Retaining Exploring Students: A Comparison Study of Decided and Undecided College Students

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RETAINING EXPLORING STUDENTS: A COMPARISON STUDY OF DECIDED AND UNDECIDED COLLEGE STUDENTS

by

Betty D. Dennis

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Educational Leadership, Research and Technology
Dr. Charles C. Warfield, Advisor

Western Michigan University
Kalamazoo, Michigan
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U.S. four-year institutions graduate fewer than 50% of its first-time, full-time, degree-seeking students within six years. Today, improving college student retention and graduation rates is a primary focus of higher education nationwide. Scholars have found that students who enter college undecided and are still exploring majors need a great deal of support to be retained. Research has also demonstrated that between 20% and 50% of entering freshmen have not selected a major course of study and that colleges and universities are concerned these students are at a higher risk of leaving the institution. What is unclear is whether selecting a major influences retention rates (to sophomore year), grade point average, and graduation rates (within six years) for college students. Likewise, it is also unclear as to whether or not these same variables are impacted across race and gender.

The purpose of this study was to compare students who entered college without a major program of study with those who entered decided on a major. This was done in two ways: 1) to examine whether there was a difference in retention rates, grade point averages, and graduation rates for first-year (freshmen) students who entered college undecided with those who entered with a declared major; and 2) to measure the demographic influences of race and gender on these same variables for both groups.
This study employed quantitative methods through ANOVA, correlation, and regression analysis in order to examine students attending a Midwestern institution beginning in the Fall of 2000 (n = 4435) to determine if there is a difference in retention rates (to sophomore year), grade point average, and graduation rates (within six years) between students who selected a major with those who have not. ANOVA analysis was also used to determine if race and gender impact these variables.

It was found that there is a statistically significant difference in both retention and graduation rates for undecided and decided students but no difference in grade point average. However, when race and gender are considered there is a statistically significant difference in all three of the variables between the two groups.
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For this reason I bow my knees to the Father of our Lord Jesus Christ, from whom the whole family in heaven and earth is named, that He would grant you, according to the riches of His glory, to be strengthened with might through His Spirit in the inner man, that Christ may dwell in your hearts through faith; that you, being rooted and grounded in love, may be able to comprehend with all the saints what is the width and length and depth and height—to know the love of Christ which passes knowledge; that you may be filled with all the fullness of God. Now to Him who is able to do exceedingly abundantly above all that we ask or think, according to the power that works in us, to Him be glory in the church by Christ Jesus to all generations, forever and ever. Amen. Ephesians 3:14–21

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Betty D. Dennis
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CHAPTER I

INTRODUCTION

Purpose of Study

The purpose of this study was to compare students who entered college undecided with those who entered decided. This was done in two ways: 1) examined whether there was a difference in retention rates, grade point averages, and graduation rates for first-year (freshmen) students who entered college undecided (no major program of study) with those who entered with a declared major; and 2) to measure the demographic influences of race and gender on these same variables for undecided and decided students.

Approximately 80% of U.S. four-year institutions graduate fewer than 50% of its first-time, full-time, degree-seeking students within six years (Carey, 2004). Kuh (1991) suggested the number of students leaving college campuses is a measure of how satisfied the student is with the college environment. Today, improving college student retention rates has become a primary focus of higher education nationwide (Elkins, Braxton, & James, 2000). In order to retain students until graduation, institutions must be more attentive to what happens to first semester freshmen during their first few days, as well as the first few semesters of their college careers.
Statement of the Problem

This study addressed the following research questions: 1) To what extent was there a difference between college students who are undecided about a major program of study compared to students who have decided on a major in relationship to retention rates, academic performance (grade point average), and the time it takes to earn a college degree (graduation rates); and 2) to what extent does race and gender impact retention rates, grade point average and graduation rates for undecided and decided college students.

Background for the Study

A historical examination review of college students shows what is known about students who attend college. What is commonly known is that the most fundamental reason for attending college is to obtain a “good” job (Broekemier, 2002; Helm, Sedlacek, & Prieto, 1998; Quinonez & Sedlacek, 1996; Hill & Sedlacek, 1995). In order to create a more productive workforce, many parents, educators and legislators argue in favor of the same outcome (Ashby, 2003). Moreover, the focus of policymakers’ increasing demands for accountability has primarily been on four-year institutions (Bailey, Calcagno, Jenkins, Kienzl, & Leinbach, 2005). Lee (1986) suggested that the whole society would benefit greatly from the long-term retention and graduation of college students because they would increase the educated workforce and create a more informed citizenry. Whether or not college students remain in college is also critical to
the economic survival of both institutions of higher education and the country (Mayo, Helms, & Codjoe, 2004).

Astin (1993) suggested the decision to go to college is one that has far-reaching implications. High school students, as a whole, place more value on a college education as they advance to their senior year in high school (Smith & Johnson, 2003). Selecting a major, for most college students, gives a purpose for graduating from college and obtaining employment (Montmarquette, Cannings, & Mahseredjian, 2002). What is also known about college freshmen, according to Allen (1999), is that most of them begin their college careers with only a vague notion of what they plan to study in college.

A first-year student who enters college without a major has the monumental decision of selecting a major or an area of study. McJamerson (1992) states, “Beyond enrollment, major field choice is perhaps the most important economic decision that a college student will make” (p. 35).

While getting a good job is one of the main reasons for going to college, a great many high school students apply and get accepted into college with no clear idea of what specific job their studying for and, therefore, are not aware of the major needed for that job.

Gordon (1995b) estimated that between 20% and 50% of entering freshmen have not selected a major course of study. These students are categorized as exploring or undecided students. A large number of freshmen begin college already decided on a major program or course of study but will switch two to three times before making a commitment to any given program (Lewallen, 1995; Steele as cited in Gordon, 1994).
Lewallen (1995) also pointed out that with the lowest estimates undecided students comprise a substantial population on any campus. Therefore, colleges and universities are also trying to understand these students because significant amounts of energy and resources are expended to recruit and retain these students to graduation.

In the effort to retain undecided students, institutions have begun to recognize the need to build relationships with college students during the early stages of their college careers. One way is through academic advising. Academic advising is a critical component in the life of college students. Academic advisors serve as links between college students and campus services so students can clarify their educational, personal, and career goals (Pizzolato, 2006). Students receive information on class selection, graduation requirements, and general navigation of college resources. As the number of undecided students entering college increases, it is essential for these students to build a trusting relationship with academic advisors because advisors are usually the students' first point of contact (Kuhn, Gordon, & Webber, 2006).

What is unclear is whether selecting a major influences retention rates, grade point average and or graduation rates for college students. Likewise, it is still unclear as to whether or not these same variables have been impacted across race and gender. Ford (1996) suggested there is a much stronger need for students of color to make connections to the institution early in the first year of college. Like all students, these connections are largely made up of building relationships with members of the campus community, primarily staff, faculty, or administrators.
Statement of the Hypotheses

The purpose of this study was to examine whether there was a difference in retention rates, grade point averages, and graduation rates for undecided and decided freshmen college students and to measure the demographic influences of race and gender on these same variables. Therefore, this study addressed the following hypotheses:

1) There will be no significant difference in overall retention rates between undecided and decided students.

2) There will be no significant difference in grade point average at the end of the freshman year between undecided and decided students.

3) There will be no significant difference in graduation rates (within six years) between undecided and decided students.

4) There will be no significant difference in retention rates between undecided and decided students when race is considered.

5) There will be no significant difference in retention rates between undecided and decided students when gender is considered.

6) There will be no significant difference in grade point average between undecided and decided students when race is considered.

7) There will be no significant difference in grade point average between undecided and decided students when gender is considered.

8) There will be no significant difference in the graduation rates (within six years) between undecided and decided students when race is considered.
9) There will be no significant difference in graduation rates (within six years) between undecided and decided students when gender is considered.

Variables of the Study

Independent Variable

The independent variable was the beginning enrollment status of students. Students without a program of study were categorized as undecided. Likewise, students who enter with a major were considered declared or decided.

