelor's, and 51 percent had gone to college but did not have a degree at the time of the survey. The study found that students who graduated were more likely to be born in the United States and even more were second-generation citizens (Sciarra & Whitson, 2007). Using logistic regression models the researchers found three variables that were statistically significant in determining degree completion for Hispanic/Latino students which were: locus control; their math ability; and parental support (Sciarra & Whitson, 2007). Students who exhibited high levels of internal locus of control were found to be three times more likely to complete bachelor's degrees than students with external locus of control even when controlling for other variables (Sciarra & Whitson, 2007). Parental support was significant with 1.5 times more likely to graduate with a bachelor's degree for both men and women (Sciarra & Whitson, 2007). Women were more likely to graduate with a bachelor's degree than men, as well as students with higher math abilities (Sciarra & Whitson, 2007).

Parents' Educational Level and Expectations

Analyzing NELS 88/2000, Adelman (2006) found being a first-generation college student has a negative effect on the probability of earning a bachelor's degree by 21 percent. First-generation college students tend to have a lower graduation rate than students whose parent or parents have some college or are college educated (Horn, 1998; Nunez, Cuccaro-Alamin, 1998; & Ishitani 2006). Ishitani (2006) found the significant early departure rate of first-generation college students was contributed to by family income, low educational expectations, low high school class rank, and low high school academic intensity. After controlling for other factors (age, sex, race/ethnicity, type of

institution, academic or social integration, and economic status) first-generation college students were still less likely to attain a bachelor's degree even when it was a goal (Choy, 2001). At four-year institutions, Hispanic students' parental education was a significant indictor for degree attainment versus students who started at two-year intuitions (Arbona & Nora, 2007). A parent's educational level does influence the enrollment patterns of his or her children as well as the parent's aspirations for his or her child's education (Kim & Schneider, 2005). Children whose parents are active in their educational advancement and discuss academic issues with them regularly are significantly more likely to attend college, regardless of their income level (Kim & Schneider, 2005).

Over the first three years of a logistic regression, first-generation college students did not show a significant difference in retention until the fourth year, when there was a significant difference between first-generation college students and students whose parents had a college degree (Wohlgemuth et al, 2006). There is a significant correlation between the educational level of the father and the degree completion of students (Astin, 2005).

Even when taking into account a parent's educational level, Zarate and Gallimore (2005) found through both a quantitative and qualitative study of Latino students that parental expectations affected post-secondary enrollment more for boys than for girls. It found that parents expected the boys to help out the family but encouraged the girls to continue on in school to allow the girls to have more independence and the opportunity to earn more money (Zarate & Gallimore, 2005). In the study of 121 Latino youth, the only boys that enrolled in college were born in the United States and were more likely to be second generation. The researchers observed that the placement level in English classes

in kindergarten and the subsequent placement into English-only instruction did have an impact on college enrollment. The sooner a child was placed into English-only classes it increased the likelihood for enrolling in college (Zarate & Gallimore, 2005).

Parenthood

Sibulkin and Butler (2005) using the National Longitudinal Survey of Youth database with a sample of 2,468 participants who started at a four-year intuition found that black men and women who attend a HBCU did not have a higher graduation rate percentage than their peers at HWCU who have children. The researchers found that the graduation rates of black and white men and women, if they had a child within the students' first five years in college, had a lower graduation rate with less than 30 -20 percent graduating. Sibulkin and Butler believe that parenthood should be included when possible in the formulas and analysis when considering graduation rates. Adelman (2006) found that parenthood while attending college did not significantly affect the degree attainment of students. It did have a negative parameter of -.85 but it was not significant.

Research on Personal Academic Factors

Academic Performance: High School

The four-year graduation rates for students with high ACT scores were significantly different from students with lower ACT scores. However, there was no significant difference at the five- or six-year rates (Wohlgemuth, Whalen, Sullivan, Nading, Shelley, & Wang, 2006; Mangold, Bean, & Adams, 2003). Each one-point increase in SAT verbal scores will increase the likelihood of graduation by .14 percent and, for each one-point increase in GPA, it will increase a student's likelihood to graduate by 29 percent (Kreysa, 2006).

High school students who took advanced math and had a high school GPA of 3.50 or higher were more likely to attend college and persist to degree attainment (Peter & Horn, 2005). For black students high school GPA and SAT scores were more influential in degree attainment than for other students (Kim & Conrad, 2006). Hispanic students who took academically rigorous high school classes, including advanced math, were more likely to graduate with their bachelor's degrees regardless of starting at a two- or four-year institution (Arbona & Nora, 2007). It was also found that students who had a strong peer group that was planning to attend college and earn their bachelor's degrees had a higher graduation rate from college than students who did not have a strong social group of friends who planned to earn their bachelor's degrees (Arbona & Nora, 2007).

Peter and Horn (2005) found men are not taking advanced math classes in high school and have lower high school GPAs than women. This is confirmed in *The Toolbox Revisited*, which found that the higher the math (Algebra 2, Trigonometry, Pre-Calculus, or Calculus) a student can take in high school, the odds ratio increases that he or she will obtain a bachelor's degree (Adelman, 2006). High school curriculum had the strongest correlations to degree attainment, then class rank, and finally test scores (Adelman, 2006). Academic resources as defined as high school curriculum, high school GPA/class rank, and tests, represent a significant effect on the degree attainment of 5.8 percent (Adelman, 2006). It is to be expected as a student moves further away from high school this academic preparation variable will have less of an impact versus the strong impact it has on the first year (Adelman, 2006).

Academic Performance: College

Goa, Hughes, O'Rear, and Fendley (2002) and Astin (2005) found that the academic performance of students in their first semester at an institution did have a significant impact on their graduation rates. Dowd and Coury (2006) found one of the strongest predictors for degree attainment is the students' college GPA. The higher the college GPA the higher the graduation rate is for the students. The first year college GPA was found to be statistically significant in degree attainment. If the GPA is in the top 2 quintiles, the probability of earning a degree increases by almost 23 percent (Adelman, 2006). Students who have a lower than average first year of credits, less than 20 credits, are also at risk of not completing their degree by almost 22.4 percent (Adelman, 2006; DesJardins, Ahlburg, & McCall, 1999).

Credits earned in a student's first year was found to be one of the strongest predictors of their first year GPA and going part-time decreased their GPA (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2007). Through the National Survey of Student Engagement (NSSE) students who studied 6 to 20 hours a week had a .04 GPA advantage, and if they studied more than 21 hours the advantage was .21 (Kuh et al, 2007). Participation in co-curricular activities is important; however, there can be a negative effect on the students' GPA. Students who were engaged in more than six hours a week had a -.06 disadvantage in their GPA and 21 hours or more was a -.14 points (Kuh et al, 2007). However, the researchers did find the students' ACT scores and time spent studying was statistically significant. Some students need to study longer to earn a higher GPA and others can study fewer hours (Kuh et al, 2007). Students engaged in educational, purposeful

activities were shown to show a significant increase in their first year GPA, especially for Hispanic students who had a greater benefit than whites (Kuh et al, 2007).

Students who are considered under-prepared for college and must take remedial classes were found to have no significant differences in graduating when compared to students who were not enrolled in remedial classes (Kreysa, 2006). Remedial students were found to improve their GPA over time, which improves their degree completion (Kreysa, 2006). This is consistent with the findings from *The Toolbox Revisited* (Adelman, 2006), which found as a student improved their GPA their graduation completion rate improved.

Withdrawing from or repeating 20 percent of the curriculum can reduce the possibility of earning a degree by almost 50 percent (Adelman, 2006). Withdrawing from classes was the highest negative Delta-p in the study for degree attainment. A student who is continuously enrolled had a positive effect on graduation by 43 percent (Adelman, 2006). Both variables of withdrawing/repeating classes and continuous enrollment were statistically significant (Adelman, 2006). Volkwein and Lorang (1996) also found that students who consistently took less than 15 credit hours a semester took longer to graduate. For some students the rationale to take less than 15 credit hours was to maintain a high GPA (Volkwein & Lorang, 1996).

Students enrolled and earning summer school credits were found to increase their probability of earning a bachelor's degree by almost 12 percent (Adelman, 2006). By attending summer school the student stay enrolled in school, increased the number of credit hours earned at the end of their first year, potentially smoothed out their overall

credit load, and potentially improved their college GPA. This can improve the probability of graduating as previously stated.

Transfers

The new trend for students is to attend multiple colleges prior to graduating. It is estimated that students who attend multiple institutions may be as high as 60 percent (Adelman, 1999). Berkner, Horn, and Clune (2000) found that within three years, 20 percent of students who begin at four-year institutions will transfer. The "swirling effect" is the moving between two-year and four-year institutions and between four-year institutions (Townsend, 2001). Attending multiple intuitions had a significant negative relationship by reducing the students' graduation rate by 15 percent (Adelman, 2006). Attending multiple institutions is different from traditional transfers who attend one two-year college and transfer to one four-year or transfer from a four-year to another four-year but not multiple transfers (Adelman, 2006).

Students who transfer from a two-year college to a four-year college are more likely to take six years to earn their degree (Cuccaro-Alamin, 1997). However, research has shown that students who transfer from a two-year to a four-year have no significant difference in degree attainment or students who transfer from a four-year to another four-year (Adelman, 2006; Arbona & Nora, 2007). Solomon (2001) analyzed the transfer students from the Northern Virginia Community College (NVCC) to George Mason University (GMU) and found there was not significant difference in the graduation rates of students who began at GMU or transferred from NVCC, and there was no difference in grade point averages.

Adelman (1999) found that students who transfer with less than 10 credit hours are less likely to obtain a degree. This is consistent with the findings that students who earn less than 20 credit hours in their first year have a negative relationship to degree attainment (Adelman, 2006, 1999; DesJardins, Ahlburg, & McCall, 1999). Through structural equation models the researchers found that at The University of Alabama transfer students who transferred in more than 32 credit hours had a significantly higher graduation rate at four years than students who did not transfer. However, the six-year graduation rate was much higher for students who did not transfer (60 percent to 50.8 percent for transfers) (Gao, Hughes, O'Rear, & Fendley, 2002).

These findings were consistent with a single school comparison of transfer students at the University of Missouri. The researchers found that if a transfer student has a 3.5 or higher GPA when transferring they were 79 percent more likely to graduate compared to students who transferred in with a 2.5 who had only a 50 percent chance of graduating (Eimers & Mullen, 1997). If transfers even improved their GPA by one category, it increased their chance of graduating by 10 percent (Eimers & Mullen, 1997). Eimers and Mullen found no significant difference between students who transferred to the University of Missouri versus students who began at the institution. The time to degree was longer for transfers who, after transferring, take on average 2.72 years to graduate (Eimers & Mullen, 1997). Their findings were also consistent with Adelman (2006) that the more credits transferred to the institution the higher the graduation rate for those students.

Continuous Enrollment/Stopping-Out

Students who enroll in college immediately after high school have a higher retention rate and are more likely to complete their college degrees than those students who postpone enrollment (Berkner, Cuccaro-Alamin, & McCormick, 1996; King, 2000). DesJardins, Ahlburg, and McCall (2002) analyzed the incoming freshman class at the University of Minnesota-Twin Cities campus in 1991 and again in 1998 that consisted of 2,373 students and found that 61 percent of the students at some point did not attend college for at least one academic term (DesJardins, Ahlburg, & McCall, 2002). Of the 61 percent the students who stopped-out, were mostly likely to be male from underrepresented minority groups, who were undeclared, had low first term GPAs and ACT scores, had a high level of need for academic assistance and financial aid, and had a high level of loans. The study also found students who do not enroll for more than one academic term are more likely not to graduate (DesJardins, Ahlburg, & McCall, 2002). This study also identified students who took college classes while in high school were more likely to graduate from college (DesJardins, Ahlburg, & McCall, 2002). DesJardins, Ahlburg, and McCall (2002) found that merit aid can reduce the chance of a student taking an academic term off; therefore, increasing the student's likelihood of graduating.

In-State and Out-of-State

Arredondo and Knight (2005) found that students who attended Chapman University from out-of-state had a lower retention rate and graduation rate compared to in-state students. DesJardins, Kim, and Rzonca (2002-2003) also found in their study on the University of Iowa that students who were non-residents drop-out at a higher rate and had a lower graduation rate than residents of Iowa. Wohlgemuth, Whalen, Sullivan,

Nading, Shelley, and Wang (2006), through a logistic regression to predict the graduation rates at four, five, and six years, found that out-of-state students were significantly less likely to be retained at the institution and therefore, less likely to graduate over the six years.

Involved on Campus

Students who are engaged in their campus communities through social activities and interact with faculty both inside and outside the classroom have higher rates of graduation (Astin, 1984, 1993; Astin, Tsui, & Avalos, 1996; Pascarella & Terenzini, 1991; Pascarella, Smart, & Stoecker, 1989). Students actively involved in all aspects of campus life (living on campus, working on campus, involvement with groups, and interacting with faculty) were shown to have a higher degree of graduation (Velez, 1985). Lotkowski, Robbins, and Noeth (2004) found that institutional commitment and a student's involvement on campus, both social and support, have a positive relationship with degree attainment. One of the strongest predictors of degree attainment for Hispanic students enrolled at four-year institutions is the college experience at that institution, including the interaction with faculty and involvement in campus co-curricular activities (Arbona & Nora, 2007).

Students who were engaged in co-curricular activities for less than five hours a week had an 88 percent probability of returning to school. The probability increased as the hours engaged on campus increased. There is a 94 percent probability of returning when the students are engaged between 6 – 20 hours a week and a 95 percent probability when engaged in more than 21 hours, even when controlling for demographic characteristics (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2007). The study found that

blacks had a greater benefit of being engaged on campus than whites (Kuh et al, 2007). However, as referred to in the review, the level of involvement can affect the students' GPA (Kuh et al., 2007).

Athletics

Students who are involved in athletics have a higher likelihood of completing their degree for both men and women (Long & Caudill, 1991). Researchers found that student-athletes had a significantly lower four-year graduation rate but five and six-year rates were not significantly different. It is possible that due to the commitment to practices and games, that student-athletes are taking a lighter credit load each semester to balance all the demands with school, practice, and games to maintain a higher GPA (Wohlgemuth, Whalen, Sullivan, Nading, Shelley, & Wang, 2006).

Mangold, Bean, and Adams (2003), by analyzing the 1996-1999 *U. S. News Best Colleges* editions, IPEDS, and CBS Sports, evaluate 97 of the 112 universities that compete in both Division I-A football and basketball, and they found that schools whose students lived on campus and the students' ACT Composite score did have a statistically significant effect on graduation rates. By living on campus the students enhance their integration into campus life both socially and intellectually. Schools with strong basketball programs had a lower graduation rate and football was more positive, but it was not significant (Mangold, Bean, & Adams, 2003).

Private institutions that compete at the NCAA Division 1-A level had higher graduation rates of student-athletes then public institutions. This may be due to the school's reputation and the ability of the school to provide extensive support systems, such as academic advising, tutoring, academic mentoring, and professional learning

specialists to work with the athletes to help them succeed academically (Ferris, Finster, & McDonald, 2004). Ferris, Finster, and McDonald (2004) were also able to identify that the graduation rates of athletes and the university wide graduation rate were almost identical.

Personal Resources and Financial Factors

The family socioeconomic status had a significant positive relationship for both black men and women in degree attainment (Pascarella, Smart, & Stoecker, 1989). Mortenson (2000c, 2000e), who analyzed the Census Bureau Current September 1999 Population Survey, realized that as family income increases so does the educational outcome at all levels of the educational system. Along with this, as educational attainment goes up so does the medium family income for the graduate. Students 18 – 24 years old whose family income is greater than $75,000, represented 34.4 percent of the college enrollment in 1998, even though based on the data they made up only 24.9 percent of the population based on income. Students whose families made below $25,000 represented only 13.7 percent of the college enrollment but represented 23.2 percent of the population (Mortenson, 2000e). First generation college students' family income has a significant negative relationship in the degree attainment of the student (Ishitani, 2006). Ishitani found that students whose parents who earned between $20,000 and $34,999 were 72 percent more likely to leave college than students whose parents earned more than $50,000.

Students who receive more financial aid (scholarships, grants, or loans) are more likely to attend and stay in college (St. John, 1990). Tuition costs and the financial aid package were determined to influence a student's decision to attend a specific institution

and to stay at that institution or withdraw (St. John, 1990). Students who are from high-economic incomes are less likely to determine which college to attend and stay based on the financial aid awarded (St. John, 1990).

Dowd and Coury (2006) identified in their research that students who were classified as dependents is as a significant predictor for degree attainment. Even when a dependent student accepts a loan there is still a .56 probability the student will persist (Dowd & Coury). However, dependent students who do not accept a loan had a .70 probability of persisting. Independent students have the lowest probability of persisting at .37 (Dowd & Coury, 2006).

Financial Aid

Financial support from a college had a positive relationship with retention of their students and degree attainment (Lotkowski, Robbins, & Noeth, 2004). However, Cuccaro-Alamin (1997) found that financial aid does not affect graduation rates. DesJardins, Ahlburg, and McCall (1999) found merit based aid (scholarships/grants) can improve the retention rate of students compared to need based (loans and work study). DesJardins, Ahlburg, and McCall (2002) found that merit aid can reduce the chance of a student taking an academic term off, which therefore increases a student's likelihood of graduating.

A minority student who receives financial aid and attends an elite private institution does enhance their graduation rate, but it also can be negatively associated with graduation due to loans (Alon, 2007). Grants and scholarships were found to have a greater influence on graduation rates than loans (Alon, 2007). Every $1,000 increase in a student financial aid package slightly increases the likelihood that a student will enroll at

the institution (Braunstein, McGrath, & Pescatrice, 1999). Work-study did not show to have a positive effect on a student's decision to enroll unless it was combined with grants and loans (Braunstein, McGrath, & Pescatrice).

DesJardins, Ahlburg, and McCall (2002), found financial aid that is merit-based has an indirect relationship with graduation rates because it improves the likelihood a student will remain enrolled without stopping-out, which is a strong predictor a student will graduate. It was also determined that all other forms of financial aid do not affect graduation rates directly but indirectly (DesJardins, Ahlburg, & McCall, 2002). At private institutions, institutional grants had a significant and positive relationship to degree attainment when looking at private institutions that had a low selectivity versus a high selectivity (selectivity was based on academic preparation) (Gansemer-Topf & Schuh, 2006). Students who receive financial aid, specifically grants, tend to take longer to complete their bachelor's degrees because they take fewer credit hours per semester, work, and may stop-out for a semester to work (Muraskin, Lee, Wilner, & Scott-Swail, 2004; Volkwein & Lorang, 1995).

At the three major public institutions (Indiana University-Bloomington, University of Colorado-Boulder, and University of Oregon), Singell and Stater (2006), found there was a difference in graduation rates between students who receive need-based aid and merit-based aid. For students who received need-based aid, the aid had a positive effect on graduation of 3 percent points per $1000 in aid. However, for the students who received merit aid the benefit for each $1000 was 6 percent points. Singell and Starter (2006) believe more of the institutions' resources are funding merit-based aid because the colleges receive a greater return on their investment in graduation rates that

mean less money to offer students who are from disadvantaged backgrounds. In their study, students who received merit-based aid were from higher socioeconomic backgrounds.

Dowd and Coury (2006) used the National Center for Educational Statistics (NCES) longitudinal data National Postsecondary Student Aid Study (1989-1990) and the Beginning Postsecondary Students, Second Follow-up (BPS 90/94) to analyze the impact of student loans on degree attainment at the community college level. In this study the researchers found the average loan a community college student accepted was $2,500 which suggests the loan not only covers the educational needs but also his or her living costs (Dowd & Coury, 2006). Of the 694 students in the final sample, only 27 percent who accepted a loan graduated with an associate's degree compared to 45 percent of the students who did not accept a loan (Dowd & Coury, 2006). Loans were found to have a negative association with persistence and degree attainment for community college students who attended a two-year institution and did not transfer to a four-year institution. The study also found that work-study and grants made no significant difference in completion rates (Dowd & Coury).

Merit/Scholarships/Grants

Pell Grant recipients should attend the most selective institution they can be admitted into, if their goal is to graduate with a degree (Mortenson, 2000d; Muraskin, Lee, Wilner, & Scott-Swail, 2004). Financial aid was shown to have the strongest influence on persistence and graduation rates during the first and third year (Muraskin, Lee, Wilner, & Scott-Swail, 2004). Even students who received the Pell Grant and had average SAT scores of less than 1000 had a 61.6 percent graduation rate compared to

students who attended a low selective (community or open enrollment) institution at 31 percent (Mortenson 2000d). At highly selective institutions, students who had an SAT score of 1001 to 1099 had a graduation rate of 69 percent and students whose SAT score was 1100 or higher had 78.7 percent graduate rate (Mortenson 2000d). Private institutions have a higher graduation rate for Pell Grant recipients than public institutions (Mortenson 2000d; Muraskin, Lee, Wilner, & Scott-Swail, 2004). However, high selective public institutions also have strong graduation rates for Pell Grant recipients at all SAT scores (Mortenson 2000d).

Henry, Rubenstein, and Bugler (2004) evaluated the HOPE Scholarship (a State of Georgia Scholarship awarded to all students attending a University System of Georgia institution who graduate from high school with a 3.0 GPA and maintain a 3.0 GPA while in college, that covers full tuition costs) based on students who were at the borderline of receiving the scholarship out of high school against students who did not receive the scholarship. Their study found that borderline students were twice as likely to graduate from college then non-HOPE receipts at two-year institutions and 72 percent higher at four-year institutions. However, the researchers found that students who received the HOPE Scholarship but lost the scholarship were at no more of an advantage to graduate than the students who were non-recipients of the scholarship (Henry, Rubenstein, & Bugler).

The State of Maryland provides a Guaranteed Access Grant (GAG) that funds between $400 to $11,600 for educational expenses and the Educational Assistance Grant (EAG) for low-moderate-income families from $400 to $2,700 or up to 35 percent of the student's financial aid need. After tracking the students who received the grants over a

five-year period, the overall family income was less than $30,000 a year (Battaglini, 2004). The study found that of students who attended community colleges only 40 percent of the students transferred to a four-year institution or earned their associates, which was significantly different from students who did not receive a grant where only one-third of the students continued (Battaglini, 2004). Men who received a grant, returned for a second year, transferred to a four-year, and graduated were 72.8 percent compared to only 60 percent who did not receive a grant (Battaglini, 2004). Grant recipients at two-year institutions transferred at a higher rate (38.8 percent) to a four-year institution than non-grant recipients who transferred (30.8 percent) (Battaglini, 2004). Black grant recipients continued in school were significant with 69.2 percent returning verse 52 percent for non-receipts. This influence was also significant if a student transfers with 25.1 percent to 20.8 percent of the students will continue at the new institution (Battaglini, 2004).

The Maryland tracking of students who started at four-year institutions showed the influence was positive but not at the same level as the two-year institutions. Men who received the grants at the four-year institutions graduated at a rate three percent higher over five years than non-recipients (44.6 percent vs. 47.2 percent) (Battaglini, 2004). Again the trend is consistent that black students who received a grant returned for a second year at a higher rate than non-recipients (82.1 percent to 73.5 percent) (Battaglini, 2004). However, the five-year graduation rates were about the same (Battaglini, 2004). The researcher concluded that the EAG and GAG funding did benefit and improve the opportunity for students to attend and graduate from college with a two- or four-year degree (Battaglini, 2004).

Working On-Campus/Off-Campus

The effect of working on campus versus off campus has mixed reviews in the research. DesJardins, Ahlburg, and McCall (2002) found on-campus employment to have a positive effect on graduation rates. Lam claimed (1999) working on campus was found to have a negative effect on graduation rates. Ishitani (2006) wrote the difference in graduations rates may be due to the data and methodology.

The Department of Education NELS:88/2000 database showed that students who were awarded federal work-study or received grants were 80 percent more likely to graduate than students who did not receive federal work-study or grants (Ishitani, 2006). Students who worked on campus were found to be both retained and graduated at a higher level than students who did not work on campus (56 percent to 53 percent at 6-years) (Beeson & Wessell, 2002). Work-study had the greatest influence for five-year graduation rates (Wohlgemuth, Whalen, Sullivan, Nading, Shelley, & Wang, 2006). Adelman (2006) found there was a negative relationship with graduation rates for students that had ever worked part-time while in college.

When analyzing the CIRP Data for two-year institutions, Nippert (2000-2001), found that for students attending two-year institutions, as a student increased the number of hours worked it reduced their degree attainment. Stern and Nakata (1991) concluded that students who work do not have lower graduation rates. However, working students more likely to go part-time or stop-out then return. Students who are working in positions that are closely related to their field of study have shown a positive relationship to GPA (Stern & Nakata, 1991). Kuh et al (2007) found that students who worked more than 21 hours a week off campus lost .14 points on their GPA.