Dependent Variables

The dependent variables were retention rate, grade point average, and graduation rate.

Demographic Variables

The demographic variables for this study were the race of students (e.g. African American, Caucasian American, Latino American and Asian American) and gender (female and male), respectively.

Rationale for the Hypotheses

This study focused on comparing the retention rates, grade point averages, and graduation rates of college students who are undecided or decided about a major program of study and if these variables are influenced by race and gender. An examination of
these two groups provided depth to the study of retention and graduation rates. Elkins, Braxton, and James (2000) reported that 75% of all dropouts leave in the first year of college. Likewise, in the United States, college graduation rates have hovered around 50% for approximately three decades (Astin, 1975; Braxton, 2000; Pascarella & Terenzini, 1991; Tinto, 1993). In addition, students are also taking longer to complete an undergraduate degree. Despite the number of students who leave the institution, college enrollment is at an all-time high (Allen, 1999; Braxton, Hirschy, & McClendon, 2003), but despite this increase more than 25% of the students who enter four-year institutions and 50% entering two-year schools depart at the end of the first year (Adelman, 2004; Kuh, Kinzie, Schuh, & Whitt, 2005a). With the state of Michigan, as well as states across the country, creating initiatives that hold colleges and universities accountable for more college graduates, legislators, as well as the general public, will expect colleges and universities to retain students and graduate them at a higher rate (Ryan & Glenn, 2002). Policymakers are seeking ways to measure higher educational progress in these areas.

Theoretical Framework

The theoretical model that provided the rationale and framework for this retention study, was Bean’s (1982, 1986) Student Attrition Model (SAM). In order to understand Bean’s model, however, a discussion must be given about the two theories Bean used to develop his model, Tinto’s (1975) Student Integration Model (SIM) (also known as Tinto’s model of student retention) and Fishbein and Ajzen’s (1975) model of Attitude-Behavior Relationships. Tinto’s work provided the foundation for retention research. No
study of retention can be made without looking at this classic research. This work has laid the foundation for the study of retention for the last 30 years. This model began with a belief that students entered college with a variety of individual characteristics that played roles in the college student departure process such as family background factors, individual attributes, and pre-college educational experiences. He felt these characteristics had a direct influence on the initial commitment to an institution and the goal of college graduation. SIM suggested students arrived at college with certain expectations and aspirations. These expectations and desires have been impacted by the student’s family’s impression of college as well as those given by peers, teachers, etc. Whether or not a student integrated into the college environment affected the likelihood of retaining the student in college and degree attainment. These qualities also affected the student’s decision to leave college. The model suggested that if a student did not integrate into the college environment, the likelihood of staying at the institution until graduation was in jeopardy. The initial institutional commitment and goal of graduation will, in turn, affect the student’s degree of integration into the academic and social systems of the college or university (see Figure 1). This then leads to persistence in college.

Tinto (1975) attempted to examine the longitudinal process of student persistence, and the underlying premise of his research included investigating why behaviors occurred and the effects of these behaviors on student persistence. This seminal work was based on academic and social integration; the student was immersed in the many dynamics of college life (Brower, 1992; Metz, 2002; Peterson, 1993; Stage, 1989). This model was
important to this study because undecided students, in many ways, are considered at-risk. While the experiences prior to college may have introduced them to many types of careers, no choice has been solidified. Certainly, if these students happen to be first-generation, which means their parents have no experience with college, then it is even more difficult for them to find a reason to justify the expense and amount of time associated with attending college.

The second model Bean used was the Attitude-Behavior Relationships developed by Fishbein and Ajzen (1975). This model expanded Tinto's (1975) study and provides another layer of the foundation that has been used to examine retention. It attempted to
explore attitudes on a variety of behaviors, intentions, and beliefs. The authors posited that attitude was viewed as affective or evaluative in nature and was determined by the person's beliefs about some person, object, issue or event. Individuals then used these beliefs to determine what he or she believed about him or herself. The authors suggested there is a direct relationship between beliefs and attitudes, which will then create intentions and follow-up behaviors. A person's intention was a function of their certain beliefs and will influence his or her attitude toward the behavior that follows (see Figure 2).

![Figure 2. Fishbein and Ajzen's Model of Attitude-Behavior Relationships.](image)

The authors also identified a person's beliefs as the foundation for the model suggesting that as a person learns and forms beliefs about him or herself, other people, institutions, etc., he or she will develop behaviors that allow him or her to make judgments, form evaluations, and make decisions. A college student, for example, who has the belief that attending college means going to parties and drinking alcohol, will eventually make several decisions. These decisions will center on his or her beliefs and attitude toward parties and alcohol and will either lead to attending parties and drinking alcohol or becoming involved in other college activities depending on which the student sees as more important.

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Likewise, a college student who is undecided about a major but believes a major will lead to a job and is the reason for attending college will begin to question if attending or remaining in college is the right decision. The questions to attend college or not, participate in the parties or not, and drink alcohol or not will lead to behaviors that all depend on what the student believes and feels about these questions.

Bean (1982, 1986) combined the Student Integration Model and the Model of Attitude-Behavior Relationships and added the external factors of finances and parental peer influence to identify the importance of students feeling connected with the institution (Glynn, Sauer, & Miller, 2003). Bean merged aspects of both models because he believed that as students become integrated into both the academic and social elements of college, the probability of them leaving the institution declines (see Figure 3). He used visual aids to show how a student’s individual psychological processes can be understood in the retention process (Bean & Eaton, 2000). His model was based on the organizational process of attrition and examines the importance of students' behavioral intentions to persist or stay in college (Swail, Redd, & Perna, 2004).

![Figure 3. Bean’s Student Attrition Model.](image-url)
Likewise, the Student Attrition Model (Bean, 1982, 1986) suggested that students remain in college when their experiences with the institution are positive. This is especially true in the freshman year (Pascarella & Terenzini, 1980). Students are more vulnerable at the beginning of their college careers and need to make connections to the institution. Building campus relationships are vital to retaining students. This model is important for this study because it combined students making connections to their campus environment in order to be retained. This study discusses academic advising as essential to students making connections to their campus environment. Light (2001) suggested that academic advisors will impact every college student. Therefore, academic advising plays an important role in the connection and integration of students, especially undecided students, to the campus community.

Significance of the Study

This study magnified the examination of college student retention over a six year period. This study adds to the current research about what is known about the retention of students based upon their decision to declare a major upon matriculation in the university. More specifically, it explored differences between undecided and decided students in order to sift through the students' entire college career. This study is quite different than previous research. Prior research studies generally focused on retention of all college students or studies one particular student population such as athletes. This study, however, enhances the research on retention by attempting to compare the two
student groups (undecided and decided freshmen) and also look at the influence of ethnicity and gender.

The increase in public scrutiny on higher education by various internal and external constituents, ongoing fiscal challenges, and more accountability relative to student learning outcomes, requires more change initiatives from colleges and universities (Gardiner, 2000; Walters, 2005). Institutional support systems for college students are critical to student success. Academic advising is a major student service that every college student will utilize (Smith & Gordon, 2003). Therefore, this study reviewed the importance of academic advising and its impact on college student development, success, and retention. Tinto (as cited in Seidman, 2005) suggested there is a need for colleges and universities to have strategies that guide their action for student retention and success. The examination of students in this study was designed to compare undecided and decided students so institutions can use the results of this study as a reference.

This study is particularly important for the examination of undecided college students. The number of students who enter college without a major program of study continues to increase (Allen, 1999). While undecided students are quite diverse and each one has different needs, it is imperative to understand the common characteristics of these students in order to better assist them (Spight, 2003) and encourage them to move to major declaration.

Moreover, this study advances the research in the field of academic advising. In the 1980s and 90s, research in this area was quite plentiful. During that time, several
authors affirmed that academic advising was an essential component in the retention of undergraduate students (Crockett, 1985; Habley, 1981; Metzner, 1989; Tinto, 1987). In recent years, however, a paucity of work has been done in the area of academic advising. Furthermore, academic advising is frequently ranked among the highest academic areas necessary for college student retention but also in need of improvement within the institution (Community College of Rhode Island, 2003; Forrest, 1985; Metzner, 1989). Metzner went on to say that higher educational institutions are placing more emphasis on the evaluation of program outcomes for programs that serve students. In order for the field of advising to continue to play a vital role in the lives of students and to be seen as important to the institution’s decision-makers, it must continue to be examined and assessed. Higher education administrators must have more than anecdotal evidence to persuade them of the influence academic advising has on student development and retention.

Limitations/Delimitations

Limitations

This retention study was limited in several ways. First, this study focused on one Midwestern university and does not include other comparable and non-comparable universities across the United States. Therefore, an attempt is made to make generalizations beyond the population included in this study. This study utilized the entire freshmen class which consisted of both undecided students and decided students who entered the institution in the year 2000. This scope, though narrow, provides
information about being an undecided college student and identified if beginning college without a major has a negative impact on retention and persistence.

This study was limited to students who are enrolled in college for the first time, and does not include students who may have enrolled in a community college or attended another college or university. In other words these “first time in any college” (FTIACs), students entered college directly from high school. While the undecided students in this study have only one thing in common, that is that none of them have committed to a major, they all have a variety of interests. This means the types of courses each student selects each semester will run throughout the curricula. This is comparable to the comparison group since those students have decided on majors throughout the seven academic colleges.

Finally, students who transferred from other institutions, guest students, students with permission to take classes (PTC), and high school dual enrollees were excluded from this study.

Delimitations

This study’s delimitations included a consideration that the data used will come from student information that is normally collected by the Office of Institutional Research. There will be no direct contact with students. Students who leave the institution at any time, before graduation, were excluded from this study. Likewise, the assumption was made that all students, both decided and undecided receive academic advising assistance.
Definitions

Academic advisor – professional staff who provide academic planning information to college students (Gordon & Habley, 2000).

Academic success – good academic standing (obtaining a grade point average of 2.00 or better according to WMU’s registrar’s office) (Ridgell & Lounsbury, 2004).

Decision status – undecided or decided about a program of study (major).

Demographics – race and gender (Mathies, Bauer, & Allen, 2005).

FTIACs – first time in any college.

Freshman/first year students – used interchangeably to identify high school graduates entering college for the first time (Upcraft, Gardner, & Barefoot, 2005).

Freshman/first year experience – used interchangeably to identify the initial year in college (Upcraft, Gardner, & Barefoot, 2005).

Gender – males and females.

Major – the student’s educational program of study; a concentration of related courses (Western Michigan University 2005–2006 Undergraduate Catalog).

Major changers – students who start with a declared major but switch majors one or more times.

Persistence – students who are continually enrolled each academic year (Berger & Milem, 1999; Tinto, 1975).

Race – African, Asians, Latino, Native and White Americans (Parker, Deyhle & Villenas, 1999).
Retention rate – students remaining in college without withdrawing, completing college freshmen and sophomore year (Mayo, Helms, & Codjoe, 2004; Willett, 2002).

Sex – males and females (used synonymously with the term gender).

Student success – successful completion of courses with an acceptable grade point average (Upcraft, Gardner & Barefoot, 2005).

Undecided/undeclared/exploring students – used interchangeably to identify students who enter college unsure of a major program of study (Lewallen, 1995; Smith & Gordon, 2003).

Overview of Dissertation

Chapter II is the current review of the literature on freshmen retention and the efforts made by colleges and universities to retain students. It also describes how academic advising and student identity formation plays a critical role to these retention efforts. The chapter also discusses aspects related to college students selecting a major.

Chapter III provides the methodology used to respond to the research questions. Information about the sample, the proposed survey instrument, data collection procedures, and the process used to analyze the data were generated from the literature.

The next three chapters show the results of the study, along with a review, wrap up, and recommendations for further study. Chapter IV will provide the results from the analysis of the nine hypotheses. Chapter V will consider these results through a review and use additional results of the study to expand the results. Chapter VI will provide a final summary and recommendations for further studies.
Summary

The purpose of this study was to examine whether there is a difference in retention rates, grade point averages, and graduation rates for two groups of students, those who enter college undecided (no major program of study), and those who enter with a declared major. The study also examined the influence of race and gender along with the enrollment status on these variables for undecided and decided students.

This study examined students at a Midwestern university who were admitted in Fall of 2000. It examined retention rates after each academic year along with grade point averages and graduation rates of undecided students and compared them to students who selected a major upon entering college. The influence of the demographics race, gender, and enrollment status was also identified and compared.

The study used Bean’s (1982, 1986) Student Attrition Model. This model provided the theoretical framework for identifying the extent of what happens to students when they do not make connections on campus during their first year. This model shows that college student retention rates can plummet when students, who lack maturity and information, do not receive guidance and support from campus resources. These models tend to view persistence in college as mainly a function of the student’s fit in the college environment. The characteristics of an institution as well as the attitudes and behaviors of the campus community may impact retention. Support systems offered at colleges and universities such as academic advising serve as an important nexus for college students to faculty and campus resources.
CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this study was to examine differences in retention rates, grade point averages, and graduation rates for two groups of students, those who enter college undecided (no major program of study) and those who enter with a declared major at the institution under study (known as the University). The study focused on a cohort of college students who entered the institution in the year 2000. College student retention, through these variables and the impact of enrollment status, was compared between these two groups. This study also examined the demographic influences of race and gender on these three variables for undecided and decided students.

This chapter includes literature that will advance the discussion on college freshmen. It begins with a review of literature on the experience of being an undecided college student. It then looked at the evolution of academic advising and the efforts colleges and universities make to retain these students through academic advising units. The study of this population of students and their progression to deciding on a major is designed to move the subject of selecting a major from an inconspicuous activity to a more significant experience.

The next two sections of this chapter include a discussion of college student retention and persistence and conclude with a look at the influence of race and gender in selecting a college major. Two theories serve as the foundation for this examination.
The Student Attrition Model (Bean, 1982, 1986) infers that students will remain in college if their experiences are positive. The author writes of the importance of student involvement in both the social and academic environment of campus life. He also shows that finances and parental influence are key factors to a student staying in college, two factors that are especially important to female students and students of color. Likewise, Chickering’s (1969, 1993) Model of College Development suggests that college students are undergoing changes in development and therefore need guidance from campus administrators if they are to remain on campus and be successful.

The Experience of Being an Undecided Student

Selecting a major, for many students, is at times complex and unstructured. For the past 15 years, the largest proportion of beginning students at most universities have been students who have not selected a major program of study or undecided students (NCES, 2004). Previous work by Gordon (1995b) proposed seven subtypes for students who were undecided about a major program of study: 1) very decided, 2) somewhat decided, 3) unstable decided, 4) tentatively undecided, 5) developmentally undecided, 6) seriously undecided, and 7) chronically indecisive. Additional work by Steele (2003) narrowed down the categories and posited that these students usually are in one of three categories: 1) those who have some ideas but lack information, 2) those who lack the decision making skills needed to select a major, and 3) those who have self-conflict. Gordon (1995b) suggested that traditional-aged first year freshmen are the most obvious group of undecided students because they enter the institution “unable, unready, or
unwilling to commit themselves to a specific academic direction” (p. 59). A student’s cognitive and developmental status underlies the entire decision-making process (Kelly & White, 1993), so an understanding of college student development is essential in order to create campus programs to assist them and give them enough information in order to move them toward declaration of a major.

Cochran (1983) found that when students were choosing among different occupations and majors what they said to their family and peers about their major plans did not agree with what was expressed to college personnel. He suggested that students really have no idea what they are basing their major decision on. Cochran suggested that many students, especially undecided students, suffer from “imposter syndrome,” a term coined by Clance and Imes (1978). It is defined as the struggle assumed by individuals who, despite their strong abilities, do not believe they are capable of success. Clance and Imes’ original work was with women in clinical settings and college classes. Additional work in the area of imposter syndrome by Brems, Baldwin, Davis, and Namyniuk (1994) found that although the women in their study were high achievers and respected in their field for their accomplishments, many did not believe they were capable, bright, or creative. These professional and successful women thought they were only able to trick people into believing they were intelligent and completely negated their own accomplishments.