Research Findings for Men as a Group

In an early study by Wegner and Sewell (1970), which focused on male students who graduated from the first college they attended or dropped out, the final sample included 1,253 men from Wisconsin. The study found that high school rank and intelligence had the highest correlation to the student graduating. Still significant but not as important were socioeconomic status and desired occupation (Wegner and Sewell). The researchers found that men attending good liberal arts colleges had the highest graduation rate (84.7 percent), then Catholic urban universities, other four-year colleges and high-prestige state universities had about the same rate. The lowest rates were at urban state universities and state colleges. The researchers believe this was reasonable based on the student characteristics at the institution (Wegner & Sewell, 1970). The graduation variance is explained by the student characteristics (24.6 percent) (Wegner & Sewell, 1970). After additional analyses of the data, the researchers determined that the type of institution a student attends does influence the graduation rate by 3.1 percent when controlling for high school rank, intelligence, occupational aspirations, and socioeconomic status.

Low-income students with high intelligence have the highest probability of graduating, if they attend a prestige state university (Wegner & Sewell, 1970). High-income students with high intelligence have good graduation rates at all types of institutions (Wegner & Swell, 1970). The selectivity of the college does give an advantage to all students who are admitted regardless of their income or intelligence. However, a higher proportion of low-status students attend state colleges even though they have a strong graduation rate from high prestigious institutions (Wegner & Sewell).

Wegner and Sewell (1970) concluded from their analysis that the difference in graduation rates at the different types of institutions is due to the type of student that is recruited. "The student characteristics of high rank in high school, high intelligence, high occupational aspirations, and high economic status are associated with a greater probability of graduating from college, and that the differences in graduation rates between institutions generally correspond to differences in the type of students recruited" (Wegner & Sewell, 1970, p. 678). It was also concluded that a student's decision to attend an institution can affect his or her graduation rate based on his or her economic background and intelligence (Wegner & Sewell, 1970).

The size of an institution was found to have a significant indirect effect on degree attainment for black men mainly due to the inability to connect with faculty at a large institution (Pascarella, Smart, Stoecker, 1989). Black men who had a high academic achievement, and attended an institution that was selective or prestigious had a significant positive effect on the degree attainment (Pascarella, Smart, & Stoecker, 1989). Men have the highest degree attainment from private universities (70.5 percent) with public universities having the lowest level of degree attainment (36.1 percent) (Astin, Tsui, & Avalos, 1996). Through an intensive and purposeful new advisement and tracking system, the University of Florida found the graduation rates for men improved from a four-year graduation rate in 1995 of 34 percent to 42 percent in 2000 and the six-year graduation rates were 66 percent in 1995 and by 2000 had improved to 77 percent (Capaldi, Lombardi, & Yellen, 2006).

Faculty interaction at a HBCU or a HWCU was found to have a significant positive relationship with degree attainment for black men (Pascarella, Smart, &

Stoecker, 1989). Smyth and McArdle (2004) found men were more likely to graduate from engineering, science, and math fields than women when looking at 23 highly selective institutions. Men in the State of Maryland who received a need-based state grant 72.8 percent returned for a 2nd year, transferred to a four-year, or graduated compared to only 60 percent who did not receive a grant (Battaglini, 2004).

In the national database of the B&B Longitudinal Study, men took longer to earn their bachelor's degrees. Only 37 percent of the men in the study completed their degrees in four years compared to 48 percent of the women who completed their degrees. At five years an additional 35 percent of the men had earn their degrees (29 percent for women) and by six years 13.5 percent had completed their bachelor's and 14 percent took more than six years to earn their degrees (McCormick & Horn, 1996).

Smith and Fleming (2006) conducted a qualitative study of 11 African American parents, 10 women and one man, from the lowest socioeconomic school in South Central Los Angeles who attended a magnet school and found the parents influences were the greatest influence in black males attending college and which college they attend. Specifically, it found that the parents did want their children to attend college but the emphasis was different depending on the gender of their child. Mothers have a great influence in their children's lives and the researchers found that in most of the families in the study the mother was the head of the household. The mothers all spoke of the desire for their children to go to college, but how they discussed this with their children was different when addressing their daughters and sons. For girls, the emphasis was that they would go to a four-year college and they were going to be financially stable and independent. Whereas for boys they were encouraged to look at four-year schools, but

there were other options such as two-year institutions. Some of the mothers even let the boys decide if college was right for them and did not follow up with their sons, but for girls they were actively involved in the search for a college (Smith & Fleming, 2006). In this study, most of the boys started at a two-year college and not a four-year.

Beattie (2002) analyzed the High School and Beyond Survey 1980:1986 for male students who attended college and if the economic status of the state they grew up in affected their attendance rates in college. Beattie found that 60 percent men who lived in states with high return for earning, the ability to earn a high salary after graduating with a bachelor's degree (income), attend college compared to only 56 percent men who lived in low return states attended college. When the researcher added tuition costs to the analysis, the enrollment rate was reduced even more for men in low return states (Beattie, 2002). Black males were less affected by the status of their state compared to whites. Consistent with other research men from low income families were less likely to enroll in college, especially if they lived in low return states (47 percent), than low income men from high return states (58 percent) (Beattie, 2002). Black and Hispanic men from states with high unemployment are less likely to attend college, but this is not true for black and Hispanic women.

There have been few studies specifically looking at the degree attainment of men. Hamilton (2004) interviewed 12 African-American males who received their bachelor's degrees in 2004 from institutions in California. During the interviews and the completion of a noncognitive questionnaire, he found that the men had a positive self-concept, had leadership experience at the college through community services and leadership positions within the student organizations, had strong support from a person (family, teacher, peer),

and had completed a realistic self-assessment of themselves. Hamilton interviewed all 12 participants and found the men felt that that their elementary, middle, and high school all helped their decision in attending college, from teachers telling them they would go to college or teachers encouraging them to apply for magnet schools. What helped them complete their degrees was the fact they were involved on campus in minority student organizations and took on leadership roles and were able to meet with faculty. They all had a mentor and had family support. The men said they felt being focused and setting goals was very important for African-American men as was having strong support from their families (Hamilton, 2004).

The University of Florida implemented a new advisement and tracking system to address the persistence of their students and found that graduation rates for men improved from a four-year graduation rate in 1995 of 34 percent to 42 percent in 2000 and the six-year graduation rates were 66 percent in 1995 and by 2000 had improved to 77 percent (Capaldi, Lombardi, & Yellen, 2006). Once a student declares a major, the system will give the student a sequence of classes and what they have already completed to help students navigate the complexities of a university curriculum. Students receive a notice to visit with an academic advisor if they are determined to be off track. The advisement sessions allow the student to meet with a professional advisor and discuss the program and why the student is off track (Capaldi, Lombardi, & Yellen, 2006).

Summary

The previous research has shown that men continue to struggle to graduate from college at the same rate as women. The research reveals that a man no matter what their racial background or economic background is all men continue to graduate at a lower rate

than women. Institutions are looking various ways to improve their retention and graduation rates and have developed programs to address the issue on their campus.

CHAPTER 3

METHODOLOGY

Research pertaining to retention, persistence, and graduation is extensive. This study will explore the individual characteristics and selected institutional characteristics that influence the degree attainment among men. The study will specifically look at the gender differences in the attainment of a bachelor's degree or higher.

The methodology section of this dissertation will present the research questions, the data sources, the variables used to address the research questions, and the statistical tools.

Research Questions

1. How do males and females differ in undergraduate degree attainment (bachelor's degree)?
2. To what extent do males and females differ on family backgrounds as potential predictors of undergraduate degree attainment (race, family income, family size, parents' educational level)?
3. To what extent do males and females vary in their high school experiences as potential predictors of degree attainment (bachelor's degrees)?
4. To what extent do males and females differ on institutional factors as potential predictors for degree attainment (type of institution, size, in-state/out-of-state, tuition costs)?
5. To what extent do differences in potential predictors contribute to degree attainment for males and females?

Research Design

The researcher will conduct a quantitative study using a large-scale database. The use of a large-scale database will allow the researcher to present a global picture of the data. By using a multiple set of factors that include family, individual, and institutional variables it allows for generalization across the United States. A quantitative study will be conducted to understand the personal characteristics and institutional characteristics that may contribute to degree attainment by male students.

Data and Participants

The study will use a national database from the United States Department of Education, National Center for Educational Statistics (NCES), the National Education Longitudinal Study (NELS:88/00) from 1988 – 2000 and will utilize the public use data. The initial participants in the NELS:88/2000 study were of 25,000 8th Graders from 1,052 schools. A follow-up survey was conducted using the same participants in 1990 (10th grade, 1st follow-up), 1992 (12th grade, 2nd follow-up), 1994 (two years out of high school, 3rd follow-up), and 2000 (eight years out of high school, 4th follow-up). The final follow-up survey in 2000 included 12,144 responders who participated in the early surveys (NCES, 2002).

The NELS:88/00 database is 48 percent male and 52 percent female (variable: F4SEX: Gender 2000). Thirty percent of the respondents had attained their bachelor's degrees (variable: F4HHDG: Highest PSE degree attained as of 2000), 7 percent had attained their associate's degrees (variable: F4HHDG: Highest PSE degree attained as of 2000), and 3 percent earned their master's degrees by the final survey (variable: F4HHDG: Highest PSE degree attained as of 2000). At the time of the final follow-up,

30 percent had not yet earned a degree (variable: F4HHDG: Highest PSE degree attained as of 2000).

The NELS:88/00 is a national survey completed by the United States Department of Education to collect information concerning persistence, degree attainment, work related issues, the impact of financial aid, social issues, and general educational outcomes in the United States. NCES oversaw the administration but contracted the actual collecting of the data out to two organizations. The National Opinion Research Center at the University of Chicago administered the survey starting with the base year through the third follow-up survey. The fourth follow-up survey was completed by Research Triangle Institute (NCES, 2002).

The student survey administered during the base-year (1988) and the 1990 first follow-up gathered the same information, the student's aspirations for education, family background, language skills, and school experiences. During the base-year administration of the questionnaire, a survey was administered to the principals of the high schools the students attended; two teachers for each student; and finally, a parent for each student (NCES, 2002).

The second follow-up in 1992 during the participants' senior year in high school focused on the transition to postsecondary education issues and work related areas. Parent surveys were also completed in 1992 to gather information about the parents' aspirations for their children and their backgrounds (NCES, 2002).

The third follow-up in 1994 focused on postsecondary activities and work related information. The final survey in 2000, eight years after graduating from high school, included 15,237 participants, allowed the researchers to assess the outcomes of

completing their postsecondary education (earning bachelor's degrees or advance degrees), their professional work experiences, social issues, family issues, and collected college transcripts. The final survey included the participants' college transcripts from 9,500 participants who attended college after graduating high school in 1992 and enrolled in college between 1992 and 2000. The third and fourth follow-up participants completed the survey using a computer assisted telephone interview (CATI), and laptop-based computer-assisted personal interviews (CAPI) (NCES, 2002).

Data collection for the survey was extensive. Not all participants in the base-year survey completed the follow-up surveys and contact was lost with some participants in the 2000 administration of the survey. Weights are used through all waves of the NELS data to "compensate for unequal probabilities of selection and to adjust for the effects of nonresponse" (Curtin Ingles, Wu, Heuer, 2002, p. 65). For additional information the weight and survey design refer to Curtin, Ingles, Wu, and Heuer (2002). This study will use the weights developed by NCES to address the potential for oversampling for data used that was collected from the base-year through the fourth follow-up. The weight F4PNLWT is the appropriate weight developed by the researchers to analyze the data.

Variables and Their Measures

The variables for this study are from the NELS:88/00 data file available for public use to address the research questions for this study. These variables are listed below.

Dependent Variables

The dependent variable for this study is degree attainment. This study is attempting to understand what variables influence the degree attainment of men. The study is focusing on men who have earned their bachelor's degrees or higher, or no

degrees. For the purpose of this study participants who had earned certificates, licenses, or associate's degrees were seen as having earned degrees.

Degree attainment: This variable was derived by the NCES as the Highest PSE degree attained as of 2000 and is categorical data. There were 9,496 valid responses.

The original scale for this variable (Variable: F4HHDG) was: *Some PSE, no degree attained* (code: 1, percentage: 29.6%. 3594); *Certificate/license* (code: 2, percentage 7.9%, 960); *Associate's degree* (code: 3, percentage: 7.3%, 882); *Bachelor's degree* (code: 4, percentage: 29.6%, 3590); *Master's degree/equivalent* (code: 5, percentage: 3.2%, 393); *Ph.D. or a professional degree* (code: 6, percentage: 0.6%, 77).

This variable was recoded to allow the researcher to look at males and females who have earned bachelor's degrees or higher. Participants who had earned associate's degrees were included with the participants who had not earned degrees, or a certificates. The gender gap is wider at the bachelor's degree or higher level. The variable was recoded to: *No degree attained* (code: 1, percentage: 57.2%, 5436) and *Bachelor's degree or higher* (code: 2, percentage: 42.8%, 4060).

Independent Variables

The independent variables used will address the research questions and are consistent with current research findings on persistence and graduation. The independent variables are broken down into three main categories: the student variables, the institutional variables, and the financial aid variables. Student variables are subdivided into four categories: student background variables, parental variables, high school variables, and student college experience variables. The financial aid variables were subdivided into parental financial aid variables and student financial aid variables.

The student background variables include student demographic variables: gender, race/ethnicity, family income, test scores, personal and parental aspirations, high school experiences, parent educational level, and family background.

Student Background Variables

Gender: This variable was derived by NCES as Gender. The gender of the participant is categorical data with *Male* (code 1; percentage: 47.6%, 5782) and *Female* (code: 2, percentage: 52.4%, 6362). (Variable: F4SEX)

Race/Ethnicity: The race or ethnicity of the participant is a derived variable and the data is categorical. The derived variable by NELS is called *New definition of race-primary choice* based on the federal standards for collecting race and ethnicity data.

The categories are: *American-Indian or Alaskan Native* (code: 1; percentage: 1.1%, 131); *Asian or Pacific Islander* (code: 2; percentage: 5.9%, 712); *Black, not Hispanic* (code: 3; percentage: 9.2%, 1120); *White, not Hispanic* (code: 4; percentage: 62.5%, 8203); and *Hispanic* (code: 5; percentage: 13.9%, 1687) (Variable: F4RACE2).

When the variable is recoded to remove the missing responses the recoded variable has the following frequency: *American-Indian or Alaskan Native* (code: 1; percentage: 1.1%, 131); *Asian or Pacific Islander* (code: 2; percentage: 6.0%, 712); *Black, not Hispanic* (code: 3; percentage: 9.4%, 1120); *White, not Hispanic* (code: 4; percentage: 69.2%, 8203); and *Hispanic* (code: 5; percentage: 14.2%, 1687) (Variable: F4RACE2).

Family Income: The family income variable is a composite variable, provided by NCES on the NELS Data CD, from the continuous data provided by variable F2SES3,

which was recoded and weighted by NCES. The variable used in this study is now a categorical data that is F2SES3Q.

The variable describes the socioeconomic quintile of the parents in 1992 or F2 Teen's SES Quartile, v.3 (Variable: F2SES3Q) based on four quartiles. The original code is: *Quartile 1 Low* (code: 1; percentage: 20.1%, 2445); Q*uartile 2* (code: 2; percentage: 21.0%, 2546); *Quartile 3* (code: 3; percentage: 21.4%, 2604); and *Quartile 4 High* (code: 4; percentage: 24.6%, 2992).

The variable was recoded to eliminate the missing and legitimate skip. The final frequencies used for this study are: *Quartile 1 Low* (code: 1; percentage: 23.1%, 2445); Q*uartile 2* (code: 2; percentage: 24.0%, 2546);*, Quartile 3* (code: 3; percentage: 24.6%, 2604); and *Quartile 4 High* (code: 4; percentage: 28.3%, 2992).

Parent's Educational Level: This is a composite variable created by NCES using the second follow-up parent survey in 1992. The data is categorical. The variable is *F2 Parent's Highest Education Level* (Variable: F2PARED).

The categories are: *Didn't finish high school* (code: 1; percentage: 9.8%, 1189); *High School Graduate or GED* (code: 2; percentage: 18.6%, 2260); *High School, Some College* (code: 3; percentage: 36.3%, 4404); *College Graduate* (code: 4; percentage: 13.6%, 1656); *M. A. or Equal* (code: 5; percentage: 8.2%, 993); and *Ph.D., M.D.,* other (code: 6; percentage: 4.8%, 588).

The data was recoded to form following results: *Didn't finish high school* (code: 1; percentage: 10.7%, 1189); *High School Graduate or GED* (code: 2; percentage: 20.4%, 2260); *High School, Some College* (code: 3; percentage: 39.7%, 4404); *College*

Graduate (code: 4; percentage: 14.9%, 1656); *M. A. or Equal* (code: 5; percentage: 9.0%, 993); and *Ph.D., M.D.,* other (code: 6; percentage: 5.3%, 588).

Family Composition: Describes whom the student was raised by as provided on the second follow-up Parent Questionnaire Survey. This is a categorical data (F2FCMP) which is a composite variable developed by NCES. The variable *"Indicates the family or household composition, and is based entirely on the second follow-up parent questionnaire items F2P8A-F"*.

The data codes are *Mother & Father* (code: 1; percentage: 55.2%, 6703); *Mother & Other Male* (code: 2; percentage: 8.9%,1085); *Father & Other Female* (code: 3; percentage: 2.1%, 250); *Other Female & Male Relative* (code: 4; percentage: 1.1%, 131); *Mother & Other Female* (code: 5; percentage: 14.6%, 1772); *Father & Other Male* (code: 6; percentage: 2.1%, 260); and *Independent Teen* (code: 7; percentage: 2.2%, 268).

The variable F2FCMP was recoded to *Mother and Father* (code: 1; percentage: 64.0%, 6703) and Single Parent (code: 2; percentage: 36%, 3766).

Student Variables: High School Variables

The next two variables were provided by teachers, at the high school of the participants, to provide information indicating if the student seemed motivated in high school to continue on for an advanced degree, and what type of high school diploma they would receive. The teacher questionnaire was taken during the second wave of the survey.

Student Motivation: This variable will help assess if the student seemed interested in high school to continue their education. The teachers were asked, "*Does this student*

seem motivated to pursue postsecondary education?" The teachers were able to answer *Yes* or *No*. (Variable: F2T1_4). The variable is categorical data.

The responses were: *Yes* (code: 1; frequency: 40.0%, 4857) and *No* (code: 2; frequency: 10.3%, 1248).

The variable was recoded to: *Yes* (code: 1; frequency: 79.6%, 4857) and *No* (code: 2; frequency: 20.4%, 1248).

High School Track: This variable (F2T2_3) was collected on the teacher's questionnaire during the second follow-up survey. The variable is categorical data. This variable will provide insight into the type of high school diploma the student is anticipated to receive and does this affect the degree attainment of students.

The teachers were asked, "*Which of the following best describes the 'track' this class is considered to be?"* The responses were: *Remedial* (code: 1; frequency: 1.5%, 181); *General* (code: 2; frequency: 10.4%, 1266); *Vocational/Technical/Business* (code: 3; frequency: 2.2%, 270); *College Preparation/Honors* (code: 4; frequency: 31.1%, 3777); and *AP* (code: 5; frequency: 5.8%, 704). (Variable: F2T2_3)

The variable was recoded to separate the responses into two categories of college preparation track or not college preparation track. The results of the recoded variable are: *Not College Preparation* (code: 1; frequency: 27.7%, 1717) and *College Preparation* (code: 2; frequency: 72.3%, 4481).

Student Variables: High School Parental Variables

Parental variables will consider the effect parents have on influencing their child to complete a college degree. The parent variables include support and the expectations of the parent. The responses are from the second parental follow-up survey in 1994.

Talk to Child: To consider if parent support through conversations influences the degree attainment of men, the following variables will be analyzed. The questions were asked on the parent second follow-up questionnaire. The question posed to the parents was: *"How frequently during the past two years have you and/or your spouse/partner talked about the following with your teenage?"* The parents were able to answer these questions based on three categories: *"never", "sometimes",* and *"often".* The following actions were selected to consider if the parents' interactions with their teenagers in high school helped in the students' degree attainment: *"Talk about selecting courses"* (Variable: F2P49A), *"Talk about grades"* (Variable: F2P49D), *"Talk about taking SAT/ACT"* (Variable: F2P49E), and *"Talk about applying for college"* (Variable: F2P49F). In the regression analysis the parents-discuss variables will be used as a composite by using a factor score.

Talked about selecting courses: The coding for this answer (variable: F2P49A) was: *Never* (code: 1; percentage: 5.0%, 610); *Sometimes* (code: 2; percentage: 33.8%, 4110); and *Often* (code: 3; percentage: 47.3%, 5747).

The variable was recoded to: *Never* (code: 1; percentage: 5.8%, 610); *Sometimes* (code: 2; percentage: 39.3%, 4110); and *Often* (code: 3; percentage: 54.9%, 5747).

Discuss with teen teen's grades [high school]: The coding and responses for this variable (Variable: F2P49D) were: *Never* (code: 1; percentage: 2.3%, 275); *Sometimes* (code: 2; percentage: 19.7%, 2398); and *Often* (code: 3; percentage: 63.9%, 7762).

The recoded variable results were: *Never* (code: 1; percentage: 2.6%, 275); *Sometimes* (code: 2; percentage: 23.0%, 2398); and *Often* (code: 3; percentage: 74.4%, 7762).

Talk about taking the ACT/SAT: The responses to this variable (Variable: F2P49E) were: *Never* (code: 1; percentage: 10.5%, 1275); *Sometimes* (code: 2; percentage: 34.7%, 4218); *Often* (code: 3; percentage: 40.8%, 4951).

The recoded variable was: *Never* (code: 1; percentage: 12.2%, 1275); *Sometimes* (code: 2; percentage: 40.4%, 4218); and *Often* (code: 3; percentage: 47.4%, 4951).

Talk about applying to colleges or other schools after high school: The responses for this variable (Variable: F2P49F) and coding were: *Never* (code: 1; percentage: 6.1%, 737); *Sometimes* (code: 2; percentage: 24.5%, 2981); and *Often* (code: 3; percentage: 55.4%, 6733).

The recoded variable was: *Never* (code: 1; percentage: 7.1%, 737); *Sometimes* (code: 2; percentage: 28.5%, 2981); and *Often* (code: 3; percentage: 64.4%, 6733).

Expect Child To Go To College: The parents were asked in the second follow-up parent questionnaire, "*How far in school do you want your teenager to go?*" (Variable: F2P61). The parents were able in the second wave of the study to select from responses that their child would not complete high school to would earn a doctorate degree. The data is categorical and the data on the NELS CD was recoded by NCES.

The original code for this variable is: *Less Than High School Graduate* (code: 1; percentage: 0.1%, 17); *High School Graduate* (code:2; percentage: 3.9%, 470); *Less Than 2 years of Vocational/Business* (code: 3; percentage: 2.0%, 242); *2+ years of vocational technical/business* (code: 4; percentage: 7.4%, 898); *Less Than 2 years of college* (code: 6; percentage: 0.5%, 63); *2+ years of college* (code: 7; percentage: 6.3%, 760); *Finish College* (code: 8; percentage: 31.9%, 3870); *Master's degree* (code: 9;

percentage: 19.2%, 2337); and *PhD/MD/Other Professional* (code: 10; percentage: 15.8%, 1919).

This variable was recoded to allow the responses to become stronger. For the purpose of this study, the variable was recoded into two categories to maintain a consistency with the dependent variable: *parents expected less than a bachelor's degree* (code: 1; percentage: 23.2%, 2450) and *parents who expected a bachelor's degree or higher* (code: 2; percentage: 76.8%, 8126).

Encouraged to Apply to College: This variable informs the researcher how involved the parent was in encouraging his or her child to apply for college. This variable was on the second follow-up questionnaire to parents. The question is, *"In the past year, how often have you talked to your teenager about applying to a vocational/technical school, college, or university for education after high school?"* (Variable: F2P63). The categorical data responses are: *never, rarely, sometimes,* and *often*.

The coding for this variable is: *Never* (code: 1; frequency: 3.4%, 415); *Rarely* (code: 2; frequency: 2.7%, 325); *Sometimes* (code: 3; frequency: 15.1%, 1830); and *Often* (code: 4; frequency: 65.7%, 7983).

The recoded variable used in the analysis was: *Rarely* (code: 1; frequency: 3.9%, 415); *Sometimes* (code: 2; frequency: 17.3%, 1830); and *Often* (code: 3; frequency: 75.6%, 7983);

Expect Child to be a Good Student: The parents answered this on a Likert scale of 1 through 5 ("*not very important" to "extremely important"*). The variable was part of a group of answers to the overall question *"Please read each of the qualities listed below and rate how important it is that a teenager have each of these qualities"*. Of the listed

variables the one variable that pertains to this research is *"Is a good student"* (Variable: F2P52J). The variable coding for the Likert scale is: *Not Very Important* (code: 1; percentage: 0.5%, 61); *2* (code: 2; percentage: 0.8%, 92); *3* (code: 3; percentage: 9.5%, 1155); *4* (code: 4; percentage: 28.3%, 3439); to *Extremely Important* (code: 5; percentage: 47.1%, 5722).