Brems, Baldwin, Davis, and Namyniuk went on to say that the participants feared they would, one day, be discovered and exposed as intellectual frauds. In their study, the authors examined the feelings of being an imposter, their level of self-development,
advising relationships, and also teaching evaluations among faculty members. It was hypothesized that if the relationships among faculty with their students were self-rated, these relationships would be influenced by the faculty members' imposter feelings. The sample consisted of 112 tenure-track faculty members at a major northwestern university who volunteered to complete a mailed survey. The subjects completed the Imposter Phenomenon Questionnaire (IP), the Superiority and Goal Instability Scales (SGIS), and the Advising Relationship Survey (ARS). Teaching evaluations for those participants were also considered. The IP is designed to assess imposter feelings and the SGIS explores feelings of grandiosity and idealization about one's self. Using multiple regression, it was found that faculty with high imposter feelings had lower scores on teacher evaluations and less significant advising relationships with their students ($r^2 = 0.308, p < .001$ level). Studdard (2002) concurred suggesting that feelings of fraudulence and inadequacy are quite prevalent among women who would be considered high achievers.

College students, also feel imposter syndrome. They have the same belief and feelings of not being as capable or adequate as other students perceive or evaluate them to be. Brems, Baldwin, Davis and Namyniuuk (1994) suggested that imposter syndrome is common to individuals whose self is not fully developed. This is indicative of first year students who are still coming to grips with who they are as adults. They have not matured to the point where they have a clear direction for their lives. Anecdotal evidence suggests that a large number of first year students wonder if they are really college material. This is particularly true with undecided students. "Why go to college, if I do
not have a major or know why I am going” is the question many students will ask themselves. Despite the success seen in high school, students who enter college without a major program to study begin to feel incompetent, as if future success is impossible (King & Cooley, 1995).

Additional research done by King and Cooley (1995) who conducted a similar study with 127 full-time college undergraduates from four colleges in a large metropolitan area in the southeast suggested that imposter syndrome is also a struggle of males. In this study, both the Family Environment Scale (FES) and Clance’s Imposter Phenomenon (IP) scale were given. The FES examined student’s perception of the family and the IP scale looked at the student’s experiences related to imposter syndrome. A two-tailed t-test showed women had higher IP scores ($t_{125} = 2.53, p < .05$). Likewise, using a Pearson product-moment correlation coefficient between FES and IP scores ($r_{120} = .21, p < .05$), this study showed students, despite gender, have difficulty pursuing challenges and achieving success when they experience self-doubt and fear of failure.

Symptoms of imposter syndrome begin to manifest in the student during the first several weeks of the semester. Students may become depressed, anxious, frustrated, and may begin to show their lack of self-confidence (Clance, 1985). During this critical period some students leave the institution. Students who suffer from imposter syndrome are not able to enjoy their new environment and many times are inhibited from selecting a major. They may choose a major too quickly without careful research or consideration about who they are and what is important to them. When a major of study is selected, it is usually below the student’s intellectual capability.
Research conducted by Frank Cooney at Salt Lake Community College (2000) showed that students who are indecisive about their major field of study and future career goals eventually experience problems in classes if they are not given support. Through a voluntary, non-random sample, 1339 first-year students responded (25.8% response rate) to a survey focused on comparing new undecided students and their decided counterparts. He looked at educational goals and objectives. The majority (76%) of the students were undecided. His findings suggested that undecided students, by their second semester, find it more difficult to find meaning and enjoyment in their classes and campus experiences. These undecided students do not connect their classes and assignments with their future life goals so it makes it extremely difficult for them to remain committed to staying in school.

According to the study, entering college as an undecided student was not a deterrent to success. Remaining undecided for an extended period of time, without a major exploration plan, has a negative impact on persistence and success. Interestingly, there was a statistical difference between undecided and decided groups in relationship to academic advising \((p = .01)\). Students felt academic advising has a direct impact on their college experience. Academic advising geared for undecided students can provide the necessary information about majors that can be used to prepare exploration plans.

Some research has also been conducted on the results of students who set achievement goals for introductory courses (Harackiewicz, Barron, Tauer, & Elliot, 2002). Using a multifaceted definition of success including ability and motivation measures, high school performance, and grades in an introductory psychology course, the
authors found that students' achievement goals in an introductory class predicted their academic success in both the short and long term. The authors believed that more certainty about a major predicts overall college success over a longer period of time \[ F(1,415) = 11.65, p < .01 \]. St. John, Hu, Simmons, Carter and Weber (2004) concurred with these findings and show undecided students are less likely to remain in college. Students who struggle to make decisions will question their ability to perform at the college-level. Gordon (1995b) stated the inability of undecided students to take risks translates into uncertainty; therefore, staying in college also becomes a risk. This could be true, however, of decided students who switch majors. If students enter college decided and realize after a semester or two the major is not the correct fit for them, they can also struggle with remaining motivated to stay in school. This group of "major changers" is sometimes allowed to drift without the benefit of academic or career advice (Steele, Kennedy, & Gordon, 1993). Jurgens (2000) found that more time is needed for undecided students to become more committed to a career choice. She administered both a two- and four-phase intervention to 37 students that consists of providing occupational information, assessing the students' self-knowledge and decision-making skills. She also provided individual and group counseling along with computer assessment. This study found significance in both the two- and four-phase treatment and no significance in student satisfaction between the different types of intervention \[ t(35) = .212, p > .05 \].

Astin (1993) suggested that students attend college in order "to get a better job" (p. 245). Undecided students need to see the value in exploring different majors or they may believe that in some way they are "imposters," should not be in college, and have
already failed. There are also those students who struggle with self-conflict. These students, for example, have personal issues that keep them from selecting a major. Many times, this conflict comes from choosing a major that is different from the one their parents may want for them. A typical example is the student who wants to become a teacher but declares business because his or her parents do not believe the student will be able to make an adequate living. This student may choose to enter college undecided until he or she will begin to like business as a major or hoping that the parents will change their minds about teaching.

Students like this are considered indecisive. This type of student may find entering college without a major difficult. Being undecided can affect students' sense of competence and can be emotionally unsettling for them. It may also affect whether or not the student will remain in college as they begin to question their purpose for being in college. Self-conflict can be reflected in values and interest-goals as well (Gordon, 1995b). If a student has a desire, for example, to make a lot of money upon graduation and believes that a college degree will directly impact their salary then he or she will be unable to choose a major that will not generate that salary level. Moreover, students may also select majors where they have marginal abilities if the belief that a large salary is connected to a particular major. Attrition in engineering and science majors, for example, is between 30% and 70% (Acker, Hughes, & Fendley, 2002). Students who select to major in these subjects but are not adequately prepared are at a much higher risk to leave (either by choice or academic dismissal) the institution.
On the other hand, one must remain cautious about generalizing all undecided students as indecisive. A student who has not selected a major is not, necessarily, indecisive. Grites (1981) expressed that choosing to wait on selecting a major “is the healthiest approach with which to enter the complex environment of the college campus” (p. 45). Therefore, it is not necessarily unhealthy for a first year student to delay selecting a major. The choice to explore different types of academic programs and careers suggests the student has made a decision; the decision is to explore and discover the major academic program that is the best fit.

Higher education has focused on the first year of college for the past three decades, now known as the first year or freshman year experience (Barefoot et al., 2005). This attention has only generated the creation of new, but often, piecemeal programs that usually receive a minimum amount of institutional support (Upcraft, Gardner, & Barefoot, 2005). This is especially true for programs designed for undecided students.