The variable was recoded into two categories combining the not important responses (code: 1-2) and the important responses (code: 3-5) together. The recoded variable frequencies used during the analysis were: *Not Important* (code: 1; percentage: 12.5%, 1308) and *Important* (code: 2; percentage: 87.5%, 9161).

Student Variables: Student College Experience Variables

Student college experience variables include: attending college full-time/part-time, involved on campus, major, financial aid, transfer/multiple institutions, work experience in college, dependency, delayed enrollment, and college academics.

Remedial Classes: This variable will assist in assessing if students who were enrolled in remedial classes were more or less likely to earn their college degrees. Two variables will be used, "*Did the student enroll in remedial English*" (Variable: RENGLISH) and, "*Did the student enroll in remedial math classes"* (Variable: RMATH). For both questions the responses were categorical and the students responded *Yes* (code: 1) or *No* (code: 2). This variable is from the third student follow-up survey.

Remedial English: The response were *Yes* (code: 1; percentage: 9.4%, 1138) and *No* (code: 2; percentage: 47.2%, 5730).

The recoded variable used in the analysis was *Yes* (code: 1; percentage: 16.6%, 1138) and *No* (code: 2; percentage: 83.4%, 5730).

Remedial Math: The response were *Yes* (code: 1; percentage: 10.0%, 1217) and *No* (code: 2; percentage: 46.5%, 5649).

The recoded variable RMATH used during the analysis was *Yes* (code: 1; percentage: 17.7%, 1217) and *No* (code: 2; percentage: 82.3%, 5649).

Student Support Services: To assess if the student received academic assistance or personal assistance, the following three variables will be used to determine the impact on the students. The interviewer asked this question during the third student follow-up questionnaire. The question posed to the participants was "*During the past two years, how much of the following services have you received?*" The participants were asked about the following services: *"Tutoring by a faculty member or student"* (Variable: TUTOR); "*Received personal, academic, financial or career assistance"* (Variable: COUNSEL); and "*Did they receive special instruction in English, Math, Reading, or Writing*" (Variable: SPECINST). Each variable was answered using *"not available", "available not received", and "received".* The question was asked of participants who attended college at some point but not participants who attended a vocational school.

Tutoring: The responses were: *Not Available* (code: 1; percentage: 1.3%, 162); *Available But Did Not Receive* (code: 2; percentage: 40.9%, 4961); and *Received* (code: 3; percentage: 14.2%, 1728). (Variable: TUTOR)

The recoded variable for TUTOR was: *Not Available* (code: 1; percentage: 2.4%, 162); *Available But Did Not Receive* (code: 2; percentage: 72.4%, 4961); and *Received* (code: 3; percentage: 25.2%, 1728).

Personal, academic, financial, career counseling: The responses were: *Not Available* (code: 1; percentage: 0.9%, 107); *Available But Did Not Receive* (code: 2;

percentage: 29.5%, 3581); and *Received* (code: 3; percentage: 26.0%, 3161). (Variable: COUNSEL)

The recoded results for COUNSEL are: *Not Available* (code: 1; percentage: 1.6%, 107); *Available But Did Not Receive* (code: 2; percentage: 52.3%, 3581); and *Received* (code: 3; percentage: 46.2%, 3161).

Received special instruction in English/math/reading/writing: The responses were: *Not Available* (code: 1; percentage: 2.4%, 291); *Available But Did Not Receive* (code: 2; percentage: 42.5%, 5158); and *Received* (code: 3; percentage: 10.8%, 1307). (Variable: SPECINST)

The recoded variable of SPECINST used during the analysis was: *Not Available* (code: 1; percentage: 4.3%, 291); *Available But Did Not Receive* (code: 2; percentage: 76.3%, 5158); and *Received* (code: 3; percentage: 19.3%, 1307).

Involvement on Campus: Student involvement on their college campuses is an important aspect of the college environment. The students were asked during the third follow-up questionnaire about their campus involvement. The variables were all answered *Yes* or *No* and are categorical data.

The variables used to assess the students' participation in the college environment will be measured by their level of participation through their involvement in: *Intercollegiate sports* (Variable: VARATH)*; participation in intramural sports teams* (Variable: INTRATH); *involved in a student organization* (Variable: SOCLCLUB), and *volunteer on campus* (Variable: VOLUSTDT) or *in the community* (Variable: VOLUCMTY).

Intercollegiate Sports: The variable original coding was *Yes* (code: 1; percentage: 6.6%, 805) and *No* (code: 2; percentage: 50.0%, 6075). (Variable: VARATH)

The recoded variable used during the analysis for VARATH was *Yes* (code: 1; percentage: 11.7%, 805) and *No* (code: 2; percentage: 88.3%, 6075).

Involved with intramural athletics: The variable's original coding was *Yes* (code: 1; percentage: 17.9%, 2170) and *No* (code: 2; percentage: 38.8%, 4707). (Variable: INTRATH)

The recoding of this variable was *Yes* (code: 1; percentage: 31.6%, 2170) and *No* (code: 2; percentage: 68.4%, 4707).

Involved with Social Clubs/Greek Life: The variables original coding was *Yes* (code: 1; percentage: 14.6%, 1777) and *No* (code: 2; percentage: 42.0%, 5100). (Variable: SOCLCLUB)

The recoding for the variable SOCLCUBL for students involved with Greek Life or other social clubs was *Yes* (code: 1; percentage: 25.8%, 1777) and *No* (code: 2; percentage: 74.2%, 5100).

Volunteer on Campus: The variable original coding was *Yes* (code: 1; percentage: 13.2%, 1598) and *No* (code: 2; percentage: 43.5%, 5279). (Variable: VOLUSTDT)

Volunteer Off-Campus: The variable original coding was *Yes* (code: 1; percentage: 17.6%, 2143) and *No* (code: 2; percentage: 39.0%, 4732). (Variable: VOLUCMTY)

General Use of Time in College: Students have additional commitments on their time other than campus activities, work, and studying. The following three variables will be used to help assess these commitments and the potential impact on degree attainment.

The variables are *"number of hours watch TV"* (Variable: TVWATCH),*"involved with religious activities"* (Variable: RELIGION), and "*participate in sports"* (Variable: PARSPORT). The participants answered *yes* or *no* to each one of these variables except for the number of hours they watched TV, which was by the number of hours. All the variables are categorical data from the third follow-up survey.

Number of Hours Watch TV on the weekday: The variable (TVWATCH) was structured to allow the participants to select from less than one hour to more than 8 hours on the weekdays. The question posed was, "*During the weekdays, that is Monday through Friday, about how many hours per day do you watch TV?"* The variable is categorical.

The coding was: *Don't watch TV during the weekdays* (code: 1; percentage: 8.0%, 972); *less than one hour* (code: 2; percentage: 13.3%, 1611); *1 hour or more, less than 2* (code: 3; percentage: 21.1%, 2565); *2 hours or more, less than 3* (code: 4; percentage: 21.9%, 2660); *3 hours or more, less than 4* (code: 5; percentage: 13.5%, 1641); *4 hours or more, less than 5* (code: 6; percentage: 8.0%, 970); *5 hours or more, less than 6* (code: 7; percentage: 5.5%, 667); *6 hours or more, less than 7* (code: 8; percentage: 2.3%, 284); *7 hours or more, less than 8* (code: 9; percentage: 0.9%, 114); and *8 hour or more* (code: 10; percentage: 4.3%, 525).

The recoding procedure was completed to make the individual responses stronger. The recoded variable is as follows: *Don't watch TV during the weekdays to 1 hour a day* (code: 1; percentage: 42.9%, 5148); *3 hours to 4 hours per day* (code: 2; percentage: 35.8%, 4301); *5 hours to 6 hours per day (*code: 3; percentage: 16.0%, 1921); and *7 hours or more per day* (code: 4; percentage: 5.3%, 639).

Time Spent: For this question the interviewer asked about the various leisure activities students participated in once or twice a week. The activities were: *religious activities* (variable: RELIGION), and *participating in sports not sponsored by the school* (variable: PARSPORT). The participants were able to *Yes* (code: 1) or *No* (code: 2) for each activity.

Religion: For the variable RELIGION the responses were *Yes* (code: 1; percentage: 39.6%, 4807) and *No* (code: 2; percentage: 59.3%, 7205).

The recoded variable for RELIGION was *Yes* (code: 1; percentage: 40.0%, 4807) and *No* (code: 2; percentage: 60.0%, 7205).

Participate in Sports: For the variable PARSPORT the responses were *Yes* (code: 1; percentage: 49.0%, 5951) and *No* (code: 2; percentage: 49.9%, 6063).

The recoded variable was *Yes* (code: 1; percentage: 49.5%, 5951) and *No* (code: 2; percentage: 50.5%, 6063).

Work: A student's commitment to college will be assessed by their work commitment. Did the student work *on-campus* (Variable: CAMPJOB)?

Work on Campus: This question was on the third follow-up questionnaire, and the participants were asked, "*Did you ever have a paying job on campus while enrolled at <name of school>?"* The responses were categorical and were *Yes* (code: 1; percentage: 19.3%, 2236) and *No* (Code: 2, percentage: 80.3%, 9281). (Variable: CAMPJOB)

The recoded variable used during the analysis was *Yes* (code: 1; percentage: 19.4%, 2236) and *No* (Code: 2, percentage: 80.6%, 9281).

Student Expectations: Student motivation can have an impact on the student's desire to complete the program. To assess the student's motivation the student was asked,

"*What is the highest level of education you ever expect to complete?"* The participants were able to select from 10 responses from some high school to a Ph. D. The variable is categorical data. (Variable: EDEXPECT) This question was on the second student follow-up questionnaire.

The original coding was: *Some high school* (code: 1; percentage: 0.6%, 69); *Finished high school/GED* (code: 2; percentage: 8.2%, 991); *Vocational/Trade/Business School after high school –less than 2 years* (code: 3; percentage: 4.3%, 523); *Vocational/Trade/Business School after high school- more than 2 years* (code: 4; percentage: 3.8%, 461); *College – less than 2 years* (code: 5; percentage: 1.6%, 192); *College- Associate's degree* (code: 6; percentage: 10.0%, 1218); *College Bachelor's Degree* (code: 7; percentage: 31.0%, 3767); *College- Master's Degree* (code: 8; percentage: 25.3%, 3078); *College Ph.D.* (code: 9; percentage: 7.9%, 956); and *MD, LLB, JD, DDS, or equivalent* (code: 10; percentage: 4.6%, 557).

The participant's responses were recoded to meet the needs of this study and were recoded into two categories. The recoding was *Less Than a Bachelor's Degree* (code: 1; percentage: 29.2%, 3454) and *College Bachelor's Degree or higher* (code: 2; percentage: 70.8%, 8358). (Variable: EDEXPECT)

College Attendance: Students have different paths once they enroll in college. The participants who attended college were asked, "*As a student at <name of school> have you ever…?"* The responses were categorical and were: *took time off for more than 6 months* (Variable: F4ETKOFF); *went part-time* (Variable: F4EPARTT); *transferred credits* (Variable: F4ETRANS); and *attended more than one institutions at the same time*

(Variable: F4EINSTS). The responses were based on *Yes* (code: 1) or *No* (code: 0). The question was posed on the fourth and final follow-up questionnaire.

Took more than six months off from school: For the answer to this variable (F4ETKOOF), the results were *No* (code: 0, percentage: 57.8%, 7019) and *Yes* (code: 1, percentage: 19.9%, 2416). (Variable: F4ETKOFF)

The recoded variable for students who took more than six months off from school was *No* (code: 0, percentage: 74.4%, 7019) and *Yes* (code: 1, percentage: 25.6%, 2416).

Attended Less Than Full-Time: The responses to this variable were *No* (code: 0, percentage: 48.6%, 5899) and *Yes* (code: 1, percentage: 29.2%, 3540). (Variable: F4EPARTT)

The recoded results for participants to attend school part-time were *No* (code: 0, percentage: 62.5%, 5899) and *Yes* (code: 1, percentage: 37.5%, 3540).

Transferred Credits: The responses were *No* (code: 0, percentage: 14.6%, 1730) and *Yes* (code: 1, percentage: 24.6%, 2991). (Variable: F4ETRANS)

The recoded variable for transferred credits was *No* (code: 0, percentage: 36.6%, 1730) and *Yes* (code: 1, percentage: 63.4%, 2991).

Attended More Than One School at the Same Time: The responses were *No* (code: 0, percentage: 34.7%, 4219) and *Yes* (code: 1, percentage: 4.2%, 505). (Variable: (F4EINSTS)

The recoded variable for attended more than one school at the same time was *No* (code: 0, percentage: 89.3%, 4219) and *Yes* (code: 1, percentage: 10.7%, 505).

Ever Attended a Four-Year Institution: This variable (F4ATT4YR) is derived by NELS and used information provided on the questionnaire to determine which of the

participants had attended at one time or are currently attending a four-year institution. The coding was categorical data with the answer of *Yes* or *No*. The results were *Yes* (code: 1; percentage: 53.8%, 6529) and *No* (code: 2; percentage: 24.7%, 3002).

The variable was recoded to *Yes* (code: 1; percentage: 68.5%, 6529) and *No* (code: 2; percentage: 31.5%, 3002).

Attend Less than a Four-Year Institution: This variable (F4EREAS4) was on the fourth and final follow-up questionnaire of participants who attended college but attended less than a four-year institution. The question posed to the participants was, *"What was your primary reason for enrolling in (most recent school)? Did you attend... to obtain job skills that do not require a degree or certificate, to obtain a degree or certificate, to transfer to another school, or personal enrichment?"* The variable is categorical data.

The responses were: *to get job skills for a job not requiring a college degree* (code: 1; percentage: 4.6%, 556); *to obtain a degree or certificate* (code: 2; percentage: 17.1%, 2072); *to transfer to another school* (code: 3; percentage: 3.5%, 429); and *personal enrichment* (code: 4; percentage: 5.8%, 705).

The recoded and recoded variable was: *to get job skills for a job not requiring a college degree* (code: 1; percentage: 14.8%, 556); *to obtain a degree or certificate* (code: 2; percentage: 55.1%, 2072); *to transfer to another school* (code: 3; percentage: 11.4%, 429); and *personal enrichment* (code: 4; percentage: 18.7%, 705).

Left School: To understand why a student left school this variable will assist in determining the impact a student's personal characteristics have if a student stays in school or leaves before obtaining a degree. To assess this variable the question "*why did*

you leave school and not obtain a degree" was asked in the final follow-up questionnaire. (Variable: F4ELV1)

The participants were asked this question on the fourth and final follow-up questionnaire. The variable is categorical with choices for responses. The responses were: *done taking desired classes* (code: 1; percentage: 0.7%, 83); *financial Reasons* (code: 2; percentage: 4.1%, 494); *family status change (marriage, death)* (code: 3; percentage: 2.9%, 351); *personal problems/injury/illness* (code: 4; percentage: 2.5%, 307); *academic problems* (code: 5; percentage: 0.5%, 59); *not satisfied with school or program* (code: 6; percentage: 1.1%, 132); *classes not available/class scheduling* (code: 7; percentage: 0.3%, 35); *job/military consideration* (code: 8; percentage: 3.5%, 423); *moved from the area* (code: 9; percentage: 80%, 0.7); *decided to take time off from studies* (code: 10; percentage: 1.0%, 116); *enrollment doesn't suit lifestyle* (code: 11; percentage: 1.3%, 162); *school/program closed/lost accreditation* (code: 12; percentage: 0.1%, 15); o*ther* (code: 13; percentage: 0.7%, 81).

The recoded variable of why the participant left school was: *done taking desired classes* (code: 1; percentage: 3.7%, 83); *financial reasons* (code: 2; percentage: 21.9%, 494); *change in personal life family status, personal problems/injury/illness, job/military consideration and moved from the area*) (code: 3; percentage: 51.4%, 1160); *academic problems* (code: 4; percentage: 2.6%, 59); and *not interested in school at this time* (code: 5; percentage: 20.4%, 460).

Number of Institutions Attended: This question was posed on the student questionnaire during the fourth survey (Variable: F4NINST). This is a composite variable

created with the data from the previous two interviews and the student records through IPEDS. The data is continuous.

The responses were: *0* (code: 0; frequency: 20.9%, 2543); *1* (code: 1; frequency: 41.1%, 4993); *2* (code: 2; frequency: 25.3%, 3073); *3* (code: 3; frequency: 9.7%, 1175); *4* (code: 4; frequency: 2.3%, 280); *5* (code: 5; frequency: 0.6%, 67); 6 (code: 6; frequency: 0.1%, 10); *7* (code: 7; frequency: 0.0%, 2); and *8* (code: 8; frequency: 0.0%, 1).

This variable was recoded to include participants who did not attend any institutions with the missing data. The minimum number of institutions attended was one and the maximum number of institutions attended was eight. The mean was 1.69 with a standard deviation of .87. The results were: *1* (code: 1; frequency: 52%, 4993); *2* (code: 2; frequency: 32%, 3073); *3* (code: 3; frequency: 12.2%, 1175); *4* (code: 4; frequency: 2.9%, 280); *5* (code: 5; frequency: 0.7%, 67); 6 (code: 6; frequency: 0.1%, 10); *7* (code: 7; frequency: 0.0%, 2); and *8* (code: 8; frequency: 0.0%, 1).

College choice and location: Commitment and motivation to complete a degree may be determined if the student attends their *"first choice of college."* The variable *"first choice of college"* (Variable: PSECHOIC) was asked of participants if they attended their first choice by *"attended only first choice", "attended first choice later",* and *"never attended first choice"*. The research will also consider if attending a school in-state or out-of-state affect the degree attainment of men. The variable used to assist in considering this variable was, "Did the participant attend a school in-state or out-of-state at the first institution they attended?" The responses were *in-state* or *out of state* (Variable: PSEFIRIO). The variable was derived by NCES based on the participant's home state in 1992 and the school they attended the longest.

Attended First Choice: This variable can help determine if men attend their first choice of institutions, does that improve their degree attainment? The variable PSECHOIC is a derived variable by NCES. The coding for this variable is: *no PSE (post secondary education)* (code: 0; frequency: 31.2%, 3793); *attended first choice first* (code: 1; frequency: 31.8%, 3859); *attended first choice later* (code: 2; frequency: 1.6%, 189); *never attended first choice* (code: 3; frequency: 16.2%, 1968); and *no choice indicated* (code: 4; frequency: 16.5%, 2002).

The variable was recoded to: *attended first choice first* (code: 1; frequency: 48.1%, 3859); *attended first choice later* (code: 2; frequency: 2.4%, 189); and *never attended first choice* (code: 3; frequency: 24.5%, 1968); and *no choice indicated* (code: 4; frequency: 12.2%, 2002). Responses for "*No PSE"* were coded as missing since the study is interested only in those participants who attended college.

Location for First Choice: The variable PSEFIRIO indicates if the first choice institution was in-state or out-of-state. This variable was derived by NCES by considering the participants school location and their home state. It was coded into three categories: *no PSE* (code: 0; percentage: 31.2%, 3793); *same state* (code: 1; percentage: 51.1%, 6205); and *different state* (code: 2; percentage: 12.9%, 1561).

The recoded variable was *same state* (code: 1; percentage: 79.9%, 6205) and *different state* (code: 2; percentage: 20.1%, 1561). The responses for *"no PSE"* were recoded to missing since this research is focusing on participants who attended college.

Degree: The degree and commitment to a degree may have an impact on the degree attainment of men. To look at this interaction the variables that will be used are "*if*

they changed their major" (Variable: F4ECHMAJ) and "*type of major"* (Variable: MAJCODE). The variables are all categorical.

Type of Major: (Variable: MAJCODE) The participants who attended college were asked on the third follow-up questionnaire what was their major. The actual question was, "*(During your last month of attendance,) what is (was) your actual or intended major field of study at <institutions name>?"* There were 114 majors the participants were able to choose. For the purpose of this research, the original coding will not be listed due to the number of variables. The original data did have *No Major* (code: 900; percentage: 9.7%, 1123).

The variable was recoded in combined fields of study liberal arts and social science (included majors such as political science, communication arts, foreign languages, psychology, sociology, English, fine arts, history); business (included majors such as accounting, marketing, management); sciences/math (includes majors such as computer sciences, math, biology, chemistry, physics, and agriculture); engineering/architecture (included majors such as architecture, engineering, industrial sciences); education (includes all education majors); health sciences and professional studies (includes majors such as all health majors, nursing, home economics, child care, and recreation); and no major.

The recoded variable coding and results are: *Liberal Arts & Sciences* (code: 1; percentage: 26.9%, 3070); *Business* (code: 2; percentage: 16.5%, 1884); *Sciences/Math/Agriculture* (code: 3; percentage: 12.1%, 1383); *Education* (code: 4; percentage: 9.3%, 1061); *Engineering/Architecture/Mechanical* (code: 5; percentage:

10.1%, 1152); *Health Sciences & Professional Studies* (code: 6; percentage: 15.0%, 1717); and *No Major* (code: 7; percentage: 10.1%, 1150).

Change of Major: This question was asked on the fourth follow-up questionnaire that was asked of only those participants that had attended college. The categorical data was *Yes* (code: 1) or *No* (code: 0). The responses were *Yes* (code: 1, percentage: 24.6%, 2989) and *No* (code: 0, percentage: 53.0%, 6442). (Variable: F4ECHMAJ)

Participants were asked *"if they changed their major"*; the variable was recoded to *No* (code: 0, percentage: 68.3%, 6442) and *Yes* (code: 1, percentage: 31.7%, 2989).

Institutional Variables

Institutional variables focus on what the institution controls and the structure. These variables included the type of institution, public or private, size, and tuition.

Type of institution: This variable (Variable: F4SECT) was developed from the NELS data on the type of school attended based on the IPEDS data file from 1993/1994. NELS has six sectors that the original data was based which included: *private for profit* (code: 1; percentage: 6.6%, 1087); *private not-for-profit, less than four-year* (code: 2; percentage: 1.6%, 261); *public less than two year* (code: 3; percentage: 1.2%, 198); *public two-year* (code: 4; percentage: 33.4%, 5500); *private not-for-profit four-year* (code: 5; percentage: 18.3%, 3016); *public four-year* (code: 6; percentage: 38.0%, 6254); and *don't know* (code: -1; percentage: 0.9%, 143). (Variable: F4SECT)

The variable was recoded into *Private Institutions* and *Public Institutions*. The recoding of the variable the final percentages and codes are *Private* (code: 1; percentage: 26.7%, 4364) and *Public* (code: 2; percentage: 73.3%, 11952).

Total Size: To determine if the size of the institution has an effect on the degree attainment for men the variable TOTATTND will be used from the third wave of the survey. TOTATTND was derived from the IPEDS. The variable TOTATTND was used from the 1993-1994 school year. This variable was derived from the information provided by the participants in the third and fourth wave of the survey and from the IPEDS- Characteristic file. The computer program used the school information from the participant and from the IPEDS-Characteristic file and put the costs into 10 categories by deciles.

The data is as follows: *missing* (code: 0; percentage: 0.2%, 7); *1st decile (less than 16)* (code: 1; percentage: 0.4%, 16); *2nd decile (16-41)* (code: 2; percentage: 0.5%, 17); *3rd decile (41-79)* (code: 3; percentage: 0.9%, 29); *4th decile (79-140)* (code: 4; percentage: 1.3%, 42); *5th decile (140-259)* (code: 5; percentage: 2.3%, 73); 6*th decile (259-393)* (code: 6; percentage: 2.3%, 73); 7*th decile (393-800)* (code: 7; percentage: 6.8%, 220); 8*th decile (800-1898)* (code: 8; percentage: 13.1%, 421); *9th decile (1898-5441)* (code: 9; percentage: 20.9%, 671); and 10*th decile (greater than 5541)* (code: 10; percentage: 26.4%, 849). (Variable: TOTATTEN)

Tuition: The variable TUITFEES was used from the 1993-1994 school year. This variable was derived from the information provided by the participants in the third and fourth wave of the survey and from the IPEDS- Characteristic file. The computer program used the school information from the participant and from the IPEDS-Characteristic file and put the costs into 10 categories by deciles. This variable takes into account both the Tuition Cost + Fees= Total Cost for the year.

The data is as follows: *Missing* (code: 0; percentage: 8.4%, 269); *1st decile (less than 958)* (code: 1; percentage: 5.4%, 174); *2nd decile (958 - 1570)* (code: 2; percentage: 7.0%, 224); *3rd decile (1570 - 2265)* (code: 3; percentage: 7.4%, 237); *4th decile (2265-3375)* (code: 4; percentage: 6.4%, 206); *5th decile (3375-4741)* (code: 5; percentage: 6.7%, 217); *6th decile (4741-6486)* (code: 6; percentage: 5.6%, 179); *7th decile (6486-9320)* (code: 7; percentage: 4.7%, 151); *8th decile (9320-13760)* (code: 8; percentage: 4.6%, 148); *9th decile (13760-20650)* (code: 9; percentage: 8.1%, 259); and *10th decile (greater than 20650)* (code: 10; percentage: 10.9%, 352). (variable: TUITFEES)

The variable was recoded to the following for the analysis: *1st decile (less than 958)* (code: 1; percentage: 8.1%, 174); *2nd decile (958 - 1570)* (code: 2; percentage: 10.4%, 224); *3rd decile (1570 - 2265)* (code: 3; percentage: 11.0%, 237); *4th decile (2265-3375)* (code: 4; percentage: 9.6%, 206); *5th decile (3375-4741)* (code: 5; percentage: 10.1%, 217); *6th decile (4741-6486)* (code: 6; percentage: 8.3%, 179); *7th decile (6486-9320)* (code: 7; percentage: 7.0%, 151); *8th decile (9320-13760)* (code: 8; percentage: 6.9%, 148); *9th decile (13760-20650)* (code: 9; percentage: 12.1%, 259); and *10th decile (greater than 20650)* (code: 10; percentage: 16.4%, 352).

Financial Aid

Several variables will be used to determine if different forms of financial aid have an effect on the degree attainment of men. Financial aid is divided into two categories-student variables and parental variables.

Financial Aid: Student Variables

The student variables will look at the responses to what type of aid the student received, how much they borrowed, and the amount financed.

Funding of Education: The question on the third follow-up questionnaire was asked, *"What types of student financial aid did you receive while attending <institution name>? Did you receive "grants"* (variable: GRANTS), *"loans"* (variable: LOANS), *"Work-study"* (variable: WORKSTDY), *"received other aid"* (variable: OTH_FINA), *"received no aid*" (variable: NO_FINA)?" The answers were categorical with *Yes* or *No*. The question was on the third follow-up questionnaire and was answered only by students who attended a college.

Grants/scholarships/fellowships: The responses were *Yes* (code: 1; percentage: 41.9%, 4848) and *No* (code: 2; percentage: 57.5%, 6647). (Variable: GRANTS)

The recoding of this variable was *Yes* (code: 1; percentage: 42.2%, 4848) and *No* (code: 2; percentage: 57.8%, 6647).

Loans: The responses were *Yes* (code: 1; percentage: 25.6%, 2956) and *No* (code: 2; percentage: 73.9%, 8539). (Variable: LOANS)

The recoding to eliminate the missing variables has the final frequency as *Yes* (code: 1; percentage: 25.7%, 2956) and *No* (code: 2; percentage: 74.3%, 8539).

College Work-Study: The responses were *Yes* (code: 1; percentage: 8.7%, 1006); and *No* (code: 2; percentage: 90.7%, 10489). (Variable: CAMPJOB)

The recoded variable is *Yes* (code: 1; percentage: 8.8%, 1006) and *No* (code: 2; percentage: 91.2%, 10489).

Other Financial Aid: The responses were *Yes* (code: 1; percentage: 2.8%, 326); and *No* (code: 2; percentage: 96.6%, 11169). (Variable: OTH_FINA)

The recoded variable without the missing cases is *Yes* (code: 1; percentage: 2.8%, 326) and *No* (code: 2; percentage: 97.2%, 11169).

No Financial Aid: The responses were *Yes* (code: 1; percentage: 47.8%, 5530); and *No* (code: 2; percentage: 51.6%, 5965). (Variable: NO_FINA)

The recoded variable is *Yes* (code: 1; percentage: 48.1%, 5530) and *No* (code: 2; percentage: 51.9%, 5965).

Total amount borrowed: Amount of financial aid borrowed was asked on the third follow-up questionnaire of those students who attended college (variable: TOTLBORW). The variable is continuous data. The minimum borrowed was nothing and the highest borrowed was $52,000. The average amount borrowed was $3,805.40. The question posed was "(*Thinking about all of the postsecondary institutions you have attended,) what is the TOTAL amount you have borrowed for your postsecondary education?"* The data is continuous data with *Zero Borrowed* (code: 0; percentage: 5.5%, 666) and the amount borrowed (code: $ amount; percentage: 17.7%, 2150).

This variable was recoded to the following: *Zero Borrowed* (code: 0; percentage: 23.7%, 666) and the amount borrowed (code: $ amount; percentage: 76.3%, 2150). The range of responses was from zero borrowed to $52,000. The mean was $3,805.40 with a standard deviation of $4,609.73.

Total Amount Financed: The variable Total Amount Financed was asked of participants on the third follow-up questionnaire of those students who attended college (variable: AMT_FINA). That data is continuous. The minimum finance was nothing and the highest financial aid received was $80,000. The average amount financed was $3,809. The question posed was, *"During your most recent period of enrollment at <institutional name>, what is (was) the total amount of financial aid you receive (received) yearly?"*

The data is continuous data *Zero Borrowed* (code: 0; percentage: 2.3%, 380) and the amount borrowed (code: $ amount; percentage: 46.3%, 5349).

The data was recoded to eliminate the missing data. The results were *Zero Borrowed* (code: 0; percentage: 7.1%, 380) and the amount borrowed (code: $ amount; percentage: 92.9%, 49699). The range financed was $0.00 to $80,000. The mean financed for college was $3,808.45 with a standard deviation of $4,371.78.

Financial Aid: Parental Variables Financial Aid

To gauge the support of the parents in financing their child's education three variables will be included how they plan on funding their child's education, the acceptable amount of debt, and what they expect to borrow.

Funding Sources for Child's Education: The parent questionnaire asked, *"Which of the following sources of money will you use to cover your teenager's future educational expenses?"* The parents were able to respond to twelve ways to fund their child's education. The data is categorical and obtained from the second follow-up parent questionnaire. The most common forms of funding indicators were included on the parent's questionnaire including: *current earnings, savings, second mortgage, borrowing, alimony/child support, child's earnings, trust fund, relative's contribution, scholarships/grants, state/federal loans, social security/veteran's benefits,* and *other*. (Variable: F2P92A, B, C, D, E, F, G, H, I, J, H, & L) The parents were able to answer *Yes* or *No* for each variable. The answers for using a *second mortgage, alimony/child support, a trust fund, relative's contributions, social security/veteran's benefits,* and *other* will not be used in this research. The percentage of no answers was more than 50%, therefore; these would be weak indicators.

The response to *plan to use current earnings for their teens' education (variable: F2P92A)* was *Yes* (code: 1; percentage: 57.3%, 6953) and *No* (code: 2; percentage: 18.2%, 2207).

The recoded variable used for the analysis was *Yes* (code: 1; percentage: 75.9%, 6953) and *No* (code: 2; percentage: 24.1%, 2207).

The response to *will use savings/assets for teen's education* (variable: F2P92B) was *Yes* (code: 1; percentage: 39.8%, 4831) and *No* (code: 2; percentage: 34.7%, 4220).

The variable was recoded and the new results are *Yes* (code: 1; percentage: 53.4%, 4831) and *No* (code: 2; percentage: 46.6%, 4220).

The response to *will use borrowing for teen's education* (variable: F2P92D) was *Yes* (code: 1; percentage: 26.8%, 3253) and *No* (code: 2; percentage: 46.9%, 5701).

The variable was recoded and the results are now *Yes* (code: 1; percentage: 36.3%, 3253) and *No* (code: 2; percentage: 63.7%, 5701).

The response to *will use child's earnings/savings for education* (variable: F2P92F) was *Yes* (code: 1; percentage: 39.2%, 4757) and *No* (code: 2; percentage: 35.0%, 4255).

The variable was recoded to combine the missing data. The new variable results are *Yes* (code: 1; percentage: 52.8%, 4757) and *No* (code: 2; percentage: 47.2%, 4255).

The response to *will use scholarships/grants for teen's education* (variable: F2P92I) was *Yes* (code: 1; percentage: 48.6%, 5908) and *No* (code: 2; percentage: 25.9%, 3149).

The recoding of if the parent *will use scholarships to fund their child's education* results is *Yes* (code: 1; percentage: 65.2%, 5908) and *No* (code: 2; percentage: 34.8%, 3149).

The response to *will use state or federal loans for teen's education* (variable: F2P92J) was *Yes* (code: 1; percentage: 35.9%, 4354) and *No* (code: 2; percentage: 37.8%, 4596).

The recoded variable is *Yes* (code: 1; percentage: 48.6%, 4354) and *No* (code: 2; percentage: 51.4%, 4596).

Expected to Spend Next Year on Child's Education: The parent questionnaire asked, *"How much money do you expect to spend on your teenager's educational expenses next year?"* This is categorical data from the second follow-up parent questionnaire (variable: F2P90).

The coding is: *doesn't want help* (code: 1; frequency: 7.9%, 964); *none* (code: 2; frequency: 12.0%, 1453); *less than $2,500* (code: 3; frequency: 18.2%, 2215); *$2,500 - $4,999* (code: 4; frequency: 14.4%, 1745); *$5,000 - $9,999* (code: 5; frequency: 12.1%, 1465); *$10,000 - $14,999* (code: 6; frequency: 5.4%, 659); *$15,000 - $19,999* (code: 7; frequency: 2.3%, 281); and *over $20,000* (code: 8; frequency: 3.2%, 390).

The data was recoded to: *doesn't want help* (code: 1; frequency: 10.5%, 964); *none* (code: 2; frequency: 15.8%, 1453); *less than $2,500* (code: 3; frequency: 24.1%, 2215); *$2,500 - $4,999* (code: 4; frequency: 19.0%, 1745); *$5,000 - $9,999* (code: 5; frequency: 16.0%, 1465); *$10,000 - $14,999* (code: 6; frequency: 7.2%, 659); *$15,000 - $19,999* (code: 7; frequency: 3.1%, 281); and *over $20,000* (code: 8; frequency: 4.3%, 390). The multiple responses were listed as missing data.

Amount of Debt that is Acceptable: The parent questionnaire asked the parents, *"How much debt are you willing to go into in order to finance your teenager's education next year?"* This is categorical data from the second follow-up parent questionnaire (Variable: F2P91).

The survey coding was: *none* (code: 0; frequency: 18.3%, 2221); *less than $2,500* (code: 1; frequency: 13.2%, 1605); *$2,500 - $4,999* (code: 2; frequency: 11.5%, 1402); *$5,000 - $9,999* (code: 3; frequency: 6.9%, 842); *$10,000 - $14,999* (code: 4; frequency: 2.4%, 287); *$15,000 - $19,999* (code: 5; frequency: 0.9%, 112); and *over $20,000* (code: 6; frequency: 2.0%, 244).

The data was recoded to: *none* (code: 0; frequency: 33.1%, 2221); *less than $2,500* (code: 1; frequency: 23.9%, 1605); *$2,500 - $4,999* (code: 2; frequency: 20.9%, 1402); *$5,000 - $9,999* (code: 3; frequency: 12.5%, 842); *$10,000 - $14,999* (code: 4; frequency: 4.3%, 287); *$15,000 - $19,999* (code: 5; frequency: 1.7%, 112); and *over $20,000* (code: 6; frequency: 3.6%, 244).

Analysis Tools

The researcher used the Statistical Package for Social Science (SPSS), version 16, computer software package to analyze the data. A descriptive analysis will be completed on each variable to provide a broader understanding of the participants in the national study.

Part 1: Descriptive Analysis

The first part of the analysis is the descriptive analysis of the students' variables, institutional variables by degree attainment. This will provide an overall difference

between students who obtained degrees and those who did not. SPSS was used to develop frequency distributions to address the research questions.

Part 2: Test for Independence

The second part of the analysis is to assess the significance of gender differences with the outcome variable of degree attainment. To assess this difference the researcher will use the Chi-square test for most of the variables since they are categorical. For the variables that are continuous, the T-test analysis will be used. These tests will describe and determine the significance on the outcome variable of degree attainment with individual institutional characteristics and individual personal characteristics.

Part 3: Regression

The third part of the analysis is to answer the broad questions of *to what extent do gender differences potentially predict the outcome of degree attainment* and to *what extent to student characteristics of men who obtain a degree differ from men who do not*. A logit equation will be used because the dependent variable, degree attainment, has two categories (Bachelor's or higher, Less Than a Bachelor's Degree).

Table 3.1 provides a list of variables used in the test for independence and/or in the logit model. The table provides the name of the variable, the type, and the coding for the variable used in SPSS.

Table 3.1: Variables Used for the Test for Independence and/or in the Logit Equation and Their Codes

Dependent Variable	**Type**	**Categories and Coding**
Degree Attainment	Categorical	Less Than a Bachelor's Degree=1; Bachelor's Degree or Higher Earned=2
Independent Variables	**Type**	**Categories and Coding**
Student Characteristics		
Gender	Categorical	Male= 1; Female= 2
Race	Categorical	American Indian or Alaska Native= 1; Asian or Pacific Islander=2; Black, not Hispanic=3; White, not Hispanic=4; Hispanic or Latino=5
Family Income Quartile	Categorical	Quartile1= 1; Quartile2= 2; Quartile3= 3; Quartile4= 4
Parents' Educational Level	Categorical	Didn't Finish HS= 1; HS Graduate/GED= 2; Some College= 3; Bachelor's = 4; Master's/Profession= 5; Ph.D./M.D= 6
Family Composition	Categorical	Mother & Father= 1; Single Parent= 2
Student High School Variables		
Student's Motivation to Attend College	Categorical	Yes= 1; No = 2
Students' High School Track	Categorical	Remedial/General/Vocation= 1; College Prep= 2
Student Expectation in High School for Education	Categorical	Less a Bachelor Degree = 1: Bachelor Degree or Higher= 2
Parental Support		
Talk to Child		
Selecting Course	Categorical	Never= 1; Sometimes= 2; Often= 3
Talk About Grades	Categorical	Never= 1; Sometimes= 2; Often= 3
Talk About Taking SAT/ACT	Categorical	Never= 1; Sometimes= 2; Often= 3
Talk About Applying for College	Categorical	Never= 1; Sometimes= 2; Often= 3
Expect Child To Go To College	Categorical	Less Than a Bachelor's Degree= 1; Parents who expected a bachelor's degree or higher= 5
Encouraged Child to Apply to College	Categorical	Rarely=1; Sometimes=3; Often=4
Expect Child to be a Good Student	Categorical	Not Important= 1; Important= 2

Table 3.1: Variables Used for the Test for Independence and/or in the Logit Equation and Their Codes Continued

Students' College Experience		
College Remedial Classes English	Categorical	Yes= 1; No = 2
College Remedial Classes Math	Categorical	Yes= 1; No = 2
Student Support Services:		
Tutoring by a faculty member or student	Categorical	Not Available= 1; Available But Did Not Receive= 2; Received = 3
Received Personal, Academic; Financial, or Career Assistance	Categorical	Not Available= 1; Available But Did Not Receive= 2; Received = 3
Special Instruction in English, Math, Reading, or Writing	Categorical	Not Available= 1; Available But Did Not Receive= 2; Received = 3
Involvement on Campus:		
Intercollegiate Sports	Categorical	Yes= 1; No = 2
Intramurals Sports Teams	Categorical	Yes= 1; No = 2
Social Club/Greeks	Categorical	Yes= 1; No = 2
Volunteer on Campus	Categorical	Yes= 1; No = 2
Volunteer in Community	Categorical	Yes= 1; No = 2
General Use of Time In College:		
Hours Watched TV	Categorical	No TV on Weekdays=1; Less than 1 hour= 2; 1 hour or more= 3; 2 hours or more= 4; 3 Hours or more= 5; 4 hours or more= 6; 5 hours or more= 7; 6 Hours or more= 8; 7 hours or more= 9; 8 hours or more= 10
Involved with Religious Activities	Categorical	Yes= 1; No = 2
Participate in Sports	Categorical	Yes= 1; No = 2
Worked On-Campus	Categorical	Yes= 1; No = 2
College Attendance Patterns:		
Took more than 6 months off from school	Categorical	No= 0; Yes= 1
Attended School Part-Time	Categorical	No= 0; Yes= 1
Transfer Credit	Categorical	No= 0; Yes= 1
Attended Multiple Schools at same time	Categorical	No= 0; Yes= 1

Table 3.1: Variables Used for the Test for Independence and/or in the Logit Equation and Their Codes Continued

Why attend less than 4-year institution	Categorical	To get job skills for a job not requiring a college degree=1; To obtain a degree or certificate=2; To transfer to another school=3; Personal enrichment=4
Why the Student Left College	Categorical	Done taking desired classes= 1; Financial Reasons= 2; Change in Family Status= 3; Academic Problems= 4 Not Satisfied with Program/School= 5;
Number of institutions attended	Continuous	
Attended First Choice For College	Categorical	Attended Only First Choice=1; Attended First Choice Later= 2; Never Attended First Choice= 3
Attended In-State/Out-of-State	Categorical	In-State= 1; Out-of-State= 2
Type of Major	Categorical	Liberal Arts & Science=1; Business=2; Sciences/Math/Agriculture=3; Education =4; Engineering/architecture/Mechanical=5; Health Sciences & Professional Studies=6; No Major=7
Changed Their Major	Categorical	No= 1; Yes= 2
Institutional Variables		
Institutional Type	Categorical	Private For Profit= 1; Private Not For Profit Less Than 4 Years= 2; Public, 2-year= 3; Private Nonprofit, 4 year= 4; Public, 4-year= 5
Institutional Size	Categorical	1st Decile=1; 2nd Decile=2; 3rd Decile=3; 4th Decile=4; 5th Decile=5; 6th Decile=6; 7th Decile=7; 8th Decile=8; 9th Decile=9; 10th Decile=10
Tuition	Categorical	1st Decile=1; 2nd Decile=2; 3rd Decile=3; 4th Decile=4; 5th Decile=5; 6th Decile=6; 7th Decile=7; 8th Decile=8; 9th Decile=9; 10th Decile=10
Financial Aid		
Student Variables		
Received Grants/Scholarship	Categorical	Yes=1; No=2
Received Loans	Categorical	Yes=1; No=2

Table 3.1: Variables Used for the Test for Independence and/or in the Logit Equation and Their Codes Continued

Received Work-Study	Categorical	Yes=1; No=2
Received Other Financial Aid	Categorical	Yes=1; No=2
Received No Financial Aid	Categorical	Yes=1; No=2
Total Amount Borrowed	Continuous	
Total Amount of Financial Aid Received	Continuous	
Parental Variables: Expected to Pay for Education with:		
Current Earnings	Categorical	Yes= 1; No= 2
Savings	Categorical	Yes= 1; No= 2
Borrowing	Categorical	Yes= 1; No= 2
Child's Earnings	Categorical	Yes= 1; No= 2
Scholarships/Grants	Categorical	Yes= 1; No= 2
State/Federal Loans	Categorical	Yes= 1; No= 2
Amount of Finances Expect to Spend	Categorical	No Help= 1; Less Than $2,500= 2; $2500-$4999= 3; $5,000-$9,999=4: $10,000-$14,999= 5; $15,000-$19,999= 7; Over $20,000= 8
Amount of Debt that is Acceptable	Categorical	None= 0; Less Than $2,500= 1; $2500-$4999= 2; $5,000-$9,999= 3: $10,000-$14,999= 4; $15,999-$19,999= 5; Over $20,000= 6

Limitations

The researcher is unable to ensure the accuracy of the data by using a national database. Using the NELS data, the researcher is not able to access the restrictive data, and this will prevent the researcher from analyzing the data using regression analysis.

Definition of Terms

Undergraduate degree: The attainment of a bachelor's degree.

Degree attainment: The completion of a program of study and graduation with a bachelor's degree.

Two-year institutions: Institutions that offer an associate's degree. This will include community colleges and technical colleges.

Four-year institutions: Institutions that offer bachelor's degrees.

Institutions of higher education: For the purpose of this research paper, institutions of higher education will include colleges and universities, community colleges, and technical colleges, and two-year institutions.

Persistence: the student continued in school even though they stopped out or transferred to another institution.

Retention: The student returns to the same institution each year and graduates from their original institution without leaving.

Summary

Understanding the factors that contribute to the degree attainment of undergraduate men will potentially allow institutions of higher education to expand services to increase the graduation rates of men. To understand what factors contribute to the degree attainment of men will allow schools to continue to enhance the offerings and enrollment management techniques implemented to retain and matriculate an institution's student. Men and women are showing different enrollment and graduate rate trends. Considering the men who have obtained their degrees will allow the researcher to compare personal and institutional characteristics to determine what characteristics are predictors for degree attainment to ensure institutions of higher education do not fail to provide the resources or programs to their students that may enhance the degree attainment of men.

CHAPTER 4

DATA ANALYSIS

The following chapter will analyze the data providing insight into which of the variables were significant for the degree attainment of men. The statistics will cover basic percentages on the degree attainment for men by comparing their attainment to women based on gender, race, parents education and income. A Logit Model will be used to determine the probability of earning a degree based on the standard of comparison. The final stage of the analysis will use a factor analysis to consider the variables by groups.

Research Questions

1. How do males and females differ in undergraduate degree attainment (bachelor's degrees)?
2. To what extent do males and females differ on family backgrounds as predictors of undergraduate degree attainment (race, family income, family size, parent's educational level)?
3. To what extent do males and females vary in their high school experiences as predictors of degree attainment (bachelor's degrees)?
4. To what extent do males and females differ on institutional factors as potential predictors for degree attainment (type of institution, size, in-state/out-of-state, tuition costs)?
5. To what extent do differences in potential predictors factors contribute to degree attainment for males and females? (demographic variables, financial, institutional, and college experience)

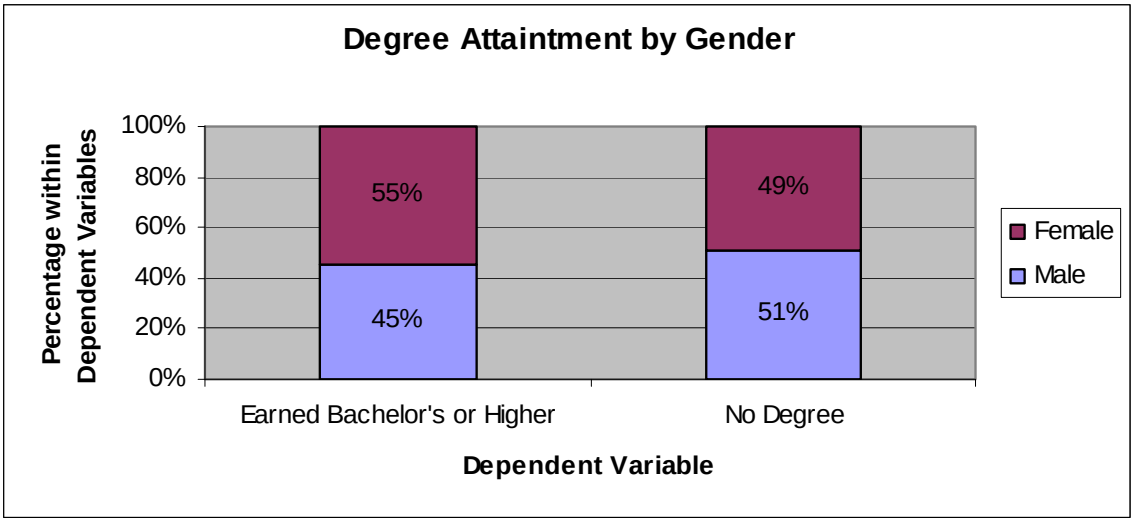
Descriptive Analysis

Demographic Variables

Degree Attainment by Gender

Appendix 1 provides the results for the Degree Attainment for Men for all variables. Men in this study received 45% of the bachelor's degree or higher; referred to as degree attainment or degrees awarded through the rest of the chapter; (n=895126) and women were awarded 55% of the degrees awarded (n=1436704). This is significant ($X^2(1)=6949$, r=.055). When considering the total sample, the percentages show a different view. Men earned seventeen percent of the total degrees awarded, and women earned twenty-one percent of the degrees and (n=2331830). This is a four-percentage point difference. For those participants who went to college but did not finish, men represented thirty-one percent and women represented thirty percent. This is only a one-percent difference.

Figure 4.1 Degree Attainment by Gender



Degree Attainment by Race

The literature review did reveal the differences in degree attainment by race. Of the total number of degrees awarded whites earned 82% of the degrees but when considering the total sample earned 32% of the degrees. Blacks earned 8% of the degrees awarded or 3% of the total. Hispanic and Asian both earned about 5% of the degrees awarded or 2% of the total. Table 4.1 provides a comparison by degree and race and Table 4.2 provides considers race and degrees awarded by total percentages. From this analysis it is observed that whites have a negative nine percent (9%) difference between the number of degrees awarded and did not earn a degree and blacks and Hispanics have a negative seven percent (7%) difference.