Early research on beginning college students shows that freshmen are in the late adolescent stage of their personal development, so they are trying to form an identity (Chickering, 1969; Knefelkamp, Widick, & Parker, 1978). A reason so many students delay selecting a major is that this choice is an extremely important first step in determining who the college student will be in adulthood. Although college faculty and administrators assume students who are admitted into college are emotionally and academically prepared, they may need more time to reach the maturity level necessary to decide on a major. Barefoot et al.'s (2005) summary describes how the professoriate sees college freshmen and most first year programs:
Many faculty and administrators in American colleges and universities seem to labor under the false assumption that somehow students can be prepared for the realities of college through a single programmatic initiative. Therefore, many of these efforts, although well designed and sincerely executed, serve as only an antidote for the remaining core functions of the first year. (p. 4)

Students who enter college undecided need additional time and specialized tools to begin the exploration process. Taking more time and using supplementary resources to select a major, however, should not hinder the student’s academic progress. It is clear that students must receive quality academic advising, as this service is fundamental to the student’s progress toward completing the degree. Many colleges and universities have developed specific classes to introduce new students to the rigors of college. While successful, these classes are limited in that they only reach those students who volunteer to take it (Gordon & Grites, 1984). Therefore, some institutions have used academic advising units as a way to reach more freshmen. Those units specifically designed for exploring students help ensure that students will complete university requirements while they find the major that will fit them the best.

Academic Advising

As pointed out in research related to college student development, making campus connections is critical to student retention, especially for undecided students (Upcraft, Gardner, & Barefoot, 2005). One of the most obvious ways for student engagement is contact with faculty. Research points to the relationship and the degree and quality of personal interaction with college faculty members or staff as important to the process of

However, these contacts are not easy to make and almost impossible to maintain. The pressures of tenure, research, grant writing, and teaching can make student-faculty relationships difficult to develop (Turner, 2002). Therefore, other types of campus connections must be promoted. An understanding of the characteristics of undecided students and the resources needed to promote their retention such as academic advising is a relatively easy way to build a link to the institution (Fry, 2002; Thomason & Thurber, 1999).

Academic advising has always been an integral part of the college experience. Schnell (1998) suggested that academic advising is one of the two most important ways to enhance first-year success. According to the online journal, The Mentor (2006), in the 17th and 18th century’s institutions of higher education called for the college president as the person responsible for advising students. When colleges were able to expand and boost enrollment because of the Morrill Land Grant Act in 1862, more professional positions were created to support the student (Seidman, 2005). The advising profession became more defined because more programs of study were developed.

From the beginning of the earliest colleges and universities, academic advisors helped students select courses and progress toward graduation. These institutions were
created to advance strict republican or religious ideas among the most socio-
economically privileged young men (Mixon, Lyon, & Beaty, 2004). The advising
relationship was, initially, formed out of the desire of professors to shape their students.
Faculty saw their contact with their students, even during advising, as a teachable
moment. Teaching was more than just a transmission of facts, it was thought of as the
way for students and faculty to bond so the student could discuss their goals, fears, and
personal issues.

However, students wanted more by 1770. They expressed their rights to have
more freedom and wanted the curriculum expanded (Goodchild & Wechsler, 1997; Potts,
1971). This caused a strain on the professor-student relationship. Bush's (1969) early
research discussed the distance created between faculty and students when students
wanted more choices in the selection of classes. Faculty, in turn, felt less of a need to be
more actively engaged with students as individuals. This created an environment
whereby students became more concerned about extracurricular activities and less on
their studies, so the student/faculty relationship was beginning to dissolve. Professors felt
they were no longer guiding student learning.

Academic advising changed, too. While students enjoyed their freedom from the
institution acting in place of their parents (in loco parentis) (Melear, 2003), it was more
important than ever for students to seek guidance in order to complete graduation
requirements. Advising was seen as the way to re-establish faculty-student contact
outside as well as inside the classroom. Research shows that as early as the 1870s,
faculty advisors saw the need for students to be actively involved in their learning
experiences (Frost as cited in Gordon & Habley, 2000). In 1889, Johns Hopkins introduced academic advising as a system that paired up students with a specific faculty member to guide them through course selection (Grubes, 1979) and began as instructing students on course selection, known as prescriptive advising. By the late 1930s, almost all institutions had formalized advising programs (Raskin, 1979). Institutions across the country began to develop similar programs and academic advising evolved into an institutional function concerned with academic adjustment. Although traditional models of academic advising emphasized faculty-student relationships, advising transformed and became a more natural fit with the educational background and expertise of professional advisors (Kadar, 2001).

There was an increase in students needing personal, vocational, and academic advice, so institutions created more structured advising services. Presidents redesigned positions and delegated the responsibility of advising to the faculty. During the colonial days of higher educational institutions, this seemed to be an easy transition because most faculty were members of the clergy and therefore could train and mentor the students who attended college to become clergymen. However, as student enrollment increased so did the needs of the institution as a whole so faculty began to advise less and less. By 1906, advising systems were established to bridge the gap between students. The next six decades saw a slight increase in the student body. It became more evident that students wanted and needed more academic guidance. It was in the 1960s when a dramatic increase occurred in the number of students entering college. Since more and more students were attending colleges and universities, the need to retain students was not seen
as important. There was an attitude and misperception that enough students would enter college to make up for the ones that left, so retention services such as academic advising were seen as less important. However in the 1970s, student recruitment fell and attrition rates were high so students asserted a demand for academic advising services (Mixon, Lyon, & Beaty, 2004).

Counseling and advising interests were inadvertently strengthened as a result of World War I (Gillespie, 2003). Professional advisors were primarily responsible for suggesting and registering courses. Bland (2004) describes prescriptive advising as a one-way street. The advisor holds the information and was, therefore, in control of the interaction. Also, in prescriptive advising, advisors were responsible for making sure students understood what the university or college curricula requirements were while also guiding students through a myriad of logistical questions. Students visit an academic advisor for the answers to their questions, and advisors provide those answers. Prescriptive advising is hierarchical, with the advisor in command of the knowledge and the advising and the student a passive receiver of that advice (Crookston, 1972; Smith, 2002). The advisor and student were not concerned with establishing a relationship.

However, students desired more interaction than they were receiving from traditional advising (Light, 2001). In response, a new approach to academic advising was created. This process was designed to promote a holistic relationship, and is now a developmental process that involves the complex lives of college students, incorporating important activities such as selection and registration of courses, building campus
relationships, and achieving academic success. This approach moves away from
prescriptive advising into a new concept called developmental advising.

Academic advising has its foundations based on college student development
theories. One of the development frameworks is Chickering’s (1969, 1993) Vectors of
Psychosocial Development model. This model evolved from Erikson (1968, 1994) and
consists of seven vectors or stages that college students experience through their young
adult years (see Figure 4). In each of the seven vectors, the student continually faces
more complex and intricate self-perceptions and shifts between various developmental
stages. These more differentiated viewpoints are then integrated and organized so the
student sees him or herself in another way. Chickering emphasized this growth was not
merely maturity, but needed stimulation in order to take place. The role of the
environment is to provide the challenge or stimulation that encourages new responses and
ultimately brings about developmental changes.

Ferris State University (2006) illustrates how important this model is for college
and universities by explaining the model, in detail, on its Faculty Center for Teaching and
Learning website. The vectors and their descriptions are:

1) Achieving Competence – The confidence one has in one’s ability to cope with
what comes and to achieve successfully what one sets out to do.

2) Managing Emotions – Students’ ability to manage the key emotions of
aggression and sex, and to broaden their range of emotions.
3) Developing Autonomy – Emotional and instrumental independence, the individual disengages from parents and simultaneously recognizes the importance of others.

4) Establishing Identity – Ability to develop a sense of self by clarifying physical needs, characteristics, and personal appearance.

5) Freeing Interpersonal Relationships – Ability to interact with others.

6) Developing Purpose – The understanding of who one is and who one wants to be.

7) Developing Integrity – This vector was originally defined as a student’s ability to develop a personally valid set of beliefs with internal consistency, which guides behavior. It now includes development of a sense of social and personal responsibility.