Table 4.1 Percentage of Degrees Awarded by Race

	Degree	No Degree	Differences
American Indian/Alaska Native	0.4%	1%	-0.6%
Asian	5%	3%	+2%
Black	8%	16%	-8%
Hispanic	5%	14%	-9%
White	82%	66%	+16%
N	880766	136905	
X^2 (df)	96060 (4)		
r	-0.021		

Table 4.2 Total Percentages by Race

	Degree	No Degree	Differences
American Indian/Alaska Native	0.1%	0.7%	-0.6%
Asian	2%	2%	0%
Black	3%	10%	-7%
Hispanic	2%	9%	-7%
White	32%	41%	-9%
N	2277671		
X^2 (df)	96060 (4)		
r	-0.021		

Table 4.3 provides the results for the degree attainment by gender and race. From the data, whites earned 72.1% of the degrees awarded. When considering the breakdown by degree attainment, race, and gender provides a more accurate understanding of the data. Men earned 36% of the total degrees awarded. Within the subgroup of men, 30% of the degrees were awarded to white, non-Hispanic men, Asian men earned 2%, black men earned 2% the degrees and Hispanic men earned 2% of the degrees with 399,767 degrees awarded to men using weighted data. For women the data shows some differences between the awarded degrees. Women earned 41% of the degrees awarded. When looking at the subgroups by race the results are white women earned 33%, black women earned 4%, and Hispanic and Asian women earned 2% a total of 481,000 degrees awarded to women using weighted data. There is a 3.2 percentage point differences in the number of degrees awarded to white men and white women and a 1.8 percentage point differences between black women and black men both of which the black women earn more degrees than men.

Table 4.3 Percentages for Bachelor's Degree or Higher by Gender and Race
(Percentage reported as within degree)

	Men	Women	Differences
American Indian/Alaska Native	0.1%	0.2%	-0.1%
Asian	2.0%	2%	0%
Black	2%	4%	-2%
Hispanic	2%	2%	0%
White	30%	33%	-3%
X^2	49809 (0.000)	49353 (0.000)	
df	4	4	
r	-0.011	-0.30	

By disaggregating the data to consider gender by race for percentages of degrees awarded provides an even greater understanding of the influence of race and gender in

earning a degree. Asian-American men and women both earn fifty (50%) percent of the degrees awarded within the subgroup of Asian-American. Men in all the other subgroups earn a smaller percentage of the degrees awarded. Black men earn 34% of the degrees awarded to blacks with a negative thirty-two (32) percentage point difference between black men and women. The greatest disparity is with American Indians where men earn 29% of all degrees awarded compared to American Indian women who earn 71% of the degrees. White men earn 46% and Hispanic men earn 44%. This provides an even greater understanding that within the subgroups, men continue to earn fewer degrees than women but the difference by race is interesting. Table 4.4 provides a breakdown of the percentages by race and gender.

Table 4.4 Percentage of Degrees Awarded by Race and Gender

	Men	Women	N	X^2(df)	r (p)
American-Indian	29%	71%	3265	401(1)	.124 (.007)
Asian	50%	50%	44406	975(1)	.108 (.003)
Black	34%	66%	67694	4004(1)	.118 (.002)
Hispanic	44%	56%	46613	409(1)	.041 (.002)
White	46%	54%	718789	5027(1)	.055 (.001)

Degree Attainment by Income and Gender

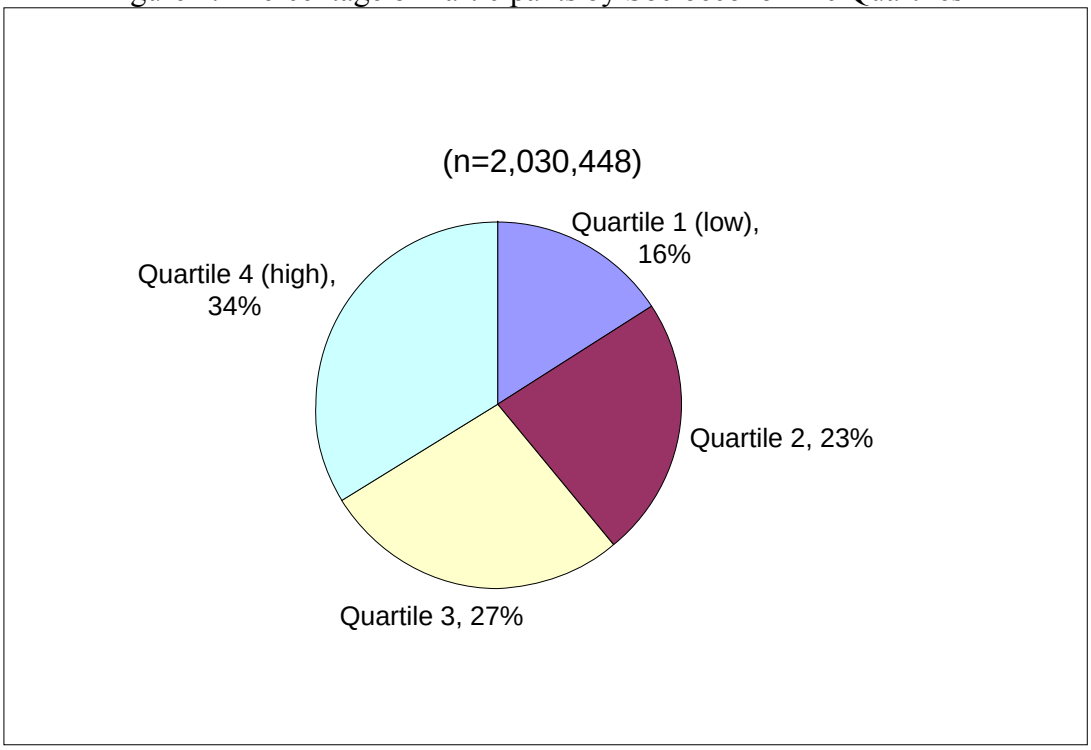
Before looking at the results for income by gender it is beneficial to consider the overall breakdown of degrees earned by income level. The income data was part of the parental questionnaire administered during the participant's senior year in high school. Table 4.5 disaggregates data by income and degree to understand on the interaction of

income and degree attainment and Figure 4.2 provides a graph of what percentage each quartile comprised of in the study.

Table 4.5 Percentages of Degree Attainment within Income Groups

	Degree	No Degree	Differences
Quartile 1 (low)	6%	23%	-17%
Quartile 2	17%	27%	-10%
Quartile 3	25%	29%	-4%
Quartile 4 (High)	52%	21%	+31%
N	808927	1221521	
X^2	247585		
df	3		
r	.338 (0.001)		

Figure 4.2 Percentage of Participants by Socioeconominc Quartiles



It is clear that students from high-income families (Quartile 4) have the highest degree attainment: for example they earn fifty-two percent (52%) of all the degrees awarded or twenty-one percent (21%) of the total sample. Quartile 1 (Low Income) had

the fewest degrees awarded at six percent (6%), lag by an eleven (11) percentage point difference from Quartile 1 and 2. Fewer students from low-income families enter college and Quartile 3 and 4 enrolling in college at a greater degree than the lower two quartiles (Quartile 1 and 2).

Table 4.6 compares the degree attainment by gender and income. Men earned more degrees than women in the upper two quartiles (Quartiles 3 and 4). Men earned twenty-five percent (25%) of the degrees and women earned twenty-five percent (25%), a 0.4 percentage point differences at the Quartile 3 Level. At the Quartile 4 (High) Level there is a six percentage point (6%) differences between men and women. Men earned fifty-five percent (55%) of the degrees awarded and women only fifty percent (50%) of the degrees awarded. At the Quartile 2 and 1 (low), women outperformed men earning six percentage (6%) point difference between men and women. Women at the lower quartiles (Quartile 1 and 2) earn more degrees than men but men at the higher quartiles earn more degrees than women.

Table 4.6 Degree Attainment by Income within Gender

	Men	Women	Differences
Quartile 1 (low)	5%	7%	-2%
Quartile 2	15%	18%	-3%
Quartile 3	25%	25%	0%
Quartile 4 (High)	55%	50%	+5%
X^2	110704 (0.000)	145487 (0.000)	
df	3	3	
r	.321 (0.001)	.365 (0.001)	

To continue to analyze the data even in greater detail, Table 4.7 compares income within the gender group and reports the results as the percentage of degrees awarded for

the income groups. Additional trends are observed suggest that men in all income groups continue to earn fewer of the degrees awarded. The greatest difference is Quartile 1. There is a thirty-two percent (32%) difference between men and women whose families are classified as Quartile 1 with more women graduating than men. For Quartile 2, there is a gap of twenty percentage points (20%) in the number of degrees awarded to men and women. There is a seven percentage (7%) point difference between the percentage of degrees awarded to men and women in the Quartile 3. The smallest difference in degrees awarded are in Quartile 4 where the gap is only four percentage (4%) points.

Table 4.7 Percentage of Degrees Awarded by Income by Gender

	Men	Women	Difference	N	X^2(df)	r (p)
Quartile 1 (low)	34%	66%	-32 %	49009	1507(1)	.067 (.002)
Quartile 2	40%	60%	-20%	136463	2779(1)	.078 (.001)
Quartile 3	46%	54%	-7%	201239	4263(1)	.088 (.001)
Quartile 4 (High)	48%	52%	-4%	422216	9207(1)	.116 (.001)

Table 4.8 further disaggregates the data by race, gender, and income groups. Men continue to earn fewer degrees than women at the lowest income group for all racial groups. Among the second level income group black, Hispanic, and white men earn fewer degrees but American-Indians and Asian men earn more degrees than the women. Asian men and Hispanic men earn more degree than women but American-Indian, black, and white men all earn fewer degrees at the second highest level group. However, in Quartile 4, only Hispanic men earn more degree than Hispanic women, and American-Indian, black and white all earn fewer degrees.

Table 4.8 Degree Attainment Percentages by Race, Gender, Income Groups

Quartile 1 (Low)	Men	Women	N	X^2(df)	r (p)
American-Indian	0	100%	266	54(1)	.144 (.004)
Asian	27%	73%	4622	244(1)	.128 (.008)
Black	26%	74%	10271	517(1)	.085 (.003)
Hispanic	38%	62%	7943	220(1)	.053 (.004)
White	35%	65%	21452	1043(1)	.084 (.003)
Quartile 2					
American-Indian	100%	0%	666	278(1)	-.255 (.006)
Asian	66%	34%	5768	11 (1)	.028 (.008)
Black	20%	80%	18203	3867(1)	.252 (.004)
Hispanic	30%	70%	7687	472(1)	.111 (.005)
White	43%	57%	103328	618(1)	.043 (.002)
Quartile 3					
American-Indian	9%	91%	1888	595(1)	.294 (.009)
Asian	55%	45%	7357	363(1)	.154 (.008)
Black	47%	53%	19031	278(1)	.072 (.004)
Hispanic	50%	50%	9478	824(1)	.015 (.005)
White	46%	54%	161815	3215(1)	.086 (.002)
Quartile 4					
American-Indian	23%	77%	486	362(1)	.418 (.005)
Asian	47%	53%	20649	185(1)	.083 (.006)
Black	29%	71%	16619	10140(1)	.427 (.004)
Hispanic	54%	46%	15217	1498(1)	-.216 (.005)
White	49%	51%	364212	6047(1)	.104 (.001)

Degree Attainment by Parent's Educational Level

The variable that considers the degree attainment by a parent's educational level provides insight that once again women earn more degree than men when the parents did not finish high school, were high school graduates, or had only some college. This question was asked on the parent questionnaire in 1988 and 1992. Men earned more

degrees than women when parents had a college degree or higher. Table 4.9 provides a breakdown the percentages and differences. When a child's parent has a master's degree there is a five (5%) percentage point difference between men and women where men earn twenty-two percent (22%) of the degrees and women seventeen percent (17%) of the degrees.

Table 4.9 Degree Attainment Percentages by Gender and Parent's Education Level

Parent's Education:	Men	Female	Differences
Didn't Finish High School	2%	3%	-1%
High School Graduate	8%	10%	-2%
Some College	32%	36%	-4%
College Graduate	25%	25%	0%
Master's or Equal	22%	17%	+5%
Ph. D, M. D.	12%	9%	+3%
X^2	14032 (0.000)	177012 (0.000)	
df	5	5	
r	0.360 (0.001)	0.394 (0.001)	

Disaggregating this data by parent's educational level and income group provides an additional glimpse to gaining a boarder understanding of the factors that possibly contribute to the degree attainment of men. Women enroll in college at a higher rate than men at all educational levels except when a parent has a master's or doctorate degree. Even though men enroll at a higher rate when a parent has a master's or doctorate degree, a smaller percentage of the total degrees earned are awarded to men when compared to women. For students whose parents who had a high school education or below, a larger percentage of the students who attend college from this group are from the two lower income groups. When a parent has some college the student enrollment and degrees awarded are from the two medium income groups (Quartile 2 and 3). Students enroll in college at a higher rate and earn a college degree when a parent has a college education

and are mainly from the two highest income levels. Students from the highest income group earn the most degrees and enroll in college at the highest level when a parent has a masters or doctorate degree.

Table 4.9a Degree Attainment Percentages by Parents' Education Level and Gender

Parent's Didn't Finish High School						
	Degree	No Degree	Differences	Total	X^2 (df)	r (p)
Men- Quartile 1	11%	84%	-73	56213		
Men- Quartile 2	1%	4%	-3	2688		
Men- Quartile 3	1%	0.0%	1	514		
Men- Quartile 4	0.0%	0.0%	0	0		
Total	12%	88%		59415	3852 (2)	.202 (.006)
Women- Quartile 1	14%	82%	-68	73225		
Women - Quartile 2	0.7%	3%	-2	2649		
Women - Quartile 3	0	1%	-1	369		
Women - Quartile 4	0.0%	0.0%	0	0		
Total	14%	86%		76243	152 (2)	.010 (.004)
High School Graduate/GED						
Men- Quartile 1	5%	33%	-28	54370		
Men- Quartile 2	10%	35%	-25	64196		
Men- Quartile 3	4%	13%	-9	23722		
Men- Quartile 4	0.0%	0.3%	-0.3	502		
Total	19%	81%		142790	1923 (3)	.097 (.003)
Women- Quartile 1	8%	36%	-18	80958		
Women - Quartile 2	12%	30%	-18	77326		
Women - Quartile 3	4%	9%	-5	24061		
Women - Quartile 4	0.1%	0.1%	0	431		
Total	25%	76%		182776	3243 (3)	.130 (.002)
Some College						
Men- Quartile 1	1%	6%	-5	54370		
Men- Quartile 2	9%	23%	-14	130909		
Men- Quartile 3	14%	34%	-20	198489		
Men- Quartile 4	5%	8%	-3	53647		
Total	29%	71%		412361	6166 (3)	.105 (.002)

Table 4.9a Degree Attainment Percentages by Parent's Education Level and Gender Continued

	Degree	No Degree	Differences	Total	X^2 (df)	r (p)
Some College						
Women- Quartile 1	1%	7%	-6	34815		
Women - Quartile 2	13%	24%	-11	161749		
Women - Quartile 3	16%	27%	-11	189843		
Women - Quartile 4	5%	6%	-1	50094		
Total	36%	64%		436501	10147 (3)	.132 (.001)
College Graduate						
Men- Quartile 1	0.0%	0.1%	-0.1	219		
Men- Quartile 2	2%	4%	-2	11957		
Men- Quartile 3	13%	17%	-4	58536		
Men- Quartile 4	30%	34%	-4	128986		
Total	45%	55%		199698	1668 (3)	.081 (.002)
Women - Quartile 1	0.0%	0.3%	-0.3	620		
Women - Quartile 2	1%	2%	-1	4797		
Women - Quartile 3	16%	12%	+4	49161		
Women - Quartile 4	45%	24%	+21	122956		
Total	63%	38%		177534	2338 (3)	.102 (.002)
Master's or Equal						
Men- Quartile 1	0%	0%		0		
Men- Quartile 2	0.1%	0.4%	-0.3	590		
Men- Quartile 3	2%	3%	-1	5782		
Men- Quartile 4	63%	32%	+31	116193		
Total	66%	35%		122565	2999 (3)	.110 (.003)
Women - Quartile 1	0%	0.2%	-0.2	195		
Women - Quartile 2	0.2%	0.1%	+0.1	281		
Women - Quartile 3	2%	2%	-0	4245		
Women - Quartile 4	71%	24%	+47	99836		
Total	73%	27%		104557	1509 (2)	.154 (.003)
Ph.D., M.D., Other						
Men- Quartile 1	0%	0%	0	0		
Men- Quartile 2	0%	0%	0	0		
Men- Quartile 3	0%	0.1%	-0.1	79		
Men- Quartile 4	74%	26%	+48	58446		
Total	74%	26%		58525	222 (2)	.062 (.003)

Table 4.9a Degree Attainment Percentages by Parent's Education Level and Gender Continued

	Degree	No Degree	Differences	Total	X^2 (df)	r (p)
Women- Quartile 1	0%	0%	0	0		
Women - Quartile 2	0%	0%	0	0		
Women - Quartile 3	0.2%	0.5%	-0.3	313		
Women - Quartile 4	86%	15%	+71	47122		
Total	85%	15%		47435	734 (1)	.124 (.007)

Family Composition

Table 4.10 provides a glimpse at the potential effect family composition has on the degree attainment of men. This question was part of the parent questionnaire in 1992. The table provides a look at the percentage of degrees earned by the total number of participants. There is a 2.8 percentage point difference in the total number of degrees awards between male and females. Between men who were raised in a two parent household and a single parent household there is a 60.2 percentage difference with men raised in a two family home earning 80.1% of the degrees awarded compared to 19.9% of the degrees award to men from single family homes. Men and women raised in a single parent home are at a disadvantage of completing a degree with men only earning 7.3% of the total and women earning 10.6% of the total.

Table 4.10 Degree Attainment Percentages by Gender and Family Composition

BA or Higher		Male	Female	Differences
2 Parents	% within Degree	80%	75%	+5%
	% Total	30%	32%	-2%
Single Parent	% within Degree	20%	25%	-5%
	% Total	7%	11%	-4%
	N within Degree	364089	436960	
	N within Count	1017956	1017956	
X^2		47833 (0.000)	48036 (0.000)	
df		1	1	
r		-0.220 (0.001)	-0.217 (0.001)	

High School Variables

The high school variables assess if a teacher in high school felt a student was motivated to attend college, the student's high school track, and the students expectation in high school to attend college and if these can predict if a student will earn a degree. The teachers answered these questions during the students' senior year in high school.

Teachers felt that women were more motivated to attend college. If a teacher felt a student was motivated to attend college, 55 percent of the women earned their degrees compared to 45 percent of the men. If a teacher did not feel a student was motivated to attend college, men earned a greater percentage of the degrees awarded (58%) compared to women (42%). This difference may be due to the fact that men were not as mature in high school but after attending college showed more motivation than in high school.

Table 4.11 Percentage of the Total Degrees Award by Teacher Perception of Motivation by Gender

	Degree	No Degree	N
Yes			
Yes – Men	26%	23%	501420
Yes – Female	32%	19%	523371
N			1024791
X^2 (df)	7175 (1)		
r (p)	.084 (.001)		
No			
No – Men	8%	53%	129834
No– Female	6%	33%	81245
N			211079
X^2 (df)	177 (1)		
r (p)	.029 (.002)		

High school track can affect a student's ability to earn a degree. Students who were enrolled in the college preparation track in high school earn a majority of the degrees awarded (88% for college preparation verse 12% for non-college preparation).

Women were enrolled in the college preparation programs at a slightly lower rate but earned 55 percent of the degrees awarded. Men comprised of 53 percent of the non-college preparation track and earned 53 percent of the degrees awarded to students on the non-college preparation track.

Table 4.12 Percentage of the Total Degrees Awarded by High School Track and Gender

	Degree	No Degree	N
College Preparation			
Yes -Men	26%	24%	477622
Yes – Women	32%	18%	466702
N			944324
X^2 (df)	15922 (1)		
r (p)	.130 (.001)		
Non-College Preparation			
No – Men	13%	40%	160977
No– Women	47%	47%	142442
N			303419
X^2 (df)	.087 (1)		
r (p)	.130 (.001)		

The student's expectations may also play an indirect role in earning a college degree. Of the students who expected to earn a bachelor's degree, 51 percent of them were women and 49 percent were men. Even when a student did not expect to earn a bachelor's degree or higher in high school, women earned a higher percentage than men. This question was asked of participants during their senior year in high school.

Table 4.13 Percentage of the Total Degrees Awarded by Students' Expectations and Gender

	Degree	No Degree	N
Bachelor's Degree or Higher			
Yes -Men	17%	32%	788666
Yes – Women	21%	30%	820404
N			1609070
X^2 (df)	4465 (1)		
r (p)	.053 (.001)		

Table 4.13 Percentage of the Total Degrees Awarded by Students' Expectations and Gender Continued

	Degree	No Degree	N
Less Than Bachelor's			
No – Men	17%	32%	315768
No– Women	21%	31%	343052
N			658820
X^2 (df)	2021 (1)		
r (p)	.055 (.001)		

The parents' influence on their child's ability to earn a bachelor's degree or higher is evaluated using the questions: if the parent talks with their child about selecting class, grades, taking the SAT/ACT, applying for college, if they feel it is important for their child to be a good student, and their expectations of earning a bachelor's degree or higher. The parents were asked these questions during their child's senior year in high school.

Parents tended to speak with their children about selecting courses in high school and 40% earned a bachelor's degree or higher. Parents spoke with their sons sometimes or often concerning classes at a lower rate than their daughters (45 % and 55 %). This question was asked of parents during their child's senior year in high school. See Table 4.15 and 4.15a for the percentages parents spoke to their child about selecting courses in high school.

Table 4.14 Percentage of the Total Degrees Awarded by Parents' Discuss Selecting Courses

	Degree	No Degree	N
Never	1%	3%	78804
Sometimes	14%	23%	724426
Often	26%	34%	1205915
N	804509 (40%)	1204636 (60%)	2009145
X^2 (df)	2.6 (2)		
r (p)	.101 (.001)		

Table 4.14a Percentage of the Total Degrees Awarded by Parents' Discuss Courses and Gender

	Men	Women
Never	1%	1%
Sometimes	13%	14%
Often	23%	29%
N	365727 (37%)	438781 (43%)
X^2 (df)	1.13 (2)	1.5 (2)
r (p)	.090 (.001)	.110 (.001)

Parents discuss grades with their daughters at a higher rate, and women earn more degrees than the men. Of the total degrees awarded, men earned 45 percent and women earned 55 percent. When looking specifically at the degrees awarded within gender, 37 percent of the men earned a degree and 43 percent of the women.

Table 4.15 Percentage of the Total Degrees Awarded by Parents' Discuss Their Child's Grades

	Degree	No Degree	N
Never	0.3%	2%	35981
Sometimes	9%	13%	451237
Often	30%	45%	1519266
N	804056 (40%)	1202428 (60%)	2009145
X^2 (df)	1.09 (2)		
r (p)	.022 (.001)		

Table 4.15a Percentage of the Total Degrees Awarded by Parents' Discuss Their Child's Grades and Gender

	Men	Women
Never	0.1%	0.4%
Sometimes	8%	11%
Often	29%	32%
N	365493 (37%)	438563 (43%)
Valid Cases	986122	1020362
X^2 (df)	4270 (2)	1.5 (2)
r (p)	.040 (.001)	.011 (.001)

Applying to college is the first step in enrolling in any college. Ninety-five percent of the parents talked with their children about applying for college. By having parents talk with their children about applying for college, 40 percent of them earned their degrees. When disaggregating this by gender, 37 percent of the degrees are awarded to men and 43 percent to women.

Table 4.16 Percentage of the Total Degrees Awarded by Parents' Discuss Applying For College

	Degree	No Degree	N
Never	0.2%	4%	81893
Sometimes	6%	18%	483295
Often	34%	38%	1443362
N	804726 (40%)	1203824 (60%)	2008550
X^2 (df)	1.06 (2)		
r (p)	.230 (.001)		

Table 4.16a Percentage of the Total Degrees Awarded by Parents' Discuss Apply for College and Gender

	Men	Women
Never	0.2%	0.2%
Sometimes	6%	6%
Often	31%	36%
N	365493 (37%)	438782 (43%)
Valid Cases	988519	1020030
X^2 (df)	4.97 (2)	5.57 (2)
r (p)	.224 (.001)	.234 (.001)

Parents, who spoke with the son or daughter about taking the SAT or ACT, saw 40 percent of their children earn degrees.

Table 4.17 Percentage of the Total Degrees Awarded by Parents' Discuss Taking the SAT/ACT

	Degree	No Degree	N
Never	1%	8%	188861
Sometimes	14%	25%	779997
Often	25%	27%	1036909
N	803737 (40%)	1202030 (60%)	2008550
X^2 (df)	8.56 (2)		
r (p)	.201 (.001)		

Table 4.17a Percentage of the Total Degrees Awarded by Parents' Discuss Taking the SAT/ACT and Gender

	Men	Women
Never	2%	1%
Sometimes	13%	16%
Often	23%	27%
N	365682 (37%)	438055 (43%)
Valid Cases	988519	1017615
X^2 (df)	2.48 (2)	6.70 (2)
r (p)	.158 (.001)	.245 (.001)

The influence on the degree attainment of men by parents' expectations was not significant. By delimitating this by gender, it is significant and men have a negative relationship with the expectations of parents and women have a positive. Parents expected 24 percent of the men would earn less than a bachelor degree compared to 23 percent of the women. The question concerning parent's expectations was asked on the second parent questionnaire during their child's senior year in high school.