Chickering’s work suggests that students are developmentally diverse. Students who may have a number of commonalities, for example, being undecided about a major course of study, each may also be at different vectors at any given time (Gordon & Habley, 2000). Chickering’s model is the leading theory of the psychological development of young adults. Today, through the use of the internet, college and university academic advising administrators, across the country, explain Chickering’s stages of development on their websites in order to introduce services and resources and prepare students prior to seeing an advisor (University of Puget Sound, 2005). Chickering is also promoted by the National Academic Advising Association (NACADA) as fundamental to the work of academic advisors. Academic advisors rely
heavily on this developmental theory in order to elucidate the variety of stages and complicated issues college students face and to then recognize these stages in order to assist the student throughout his or her college experience. Over the years, the developmental model has changed to reflect the psychological development of college students. The first three vectors are seen as critical to students establishing their identity and integrity has become the final stage of the model.

Figure 4. Chickering’s Model of College Student Development.

Another theory that helped set the foundation for academic advising is Astin’s (1984) Theory of Involvement. Astin posited that there is a link between students who are highly involved in the college experience through active participation such as studying, student organizations, and frequent interaction with faculty, staff, and or peers and their learning and development. He stated that “student involvement refers to the amount of physical and psychological energy a student devotes to the academic experience” (p. 297). The theory moves beyond psychological constructs such as motivation and concentrates more on behavior. Instead of focusing on the student and asking, “How do you motivate college students?” this theory suggests the question is,
“How do you get students involved?” It is comprised of five tenets: 1) student involvement can be either generalized or specific; 2) student involvement occurs along a continuum which is distinct for each student at a particular time; 3) student involvement possesses elements of quantitative and qualitative aspects; 4) the amount of student learning and personal development associated with any educational program is directly influenced by the quality and quantity of student involvement in that program; and 5) the effectiveness of educational policy or practice is directly related to its capacity to increase student involvement. This stark contrast will relate directly to this study because developmentally learning-centered academic advising gets students involved in the process of their own academic maturity.

Terry O’Banion (1972) introduced the concept of developmental academic advising in the early 1970s. It is defined as: “...a systematic process based on a close student-advisor relationship intended to aid students in achieving education, career, and personal goals through the utilization of the full range of institutional and community resources. It both stimulates and supports the students in their quest for an enriched quality of life...Developmental advising relationships focus on identifying and accomplishing life goals, acquiring skills and attitudes that promote intellectual and personal growth, and sharing concerns for each other and for the academic community” (Daller, 1997, p. 3). Raushi (1993) defined developmental academic advising as a process that enhances student growth by providing information. He believed that “developmental academic advising is both goal-centered and student-ownership based” (p. 8) and that it “focuses on the whole person and works with the students at that
person’s life stage of development” (p. 7). Ender, Winston, and Miller (1982) believed that developmental advising focuses “on identifying and accomplishing life goals, acquiring skills and attitudes that promote intellectual and personal growth, and sharing concerns for each other and the academic community” (p. 19). Gardiner (1994) concurs with the statement:

How well do we guide our students’ development? Academic advising is widely agreed by authorities to be a powerful tool for improving student success. Today, high-quality advising focuses on each student’s specific developmental needs. High quality advising is correlated with increases in students’ self-esteem, satisfaction with college, and persistence with school. (p. 3)

Today, academic advising is a multi-faceted task. As students became more involved in their learning experience, academic advising moved beyond course selection and registration and now includes everything that affects students academically, socially and personally. It now includes discussions of life goals, vocational interests, program choices, as well as courses and schedule for each semester (Austin, Cherney, Crowner, & Hill, 1997). Upcraft, Gardner, and Barefoot (2005) posited “that academic advising is perhaps the most important way that first-year students interact with a representative of the institution” (p. 320). The task is complex, however, because students are diverse and are at various stages of their academic careers. Advising is also most effective when a relationship is established and the student trusts the advisor enough to allow a more intrusive approach (Glennen & Baxley, 1985).

Advising is a process that guides, not directs, students toward their personal goals, giving them information on how to achieve them. Schein and Laff (1997) identified successful academic advising as an activity that takes place when the student is the center
of the academic planning process, not the institution. According to Metzner (1989) academic advising offers the “potential of linking students’ goals with institutional resources on a personalized basis” (p. 422). She goes on to say that quality advising can help students clarify their educational goals with the institution’s curricula and their future careers.

Likewise, Hagstrom, Skovholt, and Rivers (1997) pointed to the need for students and advisors to develop a relationship that provides a sense of trust for the students. Through a qualitative study that examined 16 non-randomly selected undecided students at a large Midwestern research university, the authors developed eight major themes: 1) frustration, anxiety and hopelessness; 2) fear of commitment; 3) fear of judgment; 4) self-doubt and low self-esteem; 5) difficulty setting goals; 6) family issues; 7) reluctance to seek help; and 8) the desire for a personal, caring advising relationship. The results found that feelings of isolation, shame, lack of motivation and direction, frustration, hopelessness, and concern about the perceptions of others were common among undecided students. The researchers suggested that establishing trust with an advisor is of paramount importance for guiding undecided students through the major exploration process. These same types of themes can be seen throughout the academic advising community and their relationships with college students.

The Statement of Core Values from the National Academic Advising Association (NACADA, 2005) was originally created to provide a framework to guide professional practice and reminds advisors of their responsibilities to students, colleagues, institutions, society, and themselves. Those charged with advising responsibilities are expected to
reflect the values of the advising profession in their daily interactions at their institutions. These Core Values do not mandate specific ways to advise students and do not prefer a certain advising model but do define an advisor’s responsibilities in order for each advisor to continually self-evaluate and grow professionally. These areas were designed so that advisors continually remember every constituent that relies on academic advisors for judicious, accurate and reliable information: (a) responsible to the individuals they advise; (b) responsible for involving others, when appropriate, in the advising process; (c) responsible to their institutions; (d) responsible to higher education; (e) responsible to their educational community; and (f) responsible for themselves and their professional practices. While these Core Values state that academic advisors must honor the institution, advisors of all types (faculty, professional, peer) understand that students, first and foremost, are the primary reason for advisors. Students need advisors who they can depend on to be professional, friendly and clear in their explanation of the institution’s policies and regulations.

According to NACADA’s (2005) guidelines for academic advisors, advisors should be trained in college student development theories to understand and incorporate these developmental theories in their work with students. Colleges and universities recognize this importance and thus have created specific advising units for undecided students. The role of these academic advising units is to assists students with making an easy transition into a selected program of study, usually during the second year, so students remain on track to graduate in four years. It is still not clear, however, if these units are beneficial to the academic transition and retention of undecided students.
NACADA began to promote developmental advising as the aim of successful advising in 1977 (Saving & Keim, 1998). The organization believes that developmental advising must be available throughout the student's college career and must change as the student changes. Smith and Gordon (2003) stated that frequent student-advisor contact is "a proven factor in student success" (p. 7) and students who do not take advantage of advising services will usually experience more academic problems. Developmental advising has been directly linked to higher retention rates (Ender, 1994; Kozloff, 1985).

Academic advising services that provide the least assistance to a student's successful transition is only prescriptive in nature, that is, focuses solely on telling students the courses needed to meet requirements. Advising that is most valued by students is developmental. Crockett (1984) stated that developmental academic advising, "is a decision making process by which students realize their maximum education potential through communication and information exchanges with an adviser; it is continuous, multifaceted, and the responsibility of both student and adviser" (p. 1).

While the term "developmental" is a more recent descriptor for advising, the practice of developmental advising by individual advisors is certainly not new. The 1960s and 70s saw an erosion of the personal attention that was characteristic of advising relationships in earlier years. The great increases in enrollment, the concentration on building facilities, and increasingly, more complex financial problems, have all led to a de-emphasis on the individual approach in many facets of student life (Gordon as cited in Habley, 1988).
Gordon (1995a) continues by suggesting that developmental advising is based on four developmental theories:

1) Psychosocial – an individual develops through a sequence of stages that define the life cycle.

2) Cognitive – development is viewed as a sequence of irreversible shifts in the process by which individuals perceive and reason about their world.

3) Maturity – synthesizing the developmental picture by focusing on the simultaneous development of thinking, valuing, relating, and inquiring skills.

4) Typologies – persistent individual differences such as cognitive style, temperament, or ethnic background that interact with development.