Table 4.18 Percentage of the Total Degrees Awarded by Parents' Expectations

	Degree	No Degree	N
Less Than A Bachelor's	8%	15%	475390
Bachelor's Degree or Higher	29%	47%	1556530
N	764241 (38%)	1267679 (62%)	2031920
X^2 (df)	8.27 (1)		
r (p)	.020 (.001)		

Table 4.18a Percentage of the Total Degrees Awarded by Parents' Expectations and Gender

	Men	Women
Less Than A Bachelor's	9%	8%
Bachelor's Degree or Higher	26%	32%
N	351794 (35%)	412447 (40%)
Valid Cases	999155	1032765
X^2 (df)	175 (1)	2.65 (1)
r (p)	.-.013 (.001)	.051 (.001)

Another question asked of parents during the questionnaire was how often did they speak to their child about applying for college during their junior and senior year in

high school. Parents who spoke with their child often about applying for college 82 percent of their children attended college even though only 36 percent earned a bachelor's degree or higher. Men earned 37 percent of the degrees when analyzing the total men who attended college. When considering if a parent spoke often to their son about attending college 81 percent men did attend college.

Table 4.19 Percentage of the Total Degrees Awarded by Talking About Applying For College

	Degree	No Degree	N
Rarely	1%	4%	98825
Sometimes	4%	10%	271671
Often	36%	46%	1643616
N	808812 (40%)	1205300 (60%)	2014112
X^2 (df)	5.28 (2)		
r (p)	.159 (.001)		

Table 4.19a Percentage of the Total Degrees Awarded by Talking About Applying for College and Gender

	Men	Women
Rarely	1%	1%
Sometimes	3%	4%
Often	33%	90%
N	367294 (37%)	441518 (43%)
Valid Cases	999155	1022395
X^2 (df)	2.15 (2)	3.12 (2)
r (p)	.145 (.001)	.171 (.001)

The last variable that considers the parents' influence in their son or daughter earning a degree is if the parent expected them to be a good student. This shows that parents do have a slight influence in their son or daughter earning a degree. Men still lag behind women in earning a degree.

Table 4.20 Percentage of the Total Degrees Awarded by Parents' Expect Child to be a Good Student

	Degree	No Degree	N
Not Important	4%	9%	265034
Important	36%	51%	1745414
N	803674 (40%)	1206774 (60%)	2010448
X^2 (df)	1.51 (1)		
r (p)	.087(.001)		

Table 4.20a Percentage of the Total Degrees Awarded by Parents' Expect Child to be a Good Student and Gender

	Men	Women
Not Important	4%	4%
Important	33%	39%
N	365292 (37%)	438383 (43%)
Valid Cases	993615	1016834
X^2 (df)	8.98 (1)	5.47 (1)
r (p)	.145 (.001)	.171 (.001)

Student College Experience Variables

The variables in the student college experiences independent variables include taking remedial English or math, receiving tutoring, receiving personal, academic, financial, or career assistance or receiving special instruction in math, writing, reading, or English. The student involvement variables include if they participate in varsity sports, intramurals, a social student organization, volunteer on-campus or off-campus, number of hours they watch television, involved with religious activities, participates in off-campus sports, and works on campus. Additional variables include if the student ever attended school part-time, transferred credit, attended multiple schools, enrolled in a school that was less than four-years, the number of institutions they attended, attended their first

choice college, attended school out of state, the type of tuition paid, if they changed their major, what their major was, and why a student left college. The data used for this research was public use data and the researcher did not have access to the students SAT or ACT scores to consider the impact of the exams had on the student's degree attainment or involvement in campus.

Remedial Classes

A small percentage of the students who attended college took remedial English or math. Only eighteen percent of the students who attended college took remedial English or math. Of those who took remedial English or math, only eight percent earned a degree. Men and women were enrolled in remedial English and math at about the same rate with women enrolling in math at a slightly higher rate. The two questions concerning remedial classes were part of the third follow-up questionnaire given two years after the students left high school and asked only to those students who attended college.

Table 4.21 Percentage of the Total Degrees Awarded by Remedial English or Math

	Remedial English	Remedial Math
Yes	8%	9%
No	46%	46%
N	860225 (54%)	860419 (54%)
Valid Cases	1609242	1605171
X^2 (df)	1.68 (1)	2.39 (1)
r (p)	.102 (.001)	.122 (.001)

Table 4.21a Percentage of the Total Degrees Awarded by Remedial English and Math by Gender

Remedial English		
	Men	Women
Yes	8%	7%
No	41%	51%
N	387718 (49%)	472506 (58%)
Valid Cases	790348	818893
X^2 (df)	5.93 (1)	9.80 (1)
r (p)	.087 (.001)	.109 (.001)
Remedial Math		
	Men	Women
Yes	7%	8%
No	42%	50%
N	387718 (49%)	472701 (58%)
Valid Cases	790450	814722
X^2 (df)	7006 (1)	1.86 (1)
r (p)	.094 (.001)	.151 (.001)

A small percentage of the students who enrolled in college took advantage of tutoring (16% received), or received special instruction in specific subject areas (9% received) and earned a degree. Students did receive sought out personal help with financial, personal, academic, or career counseling (28% received) and earned a degree. Only special instruction in English, writing, reading or math has a negatively signed probability. Disaggregating the data by gender the only negatively signed support for both men and women is for receiving special instruction. These questions were asked of participates their second year out of high school and only to those students who attended college.

Table 4.22 Percentage of the Total Degrees Awarded by Access to Support Services in College

	Tutoring	Counseling	Special Instruction
Not Available	1%	1%	2%
Available Did Not Use	37%	25%	42%
Received Assistance	16%	28%	9%
N	857905 (53%)	859040 (54%)	848076 (54%)
Valid Cases	1602636	1605637	1585582
X^2 (df)	1.47 (2)	1.48 (2)	1.27 (2)
r (p)	.095 (.001)	.094 (.001)	-.065 (.001)

Table 4.22a Percentage of the Total Degrees Awarded by Access to Support Services by Gender

Tutoring		
	Men	Women
Not Available	1%	1%
Available Did Not Use	34%	40%
Received Assistance	14%	17%
N	385561 (49%)	472345 (58%)
Valid Cases	786454	816184
X^2 (df)	7.38 (2)	7.63 (2)
r (p)	.093 (.001)	.095 (.001)
Counseling		
Not Available	1%	1%
Available Did Not Use	24%	27%
Received Assistance	52%	30%
N	387273 (49%)	471767 (58%)
Valid Cases	788030	817607
X^2 (df)	7.99 (2)	6.70 (2)
r (p)	.096 (.001)	.090 (.001)
Special Instruction		
Not Available	1%	3%
Available Did Not Use	39%	46%
Received Assistance	9%	9%
N	383426 (49%)	464651 (58%)
Valid Cases	788030	817607
X^2 (df)	7.04 (2)	5.69 (2)
r (p)	-.061 (.001)	-.062 (.001)

Student involvement on campus shows different levels of involvement for men and women. The questions pertaining to the student's involvement in varsity athletics, intramurals, social clubs, and volunteering were only asked of those students who attended college. A small percentage of the participants in this study participated on a varsity sports team in college (12% participated and 8% graduated with a bachelor's degree). Overall participation in varsity athletics has a negative affect on the degree attainment of students (10% less probability). When drilling the data down by gender, men are at a slight disadvantage with an 12 percent less probability of earning a degree where women have an 11 percent less likelihood. Men also have a higher percentage of participation in varsity athletics compared to women. All student involvement questions were posed on the third-follow-up questionnaire two years out of high school and only to those students who attended college.

Table 4.23 Percentage of the Total Degrees Awarded by Varsity Athletics

	Degree	No Degree	N
Yes	8%	4%	193982
No	45%	43%	1418176
N	860915 (53%)	751243 (43%)	
Valid Cases	1612158		
X^2 (df)	1.62 (1)		
r (p)	-.100		

Table 4.23a Percentage of the Total Degrees Awarded by Varsity Athletics and Gender

	Men	Women
Yes	10%	6%
No	39%	52%
N	388123 (49%)	472506 (58%)
Valid Cases	792395	819764
X^2 (df)	1.10 (1)	1.02 (1)
r (p)	-.118 (.001)	-.112 (.001)

Intramurals have a higher participation rate than varsity athletics. A greater percentage of students who participate in intramurals earn their bachelor's degree or higher. When considering the overall degree attainment, participation in intramurals is not significant in determining if a student will receive a bachelor's degree. Participation in intramurals is only significant for women with a 22 percent less likelihood of earning a degree. For men this variable is not significant in influence their degree attainment.

Table 4.24 Percentage of the Total Degrees Awarded by Intramural Participation

	Degree	No Degree	N
Yes	21%	9%	482675
No	32%	47%	1129019
N	860916 (53%)	750778 (47%)	
Valid Cases	1611694		
X^2 (df)	8.76 (1)		
r (p)	-.233		

Table 4.24a Percentage of the Total Degrees Awarded by Intramural Participation and Gender

	Men	Women
Yes	27%	16%
No	22%	42%
N	388122 (49%)	472792 (58%)
Valid Cases	791929	819763
X^2 (df)	6.83 (1)	3.90 (1)
r (p)	-.294 (.001)	-.218 (.001)

Involvement in a social student organization with the overall degree attainment is not significant. When disaggregating the data by gender it is significant. Men and women involved with a social student organization have a 24 percent less likelihood of earning a degree. This question asked if the student was involved in a social club, fraternity or sorority.

Table 4.25 Percentage of the Total Degrees Awarded by Social Student Organization

	Degree	No Degree	N
Yes	18%	6%	390828
No	35%	40%	1220581
N	860916 (53%)	750493 (47%)	
Valid Cases	1611409		
X^2 (df)	9.12 (1)		
r (p)	-.238 (.001)		

Table 4.25a Percentage of the Total Degrees Awarded by Social Student Organization and Gender

	Men	Women
Yes	17%	19%
No	32%	39%
N	388123 (49%)	472792 (58%)
Valid Cases	791645	819764
X^2 (df)	4.42 (1)	4.74 (1)
r (p)	-.236 (.001)	-.240 (.001)

Volunteering on and off campus are both significant and negatively signed. When considering the impact individually on men and women both are still significant when volunteering on campus with having only an 18 percent less probability of earning a degree compared to women who have a 21 percent less probability. However, it is only significant for men who volunteer off campus with a 22 percent less probability of earning a degree. For women who volunteer off campus there is no significant impact on degree attainment.

Table 4.26 Percentage of the Total Degrees Awarded by Volunteering On or Off Campus

	Volunteer On Campus	Volunteer Off Campus
Yes	16%	22%
No	37%	31%
N	860915 (53%)	860382 (53%)
Valid Cases	1611497	1610963
X^2 (df)	6.48 (1)	1.12 (1)
r (p)	-.201 (.001)	-.264 (.001)

Table 4.26a Percentage of the Total Degrees Awarded by Volunteering On or Off Campus and Gender

	Volunteering On Campus		Volunteering Off Campus	
	Men	Women	Men	Women
Yes	14%	18%	18%	26%
No	36%	39%	31%	31%
N	388123 (49%)	472793 (58%)	216601 (49%)	472496 (58%)
Valid Cases	791975	819521	791738	819225
X^2 (df)	2.64 (1)	3.66 (1)	3.91 (1)	6.99 (1)
r (p)	-.183 (.001)	-.211 (.001)	-.222 (.001)	-.292 (.001)

Overall watching television has a negative affect on the degree attainment of students ($X^2(3)=4.58$, n=2323575, r=-.136). Students who watch either no TV or an hour a day earned 52% of the degrees awarded which represented 20% of the total. This question was asked of participants during the third follow-up questionnaire ,which was about two-years out of high school and was asked of all participants.

Table 4.27 Percentage of the Total Degrees Awarded by Time Spent Watching TV

	Degree	No Degree	N
No TV to 1 hour	20%	24%	1025718
2 – 3 hours	13%	23%	833511
4 – 6 hours	4%	11%	357315
7 hours or more	1%	3%	107031
N	891004 (38%)	1432571 (62%)	2323575
X^2 (df)	4.58 (3)		
R (p)	-.136 (.001)		

Table 4.27a Percentage of the Total Degrees Awarded by Time Spent Watching TV and Gender

	Men	Women
No TV to 1 hour	18%	22%
2 – 3 hours	12%	13%
4 – 6 hours	4%	6%
7 hours or more	1%	1%
N	403837 (37%)	487167 (41%)
Valid Cases	1133781	1189794
X^2 (df)	1.20 (3)	4.03 (3)
r (p)	-.094 (.001)	-.177 (.001)

Students also spend time involved in religious activities in college. A majority of the sample again did not finish college representing 62 percent of the sample. The difference between the percentage of those students who participated in religious activities and those who did not is two percentage points (2%). Women participated in religious activities at a higher rate than men. This question was posed to participants on the third follow-up survey.

Table 4.28 Percentage of the Total Degrees Awarded by Religious Activities

	Degree	No Degree	N
Yes	18%	25%	1008498
No	20%	62%	1317839
N	893721 (38%)	1432616 (62%)	2326337
X^2 (df)	1.14 (1)		
r (p)	-.070 (.001)		

Table 4.28a Percentage of the Total Degrees Awarded by Religious Involvement and Gender

	Men	Women
Yes	16%	20%
No	20%	21%
N	405893 (36%)	487828 (41%)
Valid Cases	1135732	1190965
X^2 (df)	7.55 (1)	3.37 (1)
r (p)	-.082 (.001)	-.053 (.001)

Men who participate in sports activities off campus earned 69% of the degrees awarded. Participating in off campus sports does have a negative affect on the degree attainment of students. For women the affect is greater than for men. This question was posed to participants on the third follow-up survey.

Table 4.29 Percentage of the Total Degrees Awarded by Participating in Sports Off Campus

	Degree	No Degree	N
Yes	21%	31%	1196904
No	18%	31%	1129297
N	893721 (38%)	1432480 (62%)	2326201
X^2 (df)	5.81 (1)		
r (p)	-.047 (.001)		

Table 4.29a Percentage of the Total Degrees Awarded by Participating in Sports Off Campus and Gender

	Men	Women
Yes	25%	17%
No	31%	24%
N	405892 (36%)	487829 (41%)
Valid Cases	1135372	1190830
X^2 (df)	3.96 (1)	5.64 (1)
r (p)	-.059 (.001)	-.069 (.001)

Working has been found to affect the degree attainment of students. The next variable looks at students who had on campus jobs and was asked of students during the

third follow-up questionnaire. A very small percentage of the sample had a campus job, and earned eleven percent of the bachelor's degrees awarded. For men having a campus job is beneficial and they have five percent greater likelihood of earning a degree. For women having a campus job is not positive.

Table 4.30 Percentage of the Total Degrees Awarded by Campus Job

	Degree	No Degree	N
Yes	4%	22%	609510
No	35%	39%	1676377
N	887396 (39%)	1398491 (61%)	2285887
X^2 (df)	1.84 (1)		
r (p)	-.284 (.001)		

Table 4.30a Percentage of the Total Degrees Awarded by Campus Job and Gender

	Men	Women
Yes	6%	9%
No	29%	32%
N	378998 (35%)	464004 (41%)
Valid Cases	1088257	1129175
X^2 (df)	2.43 (1)	1.09 (1)
r (p)	.047 (.001)	-.031 (.001)

Attending school part-time has a negative affect on the overall graduation rate for students. Students who attended part-time, 52 percent of them did not earn a degree. For students who did not attend part-time 80 percent of them earn a degree. Attending part-time has a negative affect for both women and men with women being at a greater disadvantage of completing a degree if they go part-time. Students were asked this question during the final survey in 2000.

Table 4.31 Percentage of the Total Degrees Awarded by Attending Part-Time

	Degree	No Degree	N
Yes	8%	32%	907984
No	31%	29%	1378412
N	887199 (39%)	1399197 (61%)	2286396
X^2 (df)	2.33 (1)		
r (p)	-.319 (.001)		

Table 4.31a Percentage of the Total Degrees Awarded by Attending Part-Time and Gender

	Men	Women
Yes	9%	7%
No	27%	34%
N	402009 (36%)	485190 (41%)
Valid Cases	1118037	1168359
X^2 (df)	92099 (1)	1.40 (1)
r (p)	-.287 (.001)	-.346 (.001)

Taking time off from school other than summer breaks can have an effect on the degree attainment of students. A slightly higher percentage of men take time off from school compared to women. Taking time off from school does have a negative relationship with degree attainment for both men and women, but it impacts women at a greater degree. Students were asked this question during the fourth and final survey.

Table 4.32 Percentage of the Total Degrees Awarded by Took More Than Six Months Off From School

	Degree	No Degree	N
Yes	4%	22%	609510
No	35%	39%	1676377
N	887396 (39%)	1398431 (61%)	22865887
X^2 (df)	1.84 (1)		
r (p)	-.284 (.001)		

Table 4.32a Percentage of the Total Degrees Awarded by Took More Than Six Months Off from School and Gender

	Men	Women
Yes	5%	4%
No	31%	38%
N	402009 (36%)	485387 (42%)
Valid Cases	1118037	1168359
X^2 (df)	82857 (1)	98746 (1)
r (p)	-.272 (.001)	-.291 (.001)

Transferring from one school to another can affect the degree attainment of students. Transferring school does have a positive relationship with degree attainment. This may have an interaction with students transferring from two-year institutions to four-year institutions. Or a student may have changed their major and had to attend a different institution. Students were asked this question during the final follow-up survey.

Table 4.33 Percentage of the Total Degrees Awarded by Transferring Schools

	Degree	No Degree	N
Yes	32%	33%	729770
No	15%	20%	385903
N	527018 (47%)	588655 (53%)	1115673
X^2 (df)	4.48 (1)		
r (p)	-.063 (.001)		

Table 4.33a Percentage of the Total Degrees Awarded by Transferring Schools and Gender

	Men	Women
Yes	31%	34%
No	13%	17%
N	237704 (36%)	289314 (42%)
Valid Cases	538632	577040
X^2 (df)	2.17 (1)	2.67 (1)
r (p)	.063 (.001)	.068 (.001)

Students choosing the school they want to attend and going to that institution does have an effect on degree attainment. Men who attend their first choice of schools earned 58 percent of the degrees awarded to men. Men did benefit from attending their first choice institution. Students who did attend their first choice institutions earned 72 percent of all the bachelor's degrees awarded. Men who attended their first choice institution earned 68 percent of all bachelor's degrees awarded to men. Students were asked this question during the fourth and final survey.

Table 4.34 Percentage of the Total Degrees Awarded by Attending First Choice Institution

	Degree	No Degree	N
Attended First Choice	28%	20%	889575
Attended First Choice Later	2%	1%	46000
Never Attended	12%	12%	457222
No Choice	4%	22%	489314
N	854215 (46%)	1027896 (55%)	1882111
X^2 (df)	2.43 (3)		
r (p)	-.319 (.001)		

Table 4.34a Percentage of the Total Degrees Awarded by Attending First Choice Institution and Gender

	Men	Women
Attended First Choice	24%	31%
Attended First Choice Later	2%	2%
Never Attended	11%	13%
No Choice	5%	3%
N	385995 (43%)	468220 (48%)
Valid Cases	912957	969153
X^2 (df)	1.02 (3)	1.40 (3)
r (p)	-.303 (.001)	-.328 (.001)

Where a student attends school may also have a relationship to the degree attainment of students. By attending school in state students overall improve their chances of earning a degree. Men benefit from attending a school in state and earned 69 percent of the degrees awarded. It improves this odd of graduating by .22. This variable was derived by NCES.

Table 4.35 Percentage of the Total Degrees Awarded by Location of Institution

	Degree	No Degree	N
In-State	33%	47%	1474531
Out-of-State	13%	7%	356995
N	849405 (46%)	982121 (55%)	1831526
X^2 (df)	7.25 (3)		
r (p)	.199 (.001)		

Table 4.35a Percentage of the Total Degrees Awarded by Location of Campus and Gender

	Men	Women
In-State	30%	44%
Out-of-State	13%	36%
N	383252 (44%)	466153 (49%)
Valid Cases	880908	950620
X^2 (df)	4.06 (1)	3.36 (1)
r (p)	.215 (.001)	.183 (.001)

Changing a major may have an effect on the degree attainment of students. This question was asked of participants during the final questionnaire. The variable is not significant. Only for women is not changing their major significant in contributing to their degree attainment.

Table 4.36 Percentage of the Total Degrees Awarded by Change of Major

	Degree	No Degree	N
Yes	14%	18%	718118
No	25%	43%	1566850
N	887395 (39%)	1397543 (61%)	2284938
X^2 (df)	8.41 (1)		
r (p)	.061 (.001)		

Table 4.36a Percentage of the Total Degrees Awarded by Change of Major and Gender

	Men	Women
Yes	13%	14%
No	23%	27%
N	402008 (36%)	485387 (42%)
Valid Cases	1117875	1167062
X^2 (df)	7.59 (1)	1.71 (1)
r (p)	.082 (.001)	.038 (.001)

Institutional Variables

The variables in the institutional characteristics independent variables include institutional type, size of the institution, and tuition and fees. These variables were derived by NCES using the IPEDS data and the student data received on the third and fourth questionnaire.

When considering if the institutional type contributes to the degree attainment for students the findings show that more men attend public schools and earn 73 percent of the degrees awarded to men, while men who attend private schools earn only 27 percent of the degrees.

Table 4.37 Percentage of the Total Degrees Awarded by Type of Institution Attend

	Degree	No Degree	N
Private	10%	47%	1474531
Public	26%	7%	356995
N	849405 (46%)	982121 (55%)	1831526
X^2 (df)	7.25 (3)		
r (p)	.199 (.001)		

Table 4.37a Percentage of the Total Degrees Awarded by Institutional Type and Gender

	Men	Women
Private	10%	11%
Public	26%	31%
N	404126 (36%)	485590 (41%)
Valid Cases	1131848	1185263
X^2 (df)	9.49 (1)	6.996 (1)
r (p)	-.029 (.001)	.002 (.001)

Institutional size does have an influence on the degree attainment of students, and it has a greater influence on men. Men who attended institutions in the 1st, 3rd, 6th, and 9th decile earned more degrees than those men who attended the same size institution but did not earn a degree. In these four size out of the ten size categories these were the only sizes where men earned more degrees then did not graduate. For women the most beneficial size were schools in the 1st, 2nd, 5th, 8th, 9th, and 10th decile.

The costs of the institutions can affect a student's ability to earn a degree. Men who attend institutions whose costs are in the 1st, 6th, 8th, 9th, and 10th decile all earned a greater percentage of the degrees based on the number of men who attended that institution. Costs have a greater influence on men than it does women as reviewed in Table 4.40.

Table 4.38 Percentage of the Total Degrees Awarded by Institutional Size Attend by Gender

	Degree	No Degree	N	X^2 (df)	r (p)
Men	21%	22%	183108	3.467 (9)	.027 (.002)
Women	40%	60%	224691	4.22 (9)	.017 (.002)

Table 4.39 Percentage of Total Degrees Awarded by Institutional Costs and Gender

	Degree	No Degree	N	X^2 (df)	r (p)
Men	38%	62%	165896	5.93 (9)	.092 (.002)
Women	41%	59%	196645	4.09 (9)	.064 (.002)

Disaggregating the data based on school, family income by institutional size provides a stronger understanding of what size institutions influence the degree attainment of students. There is a negative relationship with family incomes with the lowest income and highest income. Families with incomes in the upper-lower and middle are both positive relationships. Income also affects the degree attainment of men and women differently.

Table 4.40 Chi-Square Test and Pearson's R for Family Income by Institutional Size and Degree Attainment

	Valid Cases	X^2 (df)	r	% of Degrees Earned within Quartile (Total # Earned)
Quartile 1	56487	3.50 (9)	-.106 (.005)	12% (6921)
Quartile 2	89510	3.95 (9)	.081 (.004)	29% (25599)
Quartile 3	98731	3.21 (9)	.090 (.003)	40% (38974)
Quartile 4	119319	2.94 (9)	-.069 (.003)	63% (74616)

When considering the institutional cost and the relationship with degree attainment by gender, men in the lowest income earn a greater percentage of the degrees awarded when compared to women. For men from middle income families (Quartile 3) and women in middle to low income (Quartile 2) both have a negative relationship on their degree attainment. The higher correlation between degree attainment and family income is for men enrolled in institutions that fall in the sixth decile of costs (r=.681) and for women it is schools whose fees are in the seventh decile (r=.608). The smallest correlation for men enrolled at institutions in the tenth decile (r=.087) and for women enrolled at schools in the fifth decile (r=.460)

Table 4.41 Chi-Square Test and Pearson's R for Gender by Family Income By Institutional Cost and Degree Attainment

	Valid Cases	X^2 (df)	r	% of Degrees Earned within Quartile (Total # Earned)
Male				
Quartile 1	20424	4435 (9)	.218 (.008)	14% (2898)
Quartile 2	36536	1550 (9)	.111 (.005)	24% (8923)
Quartile 3	43253	4132 (9)	-.089 (.005)	36% (15692)
Quartile 4	53804	4279 (9)	.100 (.004)	59% (31875)
Female				
Quartile 1	31683	4279 (9)	.104 (.006)	11% (3339)
Quartile 2	43096	2037 (9)	-.006 (.005)	32% (13616)
Quartile 3	41555	6689 (9)	.151 (.005)	45% (18848)
Quartile 4	55771	2324 (9)	.105 (.004)	65% (36231)

Table 4.42 Total Degrees Awarded by Institutional Cost, Family Income and Gender

1st Decile	Degree	% Awarded within Decile	Total	X^2 (df)	r (p)
Men- Quartile 1	3%	6%	480		
Men- Quartile 2	2%	5%	3353		
Men- Quartile 3	22%	47%	2679		
Men- Quartile 4	19%	42%	3093		
Total	46%	100%	9605	3437 (3)	.376 (.010)
Women- Quartile 1	1%	4%	5800		
Women - Quartile 2	4%	13%	2960		
Women - Quartile 3	8%	23%	3406		
Women - Quartile 4	20%	61%	9341		
Total	33%	100%	21507	3129 (3)	.357 (.005)
2nd Decile					
Men- Quartile 1	0%	0%	1045		
Men- Quartile 2	5%	15%	4151		
Men- Quartile 3	14%	43%	6692		
Men- Quartile 4	14%	42%	3919		
Total	34%	100%	15807	1832 (3)	.338 (.006)
Women- Quartile 1	5%	11%	2529		
Women - Quartile 2	7%	16%	4276		
Women - Quartile 3	10%	23%	5060		
Women - Quartile 4	22%	50%	5029		
Total	45%	100%	16894	2684 (3)	.319 (.007)
3rd Decile					
Men- Quartile 1	1%	5%	3837		
Men- Quartile 2	3%	11%	2162		
Men- Quartile 3	12%	39%	4581		
Men- Quartile 4	14%	45%	7079		
Total	30%	100%	17659	1606 (3)	.230 (.006)
Women- Quartile 1	0%	0%	2356		
Women - Quartile 2	7%	15%	3934		
Women - Quartile 3	14%	30%	3934		
Women - Quartile 4	26%	55%	6724		
Total	46%	100%	16378	3082 (3)	.412 (.008)

Table 4.42 Total Degrees Awarded by Institutional Cost, Family Income and Gender Continued

	Degree	% Awarded within Decile	Total	X^2 (df)	r (p)
4th Decile					
Men- Quartile 1	1%	3%	1529		
Men- Quartile 2	11%	42%	6034		
Men- Quartile 3	2%	7%	2666		
Men- Quartile 4	13%	48%	4650		
Total	27%	1003%	14879	1179 (3)	.177 (.008)
Women - Quartile 1	0%	0%	1958		
Women - Quartile 2	9%	37%	4357		
Women - Quartile 3	2%	9%	3084		
Women - Quartile 4	14%	54%	2086		
Total	25%	100%	11485	3884 (3)	.424 (.008)
5th Decile					
Men- Quartile 1	1%	3%	2479		
Men- Quartile 2	6%	19%	5419		
Men- Quartile 3	5%	15%	2375		
Men- Quartile 4	20%	63%	4784		
Total	32%	100%	15057	3391 (3)	.460 (.007)
Women - Quartile 1	2%	4%	2616		
Women - Quartile 2	19%	37%	5557		
Women - Quartile 3	8%	16%	2702		
Women - Quartile 4	22%	44%	5479		
Total	51%	100%	16354	2057 (3)	.288 (.007)
6th Decile					
Men- Quartile 1	0%	0%	1821		
Men- Quartile 2	8%	14%	2712		
Men- Quartile 3	12%	22%	2426		
Men- Quartile 4	36%	64%	4436		
Total	56%	100%	11395	4653 (3)	.681 (.005)
Women- Quartile 1	0%	0%	4373		
Women - Quartile 2	9%	27%	1483		
Women - Quartile 3	6%	20%	3813		
Women - Quartile 4	17%	53%	4005		
Total	32%	100%	16374	4653 (3)	.489 (.006)

Table 4.42 Total Degrees Awarded by Institutional Cost, Family Income and Gender Continued

	Degree	% Awarded within Decile	Total	X^2 (df)	r (p)
7th Decile					
Men- Quartile 1	0%	0%	868		
Men- Quartile 2	6%	18%	2641		
Men- Quartile 3	10%	29%	6742		
Men- Quartile 4	19%	53%	3858		
Total	35%	100%	14109	2843 (3)	.342 (.007)
Women- Quartile 1	0.4%	1%	3900		
Women - Quartile 2	6%	15%	2916		
Women - Quartile 3	15%	39%	2823		
Women - Quartile 4	18%	45%	3096		
Total	39%	100%	12735	5014 (3)	.608 (.008)
8th Decile					
Men- Quartile 1	4%	9%	1329		
Men- Quartile 2	8%	20%	1682		
Men- Quartile 3	14%	33%	3048		
Men- Quartile 4	16%	38%	1975		
Total	41%	100%	8034	662 (3)	.248 (.010)
Women- Quartile 1	3%	9%	1851		
Women - Quartile 2	4%	12%	2931		
Women - Quartile 3	4%	13%	3331		
Women - Quartile 4	22%	66%	3126		
Total	34%	100%	11239	4166 (3)	.457 (.008)
9th Decile					
Men- Quartile 1	2%	3%	3743		
Men- Quartile 2	6%	12%	3757		
Men- Quartile 3	9%	17%	4456		
Men- Quartile 4	35%	68%	8549		
Total	52%	100%	20505	7128 (3)	.568 (.005)
Women- Quartile 1	3%	9%	2362		
Women - Quartile 2	8%	17%	5312		
Women - Quartile 3	10%	22%	4533		
Women - Quartile 4	25%	54%	7427		
Total	47%	100%	19634	2345 (3)	.337 (.006)

Table 4.42 Total Degrees Awarded by Institutional Cost, Family Income and Gender Continued

	Degree	% Awarded within Decile	Total	X^2 (df)	r (p)
10th Decile					
Men- Quartile 1	6%	14%	3293		
Men- Quartile 2	4%	10%	4625		
Men- Quartile 3	10%	25%	7588		
Men- Quartile 4	20%	51%	11461		
Total	39%	100%	26967	973 (3)	.087 (.006)
Women- Quartile 1	3%	6%	3938		
Women - Quartile 2	7%	13%	7240		
Women - Quartile 3	21%	40%	8869		
Women - Quartile 4	21%	41%	9458		
Total	52%	100%	29505	4947 (3)	.357 (.005)

Logit Model for Binary Choice

Initially a logit estimation equation was used, and the results were then used in a marginal effects model for the purposes of estimating percentage changes for each variable. Many of the model variables were changed to dummies with 1 signifying the standard for comparison and 0 no occurrence. The following equation was used:

Degree Attainment= f(independent variables pertaining to: (Demographics; High School; Parent Support; Student College Experiences; Institutional Characteristics; Student Aid and Funding)

The variables in the demographic independent variables include gender, race, family income, parent's educational level, and family composition.

The variables in the high school experience independent variables include student motivation to attend college, student high school track, and the student expectations for education.

The variables in the parent support independent variables include parents talk with their child about selecting course, about their child's grades, about taking the SAT/ACT, about applying for college, parents expectations for their child's education, encourage their child to apply for college, and expect them to be a good student.

The variables in the student college experiences independent variables include taking remedial English or math, receiving tutoring, receiving personal, academic, financial, or career assistance or receiving special instruction in math, writing, reading, or English. The student involvement variables include if they participate in varsity sports, intramurals, a social student organization, volunteer on-campus or off-campus, number of hours they watch television, involved with religious activities, participates in off-campus sports, and works on campus. Additional variables include if the student ever attended school part-time, transferred credit, attended multiple schools, enrolled in a school that was less than 4-years, the number of institutions they attended, attend their first choice college, attended school out of state, the type of tuition paid, if they changed their major, what their major was, and why a student left college.

The variables in the institutional characteristics independent variables include institutional type, size of the institution, and tuition and fees.

The variables in student aid and funding independent variables include the student received grants or scholarships, received a loan, received work-study, had other aid or received no aid to pay for college, how much financial aid was received for one-year, and the amount borrowed. Other variables include how the parents plan on paying for their child's education, what the parents expect to spend on their child's education, and what the parents believe is an acceptable debt for their child's education.

The variables were then parsed and the records not having completed information for degree attainment and gender were removed from the data set. A total of 6,963 records were removed that did not include information for the degree attainment or gender.

Next, all variables were reviewed for the number of observations and variables with less than half the observations completed (6296 participants/2=3148) were removed from the research. The following variables removed from the data set prior to running the first analyses:"Why a student left college" because only 1547 participants completed this item; "How much a parent would borrow for their child's education next year" had only 1875 parents completed this item; and the final variable was "Attended less than a 4 year institution" only 1648 participants completed this item. This researcher did identify variables with fewer than 3148 records for questions that were asked only to those participants who attended an institution recorded by IPEDS. In the next step, the number of completed variables by the individual participant was considered. If a participant had fewer than forty-five data points completed which is half the data points the records were removed from the sample. A total of 338 records were removed (288 had not received a degree and 102 had received a bachelor's degree or higher).

Initially the following were regressed on the dependent variable degree attainment and because of multicollinearity variables in Appendix 2 were not moved forward. Based on the literature review a few variables were kept in the Logit Model because the previous research had found them to be significant were Income 3 and Tutoring. The first Logit Model had 91 variables and 5961 respondents.

The remaining variables were used in a second Logit Model, the reduced form, with sixty-one (61) data points and 5961 records. See Table 4.12 for the variables used. Those coefficients were then used in a marginal effects model in order to convert the logarithmic β coefficients into percentage changes. The individual p-values were analyzed for each individual variable to determine the significance at either a ninety-nine (99%) percent, ninety-five percent (95%), or ninety percent (90%) level of confidence. See Table 4.44 for the results.

Table 4.43 Variables in Both the Logit and Marginal Effects Model

Degree Attainment: Bachelor's or Higher	Attended School In-State
Gender: Male	Paid In-State Tuition
Race: White	Changed Their Major
Family Income Quartile1 (low)	Liberal Arts/Sciences Major
Family Income Quartile 2	Business Major
Family Income Quartile 3	Science and Technology Major
Family Income Quartile 4 (high)	Education Major
Parents Education: Some College	Engineer Major
Parents Education: Masters	Health and Science Major
Family Composition	No Major
Student Motivated to Attend College	Institutional Type: Public
Student Expectation in High School to Earn a Bachelor's Degree or Higher	Institutional Size 1-6 decile
Talk Selecting Course	Institutional Size 7 decile
Talk About Grades	Tuition 1-3 decile
Expect Child To Go To College	Tuition 6-7 decile
College Remedial Classes English	Tuition 8-9 decile
College Remedial Classes Math	Did Not Received Work-Study
Received Tutoring	Did Not Received Other Financial Aid
Received Personal, Academic, Financial, or Career Assistance	Did Not Received No Financial Aid
Received Special Instruction in English, Math, Reading, or Writing	Total Amount of Financial Aid Received
Intercollegiate Sports	Parent's Do Not Expected to Pay for Education with Savings
Student Organization	Parent's Do Not Expected to Pay for Education with Borrowing
Volunteer on Campus	Parent's Do Not Expected to Pay for Education with Scholarships/Grants
Volunteer in Community	Parent's Do Not Expected to Pay for Education with State/Federal Loans
Involved with Religious Activities	Parents Acceptable Debt for Child's Education for Next Year 0
Worked On-Campus	Parents Acceptable Debt for Child's Education for Next Year $10,000-$14,999
Transfer Credit	Parents Acceptable Debt for Child's Education for Next Year $15,000-$19,999
Attended Multiple Schools	

Empirical Results of the Reduced Form Logit: Demographic Independent Variables

When analyzing the results from the demographics independent variables the following results were discovered. It was expected that women would have a greater likelihood of graduating based on the literature review; therefore results for gender were unexpected. Gender was significant at the ninety percent (90%) level of confidence with men having a 2% greater likelihood of earning a bachelor's degree or higher. By leveling out the factors for women, females have an advantage based on descriptive findings when these factors are controlled for the regression males have an even greater advantage of earning a degree when considering eight-year graduation rates. White students had a 3% less probability of earning a bachelor's degree or higher at a significance level of ninety percent (90%) level of confidence. When everything is held constant in the regression, minorities have a greater chance of earning a degree.

Family income was identified as having a positive significance at the Quartile 4 (high income) and a negative significance Quartile 1 (low income) level and insignificant at the Quartile 2 and 3 levels. As excepted men whose families are in the Quartile 4 (high income) variable have a seventy-one percent (71%) greater likelihood of graduating with a bachelor's degree or higher at the 99 percent level of confidence. Consistent with the literature review, among families in the Quartile 1 (low income) men have five percent less probability of earning a bachelor's degree or higher at the 95 percent level of confidence. Men whose families have a family income in Quartile 2 or Quartile 3 were not significant possibly due to the multicollinearity with Quartile 1 and 4.

Men whose parents have some college education had a negative five percent less probability of earning a bachelor's degree or higher at a 99 percent level of confidence as

compared to parents with degrees. Therefore, students whose parents have a bachelor's degree or higher have a five percent (5%) greater probability of earning a degree. There was no difference in the family composition and degree attainment.

Empirical Results of the Reduced Form Logit: High School Experience Independent Variables

Neither of the high school experience variables was significant. If a student's expectation of earning a bachelor's degree or higher was not significant and not different from students who did not expect to earn a bachelor's degree or higher. Similar if a high school teacher feels the student was motivated to attend college, it was not guarantee they would earn a degree. The high school variable questions were asked during the students' senior year in high school during the second follow-up survey.

Empirical Results of the Reduced Form Logit: Parent Support Independent Variables

The parent support independent variables were the involvement of the parents in "talking with their child about selecting courses" and "talking about their grades". Only talking with their child about grades was significant at a 90% level of confidence with men having a five-percent (5%) less probability of earning a bachelor's degree. The variable "do you expect your child to go to college" was insignificant. All the variables were from the second follow-up survey administered to parents during their child's senior year in high school.

Empirical Results of the Reduced Form Logit: Student College Indpendent Variables

The student college independent variables provided some unexpected results. The involvement questions were asked during the third follow-up survey during the students second year in college. The results for taking remedial English or remedial math were

both insignificant. An unexpected result was students who received tutoring from a faculty member or peer tutor; or received personal, academic, financial, or career assistance; or received special instruction in English, math, reading, or writing the variable all were insignificant.

Student involvement variables were also analyzed. An unexpected result was men who were involved in a social student organization had a five-percent less (-5%) probability of earning a bachelor's degree or higher at the 95% level of confidence then those students who did not participate in a social student organization. The questionnaire asked if the student was involved in a social club, fraternity or sorority. How a student answered this question is based on the terminology used on their campus. An unexpected result was that involvement in varsity sports was insignificant. Also, unanticipated was that neither variable looking at students who volunteered on campus or in the community were significant.

Men who attend school in-state have a four percent (4%) greater probability of earning a bachelor's degree or higher and was significant at the 95% level of confidence than those peers who attended an out of state school. An unexpected result was that students who transferred credit or attended multiple schools or pay in-state tuition were all insignificant.

The propensity to change majors was not significant. The question for change of major was part of the final survey and the major question was part of the third follow-up during their second year in college. However, students majoring in health sciences, sciences or math, education, liberal arts and sciences, and business majors were significant at the 99% level of confidence. Men majoring in health sciences for example

have a 14% greater probability; a sciences/math major and education majors have a 13% greater probability; men in liberal arts and social science or business both have a 12% greater probability of earning a bachelor's degree. Engineering and not having a major were both significant at the 95% level of confidence. Men majoring in the engineering fields have an 11% greater probability of graduating and even men who did not have a major at the time of the survey still had a 10% greater probability of earning a bachelor's degree or higher.

Empirical Results of the Reduced Form Logit: Institutional Characteristics Independent Variables

All the institutional characteristic variables used in this study were derived by NCES using data provided on the surveys and the IPEDS. The institutional characteristics independent variables analyzed in the reduced form model were institutional type, size 1 and size 2, and cost 1, 2, and 3. An unanticipated result was men who attended public schools was significant at the ninety-five percent (95%) level of confidence and had a four percent (4%) greater probability of earning a bachelor's degree or higher. When analyzing the effects of size on the degree attainment, men who attended an institution categorized in the 1 to 6 decile range, have a fourteen percent (14%) greater probability of earning a bachelor's degree at the 99 percent level of confidence and institutions in the 7-decile size was insignificant.

Institutional costs were significant for institutions with costs in the 1-3 decile and 8-9 decile and not significant for institutions costs in the 6-7 decile. As expected men who attend institutions whose costs are in the 1 – 3 decile have a seven percent (7%) greater probability of earning a bachelor's degree or higher at the ninety-nine percent

(99%) confidence level. Men who attended institutions whose costs were in the 8-9 decile was significant at the 95% level of confidence and have a seven percent (7%) greater probability of earning a bachelor's degree or high.

Empirical Results of the Reduced Form Logit: Student Financial Variables

The student financial and aid independent variables considers the impact of student aid on the degree attainment of men. Men who receive no financial aid have three percent less probability (-3%) of earning a bachelor's degree or higher than their peers who did not receive financial aid (significant at the 90% level of confidence). Work-study and men who received other aid were not significant.

Empirical Results of the Reduced Form Logit: Parental Financial Variables

The next set of variables analyzes "how the parents plan on funding their child's education", "what they expect to spend the following year", and "how much debt is acceptable the following year" impact the degree attainment for men. How a parent plans on funding their child's education was not significant. These variables were asked of parents in the second follow-up questionnaire during their child's senior year in high school. These questions do not address what the parent actually borrowed, acceptable debt or how they actually funded their child's education.

In contrast to how the parents planned on funding their child's education, what the students expect to spend child's education the next year, six of the variables were significant at the 99% level of confidence. For example, men whose parents expected to spend more than $20,000 on their child's education had a forty-six percent (46%) higher probability of earning a bachelor's degree or higher; parents willing to spend between $15,000 to $19,000, increases degree attainment of men by thirty-eight percent (38%); if

parents expected to spend between $5,000-$9,999, men had a thirty-five percent (35%) probability of earning a degree, and when parents expect to spend between $2,500 - $4,999, men increase their chance of degree attainment by eleven percent (11%). As expected, if a parent was not willing to spend any money on their child's education these men had a twelve percent (12%) less probability of earning a bachelor's degree or higher at the 95 percent level of confidence. Finally, parents who expected to spend between $2,500 - $4,999 do not significantly contribute to their children's chance of earning a bachelor's degree.

The amount of debt a parent was willing to accept the following year which was analyzed in the reduced form model were debt 0, debt 4, and debt 5. An unexpected result was parents who were not willing to accept any debt for their child's education was significant at the 99% level of confidence with men having a five percent greater probability of earning a bachelor's degree or higher. A possible explanation is that these parents are from high-income groups and have the ability to use other resources to fund their child's education. Parents who were willing to accept a debt of $15,000 - $19,000 was significant at the 95% level of confidence with men having a sixteen percent (16%) less probability of earning a bachelor's degree or higher. Finally, parents who were willing to accept a debt between $10,000 – $14,999 did not affect their child's ability to earn a bachelor's degree.

Table 4.44 Second Logit Regression Report Marginal Effects

$X^2(61)=1076.63$ $r^2=0.1304$ n=5961			
Demographic Independent Variables			
Gender	0.024 (0.100) ***	Race	-0.027 (0.081) ***
Family Income Quartile1	-0.052 (0.40) **	Family Income Quartile 2	-0.038 (0.122)
Family Income Quartile3	-0.017 (0.476)	Family Income Quartile 4	0.706 (0.005) *
Parents' Education: Some College	-0.047 (0.002) *	Parents' Education: Masters	0.049 (0.118)
Family Composition	-0.017 (0.266)		
High School Independent Variables			
Student Motivation to Attend College	-0.010 (0.540)	Student Expectation in High School to Attend College	0.026 (0.119)
Parent Support Independent Variables			
Parent Talks to Child about Selecting Course	0.012 (0.462)	Parent Talks to Child about Grades	-0.054 (0.093) ***
Parent Expects Child To Go To College	0.013 (0.436)		
Student College Experience Independent Variables			
College Remedial English	-0.042 (0.213)	College Remedial Math	0.032 (0.330)
Business	0.122 (0.005) *	Science & Technology	0.132 (0.003) *
Education	0.127 (0.005) *	Engineer	0.114 (0.011) **
Health & Professional Studies	0.137 (0.001) *	No Major	0.098 (0.033) **
Liberal Arts & Science	0.121 (0.005) *	Changed Major	0.019 (0.337)
Received Tutoring	0.002 (0.938)		
Received Personal, Academic, Financial, or Career Assistance	0.028 (0.177)	Special Instruction in English, Math, Reading, or Writing	-0.034 (0.224)
Intercollegiate Sports	-0.034 (0.242)	Student Organization	-0.049 (.032) **

Table 4.44 Second Logit Regression Report Marginal Effects Continued

Student College Experience Independent Variables (continued)			
Volunteer on Campus	0.021 (0.403)	Volunteer in Community	0.035 (0.133)
Involved with Religious Activities	0.012 (0.394)	Transfer Credit	-0.013 (0.445)
Attended Multiple Schools	0.034 (0.331)	Attended School In-State/Out-of-State	0.042 (0.011) **
Tuition Type	0.015 (0.339)		
Institutional Independent Variables			
Institutional Type	0.037 (0.022) **	Institutional Size 1-6 decile	0.139 (0.000) *
Institutional Size 7 decile	0.056 (0.204)	Institutional Costs 1-3 decile	0.072 (.005) *
Institutional Costs 6-7 decile	0.050 (0.166)	Institutional Costs 8-9 decile	0.068 (0.031) **
Student Aid & Funding Independent Variables			
Student Received Work-Study	0.035 (0.174)	Student Received Other Financial Aid	-0.027 (0.432)
Student Received No Financial Aid	-0.025 (0.086) ***	Total Amount of Financial Aid Received	2.430 (0.226)
Parents Will Fund Education: Savings	0.017 (0.314)	Parents Will Fund Education: Borrowing	-0.013 (0.449)
Parents Will Fund Education: Scholarships/Grants	(0.308) (0.134)	Parents Will Fund Education: State/Federal Loans	0.030 (0.126)
Parents Expect Spend: Doesn't want help	-0.064 (0.046) **	Parents Expect Spend: $0	-0.116 (0.000) *
Parents Expect Spend: <$2,500	0.112 (0.000) *	Parents Expect Spend: $2500-$4999	0.032 (0.177)
Parents Expect Spend: $5000-$9999	0.292 (0.000) *	Parents Expect Spend: $10,000-$14,999	0.355 (0.000) *

Table 4.44 Second Logit Regression Report Marginal Effects Continued

Parents Expect Spend: $15,000-$19,999	0.384 (0.000) *	Parents Expect Spend: Over $20,000	0.456 (0.000) *
Parents' Acceptable Debt: No Debt	0.050 (0.007) *	Parents' Acceptable Debt: $10,000-$14,999	-0.070 (0.116)
Parents' Acceptable Debt: $15,000-$19,999	-0.158 (0.015) **		
p<0.010 significant at 1% level *, 0.010 < p < 0.050 significant at 5% level ** 0.050 < p<0.100 significant at 10% level **			

Summary

The data analysis provided valuable insight into the degree attainment of students. The cross tabulations allows us to see the gender, income, racial, and parental education breakdown of the degree attainment in the United States. It provides an insight that women do earn more degrees than men when looking specifically at the numbers. The Logit Model allows the researcher to look specifically at the degree attainment of men and find that men have a two-percent greater likelihood of earning a degree. The logit allows the researcher to make all variables equal to help find the variables that impact the degree attainment of men.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Summary

The degree attainment of college students is a critical issue that institutions of higher education are considering. Colleges want to improve their retention, progression, and graduation rates for all students. Over the past decades men, based on the literature reviewed, have earned fewer degrees than women. In addition, men are not enrolling in college at the same rates as women. This study uses the NELS Database to analyze what individual and institutional characteristics contribute to the degree attainment of men.

Analysis of Research Findings

The data analysis provided some unexpected results based on the current literature in the field. Income and race both continued to show the differences in the degree attainment of men. Location of the institution, the type of institutions, size, and costs can all have an effect in the degree attainment of men.