Students, particularly those entering college for the first time, also depend on the academic advisor for guidance and support. Advising students is a process that begins when the student makes a choice to attend a college or university (Lewallen as cited in Gordon, 1994). It is also critical to establish a level of trust between the undecided student and the advisor. Advisors, who strive to build strong relationships with their students, help to ease some of those initial fears and frustration associated with being undecided. Advisors can then encourage students to take risks in order to select a major (Beck, 1999).

Academic advising is much more than selecting classes for each student. It is a vital component of the student’s college experience. Students who have regular contacts with an academic advisor achieve academic success and move toward completing graduation requirements. It includes, but is not limited to, devising programs of study,
monitoring advisee’s progress, reinforcing advisee choices as well as meeting the advisee’s developmental needs (Byrd, 1994). The needs can become complex since those needs will vary from emotional, academic and career oriented. The advisor must possess a thorough understanding of the institutional resources both in (academic and student affair) because the advisor is the link between the advisee and those campus resources both on campus and in the surrounding community. In 1972, Crookston defined two types of advising. Traditional or prescriptive advising happened when the advisor only dictated institutional requirements to the student and there was no relationship formed. Conversely, developmental academic advising was created so that a bond was formed between the student and advisor that focused on learning.

Academic advising is extremely important for the undecided student. It is estimated that up to 60% of college students change their choices of major after entering college (Carroll-McCollum, 1998; Lewallen, 1993; Hoffman & Grand as cited in Watkins, 1979). Likewise, a survey conducted by Lynch (2004) shows that the student population most often served in advising offices consists undecided students at 76%. Effective advising is clearly more than scheduling and registering classes. It is also a key factor that challenges and supports students as they transition from high school to college. Done properly, academic advising directly contributes to students connecting with the institution and moves them toward achieving academic success. King and Kerr (as cited in Upcraft, Gardner, & Barefoot, 2005) posited that academic advising is the most important way freshmen interact with a representative of the institution.
Dollarhide (1999) developed a model that included seven stages for career-decision making. At stage one, understanding of self, the advisor assists the student as he or she explores likes, dislikes, talents, and goals. Stage two, understanding the world of work, assists the advisee with gaining information about different types of careers and occupations. The third stage, reality testing, encourages students to experience their career interests through volunteering and or internships. The fourth stage is commitment. This stage is when advisors bolster the students' confidence about their decisions. The fifth stage is career preparation because the student has made a commitment to one primary career option. At the sixth stage, placement/career entrance, students are ready to write resumes and interview. Finally, evaluation is the seventh stage. This is the stage when students recognize that life experiences may change their interests and they continue to assess themselves at the present moment.

These stages should be understood and addressed by academic advisors in order to create a relationship that encourages students to move forward to the next stage. Too many students select a major, not based upon their own particular interests but because of other external factors. The major may be popular or one that provides a large annual income after graduation (Acker, Hughes, & Fendley, 2002). It could also be a major program of study that has ties to others in the student’s peer or family group (i.e. my dad is a teacher). Conversations with an advisor who specializes in exploring students focus on the student’s likes and dislikes, goals, values, and personality. The advisor suggests self-exploration techniques and encourages the utilization of the campus career resources.
When students select a major because of parents and or peers, it most likely means switching to another major after investing a great deal of time and tuition dollars into the first major. It is critical for academic advisors to assist undecided students early in their college careers, the freshman year, as these students learn, explore, and develop new ways of thinking about themselves and what is important to them in a career.

At the beginning of a student's college career, Smith (2002) suggested that students want a more caring, reciprocal relationship with their advisor. They want more time with their advisors so they can talk with someone about their nervousness and anxiety. Since they are not aware of the developmental changes they will experience, students desire an academic advisor who is personally acquainted with them. Developmental advising is designed to give students this type of relationship with their academic advisor. Likewise, developmental academic advising has the underlying framework and practice that is based on several theories including learning, personality, moral, career, cognitive, narrative, and minority development (Grites & Gordon, 2000).

Creamer (2000) pointed out that the purpose of academic advising is student learning and personal development so the context of academic advising becomes the formation and implementation of educational and life plans. This definition reveals the true nature of developmental advising. Bland (2004) described developmental academic advising as a holistic process that makes the student feel at home in the institution, builds partnerships, and encourages development of the authentic self. Done properly, academic advising helps students recognize their abilities and make informed academic choices (Seidman, 2005). Understanding human development is important for advisors.

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undecided students and advisors develop a relationship, students are beginning to understand their individual selves and can begin to connect themselves with a major.

In 1963, Erikson (Jordan, 2000) developed eight stages of human development as seen in Table 1. He suggested a relationship between individual development and social context and believed the part of human nature that directs action and coping skills needed the most emphasis. At each new stage, a person has the opportunity to resolve previous stages but it is also possible for either of the sequential stages to go unresolved. If this happens the other stages are also affected because all of the stages are interdependent. Jordan goes on to say that college students who have failed to gain confidence in their early academic experiences are sometimes seen at stage four, industry versus inferiority. Academic advisors are critical to encouraging students to explore their irrational beliefs about their supposedly inadequate academic abilities.

Chickering and Reisser picked up on Erickson’s work again in 1993 by identifying seven stages of development for college students that were later described by Chickering as vectors. Developmental advising primarily encompasses Chickering’s Seven Vectors of College Student Development. He posited that students developed emotionally, socially, and intellectually and characterized the vectors as: 1) developing competence, 2) managing emotions, 3) developing autonomy, 4) establishing identity, 5) freeing interpersonal relationships, 6) developing purpose, and 7) developing integrity (see Table 2).

An academic advisor who understands college student development is able to use both Erikson’s and Chickering’s models along with other theories to create a balance
Table 1
Erikson’s Stages of Human Development

<table>
<thead>
<tr>
<th>Stage</th>
<th>Descriptor</th>
<th>Developmental Crisis</th>
<th>Positive Resolution</th>
<th>Negative Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 year</td>
<td>Trust vs. Mistrust</td>
<td>Trust in people &amp; environment</td>
<td>Lack of trust in people &amp; environment</td>
</tr>
<tr>
<td>2</td>
<td>1-3 years</td>
<td>Autonomy vs. Shame &amp; Doubt</td>
<td>Pride in self &amp; ability to make decisions</td>
<td>Doubts about own abilities &amp; decisions</td>
</tr>
<tr>
<td>3</td>
<td>3-6 years</td>
<td>Initiative vs. Guilt</td>
<td>Taking self-responsibility</td>
<td>Feelings of unworthiness &amp; irresponsibility</td>
</tr>
<tr>
<td>4</td>
<td>6-11 years</td>
<td>Industry vs. Inferiority</td>
<td>Pride in accomplishments</td>
<td>Feelings of inadequacy</td>
</tr>
<tr>
<td>5</td>
<td>Adolescence</td>
<td>Identity vs. Role Confusion</td>
<td>Basis for clear adult self</td>
<td>Over identification or loss of identity</td>
</tr>
<tr>
<td>6</td>
<td>Early adulthood</td>
<td>Intimacy vs. Isolation</td>
<td>Ability to love &amp; develop close friendships</td>
<td>Isolation &amp; self-absorption</td>
</tr>
<tr>
<td>7</td>
<td>Middle adulthood</td>
<td>Generativity vs. Stagnation</td>
<td>Interest in giving back or guiding the next generation</td>
<td>Stagnation or interpersonal impoverishment</td>
</tr>
<tr>
<td>8</td>
<td>Mature Adulthood</td>
<td>Ego Integrity vs. Despair</td>
<td>Dignity &amp; contentment with the life led</td>
<td>Fear of death &amp; running out of time</td>
</tr>
</tbody>
</table>

Table 2
Chickering’s Vectors of College Student Development

<table>
<thead>
<tr>
<th>Vector</th>
<th>Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing Competence</td>
<td>Intellectual, physical, and social competence</td>
</tr>
<tr>
<td>Managing Emotions</td>
<td>Awareness of feelings and appropriate expression of feelings</td>
</tr>
<tr>
<td>Moving Through Autonomy Toward Interdependence</td>
<td>Emotional independence and interconnectedness with others</td>
</tr>
<tr>
<td>Developing Mature Interpersonal Relationships</td>
<td>Tolerance for personal and cultural differences and value of commonalities</td>
</tr>
<tr>
<td>Establishing Identity</td>
<td>Establishing sense of self</td>
</tr>
<tr>
<td>Developing Purpose</td>
<td>Setting educational and career goals and identifying a meaningful lifestyle</td>
</tr>
<tr>
<td>Developing Integrity</td>
<td>Humanize and personalize values; establish congruence between beliefs and behavior</td>
</tr>
</tbody>
</table>
between support and student growth. This balance avoids putting together a system that is too overwhelming for the student to navigate or one that encourages too much support so the student is unable to make his or her own decisions.