The logit equation provides a valuable tool to analyze men as the standard comparison to allow the research to look at the likelihood of earning a degree based on men. When the researcher first analyzed the cross-tabulations, it is clear men overall earn fewer degrees than women. Through the logit men have a two-percent (2%) greater likelihood of earning a degree at the 90% level of confidence. This finding was unexpected based on the literature review that shows men earn fewer degree than women. The difference is based on the statistical analyses.

Income continues to have an effect on the degree attainment for student, men from low-income homes, have a five percent less likelihood of earning a degree

compared to men from high income homes which have a seventy percent (70%) greater probability of earning a degree at the 99% percent level of confidence. This is the same pattern observed in the cross-tabulations where men continue to earn few degrees when looking at the family income than women.

Race also continues to play a significant role in the degree attainment of men. Based on the logit, white men have a three percent less likelihood of earning a degree than non-whites at the 90% level of confidence. This is unexpected based on the percentage of degrees award to white men is higher in the cross-tabulations. This is explained that even though more white men earn a degree a higher percentage of non-whites who enter college earn a degree within the subgroup.

During the survey parents were asked what they expected to spend on their child's education. If a parent was willing to spend between $2,500 and over $20,000 on their child's educations it had a positive effect on the degree attainment of men. Also, if a parent was not willing to spend any money on their child's education or their child does not want help it had a negative effect.

The only significant variable considering campus involvement was involved with a social student organization. Involvement in a social student organization decreased the likelihood of earning a degree for men by five percent (-5%) at the 95% level of confidence. The only financial aid factor significant is if men who did not receive any financial aid. Men who received no financial aid were less likely to finish their degree by three-percent at the 90% level of confidence.

For men attending a school in state and attending a public institution, both were positive correlations to degree attainment. Both were significant at the 90% level of

confidence. Institutions classified in the 1-6 decile in size can improve the likelihood of a student graduating with a degree by almost 14% at the 99% level of confidence.

Discussion of Research Findings

The most unexpected outcome from the research is the finding that men had a two-percent greater probability of earning a degree than women. Based on the literature review it was expected that men would be less likely to complete their degree than women. McCormick and Horn (1996), King, (2000), Nunez and Cuccaro-Alamin (1998), and Sum, Fogg, Harrington, Khaiwada, Palma, Pond, and Tobar, (2003) all found that women were outpacing men in graduation rates. The difference in the finding in this research and previous studies is the use of the logit equation, which allowed the research to focus the attention specifically on men and analyze if there is a difference between the graduation rates of men and women. This study found that men do have a greater probability of graduating over eight years even it is small compared to women. This may be explained that even though women are entering college at a higher rate about the same percentage of women are not completing their degrees. This research looks at an eight-year graduation rate whereas most of the previous research is based on a six-year rate. It is possible that men take longer to complete their degrees than women.

Consistent with previous research (Pascarella, Smart, & Stoecker, 1989; Mortenson, 2000c, 2000e; & Ishitani, 2006) this study found that family income does have an impact on the degree attainment of men. Men whose family incomes were in classified as Quartile 1 (low) or Quartile 4 (high) both were significant. For students from low-income families will face more challenges to stay in school to earn their degrees. Students from high-income homes were the only income group that had a positive

relationship. Quartiles 1, 2, and 3, even though 2 and 3 are not significant, all had negative relationships. As the literature review revealed (Battaglini, 2004; Mortenson 2000d; Muraskin, Lee, Wilner, & Scott-Swail, 2004; & Gansemer-Topf & Schuh, 2006), students who receive grants and scholarships who are from economically disadvantaged homes can increase their graduation rates. Men whose families are from high income groups, both their parent support and their college experiences are influential in their degree attainment. The data reveals that as the income level goes increases the enrollment in college, the percentage of students who complete their degree increases.

Race also continues to show in the research has having an effect on the degree attainment of men. In this study unlike the research in the literature review, white men are less likely to earn a degree by three percent (-3%) compared to the minority group. What does this mean? There are larger percentage of white men who enroll in college, a smaller percentage of the overall group are not completing their degrees compared to other racial groups who are a smaller percentage in college but their overall graduation percentage is a higher within their subgroups.

Race and income as seem to interact with each other. When looking at the data by income level the ranking by percentages were Quartile 3, Quartile 2, Quartile 4, and finally Quartile 1. Black men and Hispanic men have the highest college enrollment at the Quartile 1 level from all the levels. American-Indian and Whites largest enrollment numbers were in Quartile 3. Asian-Americans highest enrollment numbers were in Quartile 4. When combining Quartile 1 and 2 together black and Hispanics have a higher number of students who enroll in college than black and Hispanic from the Quartile 3 and

4. This means that a greater number of black and Hispanic students are from disadvantage backgrounds who are enrolling in college.

Another interesting finding is that if parents expect to fund their child's education this has a significant relationship the degree attainment of their sons. When parents are financially supportive of their sons attending college this has a positive effect on degree attainment. Sciarra and Whitson (2007) also found that parent support increased the likelihood of graduating. When a parent does not plan on helping their child or the child does not want help this has a negative affect on degree attainment. This is similar to the finding by Dowd and Coury, (2006), where independent students had the lowest probability of persisting at .37.

An interesting observation is in the questionnaire parents were asked both what they expect to spend and what was an acceptable debt. If a parent did not plan on having any debt it improved their son's probability of graduating. However, if a parent was willing to go into debt in the range of $15,000-$19,999, it had a negative relationship with their son's degree attainment. Also, if the son does not receive any financial aid for college it is negatively signed. This means if a student accepts some financial aid it can have a slight positive affect on their graduation rate. Gansemer-Topf and Schuh (2006), Alon (2007), and Lotkowski, Robbins, and Noeth (2004) all found that receiving financial aid, whether in the form of loans, grants, or scholarships, all have a positive influence on degree attainment for students.

The literature review discussed that most forms of student involvement on campus did not have a direct effect on the graduation rates for men. This contradicts the findings of Astin (1984, 1993); Astin, Tsui, and Avalos (1996); Pascarella and Terenzini

(1991); and Pascarella, Smart, and Stoecker (1989) who all found that student involved does have a positive effect on the graduation rates. It is possible the difference in results is due to a smaller sample size of participants who answered the specific questions used in this research or the previous research looked at general involvement. The questions were positively signed but were not significant which could mean the involvement has an indirect effect on degree attainment for men. Expect for men involved in with a social student organization which was significant and had a negative effect the degree attainment of men.

Men who attend public institutions had a greater probability of earning a degree by four percent. The difference in this find compared to Astin, Tsui, and Avalos (1996) and Knapp, Kelly-Reid, and Whitmore (2006) that found men graduated at higher rates at private institutions is the data in this research tracks a student eight years out of high school. Astin, Tsui, and Avalos (1996) and Knapp, Kelly-Reid, and Whitmore (2006) research was based on six-year graduation rates. One possible explanation to this is that men who attend public schools take longer than six-years to complete their degree which is consistent with the analyses of Astin & Oseguera (2002).

Men who attend institutions in the 1-6 decile (under 400 in enrollment) of size have a fourteen percent greater likelihood of earning a degree at the 99 percent level of confidence. The previous research has found size to have varying degrees of impact on the institutions graduate rates. Astin, Tsui, and Avalos (1996) did find that the size of the institution did impact the graduation rates of whites and Hispanic students. Huffman and Schneiderman (1997) found that as the student-faculty ratio increased it had a negative effect on graduation rates. Pascarella, Smart, and Stoecker (1989) found the size of the

school did have an indirect effect on the graduation rates of black students. Based on the previous research it is possible that men who enroll in smaller schools, 400 students or under, may benefit from having a smaller student-faculty ratio. A smaller campus may help students make connections with faculty and the campus environment, which improves their likelihood of graduating.

Costs of the institution have less of an impact on the likelihood of earning a degree then the institutions size but the impact is still significant. Institutions whose costs per year are in the 1-3 decile (>2265) improve the probability of earning a degree for men by seven (7%) percent at the 99 percent level of confidence and if the institutions costs are in the 8-9 decile (9300-20650) men have a seven percent greater likelihood for earning a degree at the 95 percent confidence level. The public schools awarded 48 percent of the degrees to students who attended schools when costs were in the 1-3 decile or 8-9 decile; whereas, private schools awarded only 41 percent of their degrees to students with costs in this range.

Conclusions

A number of factors contribute to the degree attainment of men including but not limited to family, basic demographic factors, the institution characteristics the students attends, and their own personal background. The findings in this study will continue to contribute to the overall information concerning the degree attainment of students and specifically the environments that contribute to it for men. From this study it continues to show a large number of students attend college but a small percentage of the men will earn a bachelor degrees. Of the students who earn a bachelor's degree a majority of them are women. The question remains what can institutions do to improve the graduate rates

of men? This is a complex answer based on the findings. Since institutions are working with individuals no two individuals even with the same demographic backgrounds will be the same. This difference contributes to the complexity of finding a simple solution for a campus, a system, or a state. Instead, these findings continue to show institutions must develop several strategies for students to meet their individual needs.

The ideal situation based on the findings is that men should attend in-state, public institutions that have an enrollment under 400 and cost less than $2,263 per year or between $9,300 - $20,000 per year. Men should not join a social student organization and should major in a field related to health and professional studies or science and technologies. As for the student's background, their family should be supportive financially and have a high income. To meet all these criteria would be difficult for a school. What this research along with previous research will allow institutions to look at is the current policies and programs and develop more specific retention programs for men.

Implications

The findings in this research study will continue to provide insight and understanding into the differences in the degree attainment of students. There is a difference in the degree attainment of men based on demographic findings, college experiences, institution characteristics, and funding. Due to the complexities of an individual it is difficult to specifically state that to improve the degree attainment of men institutions must follow this specific plan. Instead institutions must make an effort to review the entire body of retention and graduations findings to find the combination of factors that will assist their institution in improving the graduation rates of students.

Institutions cannot specifically change the demographic background of the students who enroll in their institutions. However, institutions can develop a supportive environment and develop policies and procedures that will benefit the degree attainment of men. From this research findings, it may include delaying the membership of students into social student organizations their first year. Along with delaying membership into social student organizations, institutions can help the student organizations develop proactive academic goals along with information on how to develop academic excellence in their groups. By the institution working with instead of against the social environment of the campus, it may allow students to learn how to balance the academic commitment with their social commitment.

Costs have also shown they can affect the completion of a degree by students. Institutions should strive to maintain costs per year to provide an opportunity for all students to be successful. Men from families with high incomes have a higher graduation rate then students from low incomes. Institutions and public policies should look at ways to assist students from lower incomes to finance their college education. This may require schools to make available additional scholarships or grants based on financial need and not just merit-based programs, such as the HOPE Scholarship and individual institutional scholarships typically based on entrance exams.

Institutions may look at developing a specific tracking program to assist students and parents from all income levels and educational backgrounds navigate the college environment. Institutions that have a large portion of low-income students can make the assumption based on this research that the parents have less than a college degree. Institutions may develop specific programs unique to their campus environment for both

the students and parents about the college environment and how to earn a degree within their time frame. This can also branch out and develop plans that will specifically target men to assist them in earning their degree.

The past research and the current research show that states and the government need to look at education as a whole and not just specifically as post-secondary and higher education. The concept of improving the degree attainment in the United States will be complex. Additional research will need to be completed to consider motivation. There are students who have the many factors going against them, but they are able to overcome these obstacles and succeed. Just as there are students who have everything going for them, and they do not earn a degree.

Recommendations

Institutions should look at their student populations and analyze their individual graduation data based on the demographic variables, academic variables, financial variables, and involvement variables. Institutions may find that by adjusting current policies or developing new initiatives they may meet the needs of today's generation of students more effectively. Institutions may not be able to change their size or adjust their tuition and fees, but they can evaluate the practices of the institutions that have a higher graduation rates for men. They should consider the types of programs offered, initiatives, and/or the cultural climate at the institution. Institutions may want to look further into the offering of remedial programs if they are needed on campus. Are there other ways to help these students in their college level English and math classes?

Institutions should also consider their student life policies and determine if involvement in social student organizations is contributing to the lower graduation rate of

men. If so, then new policies should be considered to deal with the situation including not allowing new students to join social student organizations, limiting the types of activities approved by campus during specific times of the year, or working with the groups to help the students develop plans to improve the group's graduation rates.

States agencies and institutions need to look at the current policies and availability of grants, scholarships, or aid available to students. State agencies should look policies and programs to improve the possibility for students from low-income families to attend college and graduating. This can include but not limited to developing extensive programs for post-secondary schools that work with parents and students about attending college and how to navigate the system. These programs should be offered in middle schools and high schools. For funding institutions and state policy makers should look at scholarships and funding that is awarded to students. Can additional programs or funding be provided specifically to students from low-income families or, specifically to men?

The independent variables explain a relatively small portion of the variation in student degree attainment. This, of course, can result from a number of reasons. One explanation is that variables used do not completely explain the attitudes toward degree attainment. The measures have not been designed to capture characteristics that determine degree attainment. Future research could look to narrow this gap by including motivation variables and additional involvement variables in the study. Research should also look at the individuals who do graduate by income and race to determine which variables were most influential for them in earning their degree. Educational researchers may consider working more with sociology researchers to look at more than just the basic variables considered in this study. This would provide a broader perspective that may

assist education to gain a greater understanding of the complexities surrounding degree attainment.

Summary

The findings in this research provide another insight into the variables that influence the degree attainment of men in the United States. Future studies should look more closely at the variables specifically by race and income. This would continue to provide more resources to institutions of high education to develop programs to meet the needs of their students.

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APPENDIX 1

DESCRIPTIVE STATISTICS FOR DEGREE ATTAINMENT BY THE INDEPENDENT VARIABLES
% Reported by Degree Attainment

Demographic Independent Variables

	Bachelor Degree or Higher	**No Degree**	**N**
Gender - Male	45.0%	51.0%	1139138
Race			
Male-American Indian	0.2%	1.1%	8863
Male-Asian-American	5.6%	3.4%	46262
Male- Black, not Hispanic	5.7%	14.6%	126792
Male-Hispanic, not black	5.7%	13.7%	118812
Male-White	83.3%	67.2%	812911
Family Income			
Quartile 1 (Low)	4.6%	19.5%	140118
Quartile 2	15.0%	25.0%	212953
Quartile 3	25.1%	30.8%	287320
Quartile 4 (High)	55.3%	24.7%	999985
Parents Education			
Didn't Finish High School	2.0%	8.3%	62402
High School/GED	7.5%	18.9%	152991
Some College	31.8%	46.8%	428637
College Graduate	25.3%	17.0%	207365
Master's or Equal	21.7%	6.6%	125112
Ph.D., M.D., or Other	11.6%	2.4%	59421
Household			
Mother & Father	80.1%	58.6%	658362
Single Parent	19.9%	41.4%	330844

High School Independent Variables

	Bachelor Degree or Higher	No Degree	N
High School Motivation			
Yes	70.3%	95.3%	1024790
No	29.7%	4.7%	211080
High School Degree			
Remedial/Vocational	12.0%	36.7%	303419
College Prep/Honors/AP	88.0%	63.3%	944324
Student Expectations			
Less Than Bachelor's Degree	28.6%	28.6%	315768
Bachelor's Degree or Higher	71.4%	71.4%	788666

College Experience Independent Variables

	Bachelor Degree or Higher	No Degree	N
Took Remedial English			
Yes	14.2%	22.0%	286872
No	85.8%	78.0%	630569
Took Remedial Math			
Yes	15.1%	22.4%	148773
No	84.9%	77.6%	641677
Tutored by Faculty/Staff			
Not Available	1.8%	4.0%	23147
Did Not Receive	70.2%	74.2%	569390
Received	28.0%	21.4%	193917
Received Counseling or other Assistance			
Not Available	90.0%	2.6%	13581
Did Not Receive	48.0%	55.0%	406409
Received	51.0%	42.4%	367770
Received Special Instruction			
Not Available	2.7%	4.2%	26454
Did Not Receive	79.4%	71.2%	587884
Received	17.9%	24.8%	167524
Participated in Varsity Sports			
Yes	21.0%	12.3%	131411
No	79.0%	87.7%	660984

College Experience Inpendent Variables Continued

Participated in Intramurals			
Yes	54.4%	25.6%	314515
No	45.6%	74.4%	477414
Participated in Clubs			
Yes	34.5%	14.2%	191217
No	65.5%	85.8%	600428
Volunteer on Campus			
Yes	27.7%	13.0%	159792
No	72.3%	87.0%	632183
Volunteer off Campus			
Yes	36.1%	16.6%	207203
No	63.9%	83.4%	584535
Number of Hours Per Week Watch TV			
0-1 a day	50.1%	41.7%	506723
2-3 a day	34.6%	35.3%	397399
4-6 a day	11.4%	18.2%	178850
7- more a day	3.9%	4.8%	50809
Involved with Religious Activities			
Yes	45.2%	36.9%	452621
No	54.8%	63.1%	682751
Participate in sports off campus			
Yes	69.4%	63.5%	745154
No	30.6%	36.5%	390218
Campus Job			
Yes	17.2%	21.2%	215360
No	82.8%	78.8%	872897
Took Time Off			
No	87.0%	61.1%	786653
Yes	13.0%	38.9%	331095
Went part-time			
No	76.2%	46.6%	640293
Yes	23.8%	53.4%	477744
Transferred			
No	29.4%	35.4%	176443
Yes	70.6%	64.6%	362189
Attended More Than One Institution at the Same Time			
No	87.2%	89.3%	476025
Yes	12.8%	10.7%	62762
Why Enrolled in Less Than a 4-year			
Job does not require degree	9.2%	18.1%	80207
To Obtain a degree or certificate	7290.0%	49.4%	234082
To transfer to another school	0.0%	14.3%	61185

College Experience Inpendent Variables Continued			
For personal enrichment	17.8%	18.2%	83350
Number of Schools Attended			
0	20.4%	20.4%	258704
1	44.0%	41.4%	482054
2	23.7%	23.6%	269779
3	10.2%	7.8%	98286
4	1.3%	2.7%	24892
5	0.4%	0.5%	4903
6	0.0%	0.0%	319
7	0.0%	0.0%	200
Attended First Choice			
Attended First Choice	57.6%	33.7%	399808
Attended First Choice Later	4.2%	1.5%	23844
Never Attended First Choice	25.8%	23.0%	220737
Location of College			
In-State	69.3%	86.9%	698099
Out-of-State	30.7%	13.1%	182809
Type of Tuition Paid			
In-State	92.7%	91.4%	730244
Out-of-State	7.3%	8.6%	64371
Major in 1994			
Liberal Arts & Sciences	27.3%	24.7%	276570
Business	16.3%	15.1%	167256
Sciences	13.6%	11.8%	134479
Education	9.6%	10.6%	111112
Engineering	9.4%	12.2%	121506
Health	14.0%	14.7%	155803
No Major	9.8%	10.9%	113910
Changed Major			
No	64.7%	72.6%	780131
Yes	35.3%	27.4%	337744
Why You Left School Early			
Done taking desired classes	5.2%		16768
Financial Reasons	26.1%		83605
Change in Personal Life/Job	44.3%		141626
Academic Problems	2.9%		9121
Not satisfied in school	21.5%		68847

Institutional Independent variables

	Bachelor Degree or Higher	No Degree	N
Type of Institution Attended			
Private	26.7%	24.1%	283461
Public	73.3%	75.9%	848387
Total Attended School			
1st Decile	0.4%	0.0%	307
2nd Decile	0.0%	0.2%	213
3rd Decile	1.5%	1.3%	2463
4th Decile	0.9%	2.1%	3070
5th Decile	1.0%	2.1%	3070
6th Decile	3.3%	2.3%	5234
7th Decile	9.0%	12.8%	20758
8th Decile	16.0%	15.5%	29849
9th Decile	36.3%	26.8%	55665
10th Decile	31.5%	35.7%	62479
Tuition & Fees Decile			
1st Decile	7.3%	5.9%	10689
2nd Decile	8.5%	11.7%	17450
3rd Decile	8.5%	14.2%	19980
4th Decile	7.7%	10.7%	15880
5th Decile	7.9%	11.1%	16405
6th Decile	10.5%	4.8%	11583
7th Decile	8.8%	9.7%	15481
8th Decile	6.0%	4.7%	8619
9th Decile	17.2%	9.9%	20924
10th Decile	17.6%	17.3%	28885

Parent Support Independent Variables

	Bachelor Degree or Higher	**No Degree**	**N**
Parents Talk About Courses			
Never	1.6%	5.5%	78804
Sometimes	33.7%	37.6%	724426
Often	64.7%	56.9%	1205915
Parents Talk About Grades			
Never	0.6%	2.6%	35981
Sometimes	23.6%	21.8%	451237
Often	75.8%	75.7%	1519266
Parents Talk About Taking SAT/ACT			
Never	3.2%	13.6%	188861
Sometimes	35.1%	41.4%	779997
Often	61.7%	45.0%	1036909
Parents Talk About Applying for College			
Never	0.6%	6.4%	81893
Sometimes	15.7%	29.7%	483295
Often	83.8%	63.9%	1443362
Parent Expectations Of Child			
Less than Bachelor's Degree	22.3%	24.1%	
Bachelor's Degree or Higher	77.7%	75.9%	
Talked with Child Over the Past Year about Applying for College			
Rarely	2.2%	6.7%	
Sometimes	25.7%	74.3%	
Often	89.1%	76.6%	
Parent's Feel Child Should be a good student			
Not Important	9.6%	15.6%	
Important	90.4%	84.4%	

Student Aid and Funding Independent Variables

	Bachelor Degree or Higher	No Degree	N
Student Received:			
Grants/Scholarships			
Yes	46.4%	43.6%	484257
No	53.6%	56.4%	602712
Received Loans			
Yes	26.5%	28.7%	303505
No	73.5%	71.3%	783464
Had Work-study			
Yes	7.8%	9.4%	96425
No	92.2%	90.6%	990543
Received other Financial Aid			
Yes	2.7%	1.9%	23724
No	97.3%	98.1%	1063244
Received No Financial Aid in 1994			
Yes	43.5%	45.6%	487827
No	56.5%	54.4%	599141
How Will Parents Fund their Childs Education:			
Current Earnings			
Yes	83.3%	73.1%	701288
No	16.7%	26.9%	208485
Savings			
Yes	64.6%	49.5%	500101
No	35.4%	50.5%	402396
Borrow Money			
Yes	35.8%	37.1%	326898
No	64.2%	62.9%	565756
Use Child's Earnings			
Yes	61.5%	53.4%	509470
No	38.5%	46.6%	391508
Use Scholarships			
Yes	66.5%	61.5%	566822
No	33.5%	38.5%	326748
Use Federal/State Loans			
Yes	45.0%	47.2%	411717
No	55.0%	52.8%	476741

Student Aid and Funding Independent Variables Continued

Parents Expects to Spend on Education			
Doesn't want help	4.0%	12.4%	83417
None	6.9%	14.2%	103120
Less Than $2,500	19.1%	30.7%	238620
$2,500-$4,999	19.1%	23.5%	198265
$5,000-$9,999	24.6%	12.2%	154972
$10,000-14,999	13.6%	4.5%	72908
$15,000-19,999	5.8%	1.5%	28870
Over $20,000	6.9%	1.0%	30230
How much debt are you willing to incur:			
None	39.6%	32.5%	254240
Less Than $2,500	17.7%	29.1%	172483
$2,500-$4,999	16.5%	19.8%	131104
$5,000-$9,999	13.6%	11.8%	89789
$10,000-14,999	4.6%	4.0%	30405
$15,000-19,999	1.9%	1.5%	11804
Over $20,000	6.1%	1.4%	24582

APPENDIX 2

VARIABLES NOT MOVED FORWARD AFTER THE FIRST LOGIT MODEL

Demographic Independent variables	**Students' College Experience Independent variables**
Parents' Educational Level	Tutoring by a faculty member or student
Didn't finish HS	Intramurals Sports Teams
High School Graduate/GED	Hours Watched TV
Bachelor's Degree	Participate in Sports Off-Campus
Doctorate	Took Time off
High School Independent variables	Attended School Part-Time
Students' High School Track	# of Institutions Attended
Parental Support Independent variables	College Choice/Location
Talk About Taking SAT/ACT	**Student Aid & Funding Independent variables**
Talk About Applying for College	Student Received Grants/Scholarship
Encouraged Child to Apply to College	Student Received Loans
Expect Child to be a Good Student	*How Parents Expect to pay for College:*
Institutional Independent variables	Parent will use Current Earnings
Institutional Size: 8 decile (800-1898)	Parent will use Child's Earnings
Institutional Size: 9 decile (1898-5441)	*Amount of Debt Acceptable to Parent:*
Institutional Size: 10 decile (<5441)	<$2500
Tuition 4-5 decile	$2500-$4999
Tuition 10 decile (<20650	$5000-$9999
	Over $20,000