It goes without saying that academic advisors must have comprehensive knowledge and skills and take part in extensive training that has realistic, specific and measurable objectives. Academic advisors help students identify important decisions related to their specific goals so they can find resources on majors and other viable alternatives as well as support the students as they engage in the decision-making process. Grites and Gordon (2000) stated the advisor’s role is to facilitate student learning no matter if it is related to the student’s education, career or personal goals. Developmental advising approaches look at the student holistically and assist as he or she negotiates the college experience in order to make those goals realistic. Butler (1995) suggested that academic advising is an important part of the continuum of services college students need.

Colleges and universities have complex policies, procedures and requirements that are frequently misunderstood by most college students. The overall goal of the advisor is to meet their students’ individual needs whether they are emotional, academic, or related to majors and careers (Carroll-McCollum, 1998). Professional advisors are among the few members of the campus community who have names, office locations, and phone numbers for the variety of campus resources. With technology changing everyday, academic advising continues to change in order to accommodate the learning needs of new freshmen class (Hay, 2000).
New students' misconceptions are often inaccurate, incomplete, and difficult to change. Kirk-Kuwaye (1998) suggested that some of the false impressions of college held by students may come from higher education itself. University brochures, viewbooks, and other forms of advertising often display the social side of college instead of the academic settings. Connecting with an academic advisor early on drives home the importance of academic success. If freshmen can develop the necessary skills to thrive academically, they begin to actively engage and become institutionally committed which in turn leads to academic persistence.

Since they are unaware of the variety of resources available to them, freshmen need advisors who they can trust to be caring as well as competent. Levine and Cureton (1998) described the paradox for first year students. Freshmen typically enter college with aspirations of being successful but at the same time struggle with a sense of loss of family ties. Therefore, they experience a conflict between being totally independent while simultaneously wanting someone to tell them what to do. They will usually turn to their academic advisor as the person with whom they will talk. More often than not, it is the academic advisor who will have the first lasting interaction with the student. Research shows that students who make a connection with at least one adult on campus experience higher levels of satisfaction and higher retention rates than students who do not (Astin, 1978; Tinto, 1987). Light (2001) concurred stating, “part of a great college education depends upon human relationships” (p. 85). The relationship between students and advisors is critical to both student retention and their development. Light continued by identifying one of the most important feelings students expressed about the
importance of academic advising, "an academic advisor asked questions, posed a challenge, that forced them to think about the relationship of their academic work to their personal lives" (p. 88).

Tinto (1993) suggested that a negative first year is directly linked to increased student attrition. Students, according to Gardner (as cited in Upcraft & Kramer, 1995), expect advisors to be available, knowledgeable, and more importantly accurate. It is vital for advisors to collaborate with other campus resources so they are familiar with the type of student who is being recruited and admitted to the campus. Advisors can foster positive student connections by demonstrating themselves as knowledgeable student advocates (Smith, 2002).

Academic advising is essential at every level of a student's college experience. The National Survey of Student Engagement (NSSE) (2001) is a two-year project that asks over 105,000 students at 470 colleges and universities questions about their campus experiences. The study focuses on five areas of activities: 1) interaction with faculty, 2) classroom participation, 3) study habits, 4) interaction with other students, and 5) the institution's support of their efforts. This survey examines students at four-year colleges and universities and assesses educational practices and student learning through a look at educationally purposeful activities and what these institutions are doing to promote student success. Five benchmarks: 1) level of academic challenge, 2) active and collaborative learning, 3) student-faculty interaction, 4) enriching educational experiences, and 5) supportive campus environment are based on 41 key questions that capture the experiences related to the five aforementioned activities. The results state
that the quality of advising is the single most powerful predictor of satisfaction with the campus environment. Students must be connected to the campus environment by more than going to class and studying alone. Engagement must include the resources that have been allocated and organized for learning opportunities and also services that induce students to participate in campus activities (Kuh, Kinzie, Schuh, & Whitt, 2005b). Academic advising is a strong institutional investment.

Likewise, Kuh (as cited by Upcraft, Gardner and Barefoot, 2005) wrote, “One of the more important things educationally effective institutions do to promote student success in the first year of college is provide high-quality academic advising” (p. 92). Students need to feel the institution cares about their success. Academic advisors will impact the greatest amount of students compared to other campus employees. Students may pick and choose the campus services they utilize, however, every student will need to see an academic advisor several times during their college career.

Simmons (1996) examined the effects of students’ beliefs and attitudes and found that students with a strong sense of academic self-efficacy are more confident of their academic ability and more certain of their academic majors than those who doubt their abilities. Effective academic advising can help undecided students gain confidence in their academic abilities so students believe they can be successful. Likewise, Bogenschutz (1994) suggested that many students become undecided because of an inability to get into the major of their first choice. Academic advisors serve as a valuable resource to help students change their perceptions about their abilities and encourage them to move into a different academic area. Students look to their advisors for advice
but the academic advisor must help students recognize their potential and also help them develop the confidence needed to succeed in college. This is the heart of developmental advising. It is the ability to look at the whole student and help the student see his or her academic possibilities.

Transitioning from high school to college is a time of considerable unease and instability for most college students. This is especially true for undecided students. Academic advisors have an opportunity to influence the student’s reaction to their new environment as they journey through this transition process. Helping students move through rules, policies, and at times, educational bureaucracies requires advisors have patience, advanced-level helping skills and knowledge of college student development and career development theories (Steele & McDonald, as cited in Gordon and Habley, 2000). Advisement offers multiple chances to develop a rapport with students and provides an opportunity for students to talk about social and personal issues.

Advising evolves over the course of the student’s college career, beginning in the freshman year. Gordon and Habley (2000) described the effect that successful academic advising has on students throughout their college career. Freshmen and other first year students need information as they enter their new surroundings. Advisors serve as the primary facilitators of communication that link students to the numerous campus resources. The authors go on to say that while freshmen orientation programs are a valuable part of the transition process, academic advising provides long-lasting involvement in the campus environment. Freshmen are the most susceptible to making poor academic decisions. As neophytes, they are naïve to campus life and the vast
amount of resources available to them. Undecided freshmen are particularly more vulnerable. Approximately 57% of freshmen will change their major during the first semester (Kramer, Higley, & Olsen, 1994; Kramer, Taylor, Chynoweth & Jensen, 1987).

Kramer, Taylor, Chynoweth, and Jensen also posited that the sophomore year brings a time when students feel “less hopeful, less engaged, and less competent” (p. 99). This is especially true for exploring students. While this year should be designed for crystallizing academic plans, many undecided students take on a sense of apathy. If no majors have been declared in the first semester of the second year, their behavior begins to demonstrate indifference toward selecting a major and or staying in school. The authors continued to state that advisors play a vital role in establishing continuous contact with sophomores in order to reinforce the importance of utilizing tools such as the Internet, faculty advisors, and community professionals to research desired majors. This helps students integrate into campus life and also prepares them to declare a major, which is a vital element of the sophomore year.

As students enter into upper level classes, Kramer, Taylor, Chynoweth, and Jensen emphasized academic advising shifts from supplying information to serving more as a consultant to their students. In the junior year, academic advisors assist students with clarifying their goals and making connections with faculty and companies that provide internship opportunities. As students become more in charge of their college careers, they can clarify their career goals and are more focused and committed to their future jobs. Students are also encouraged to connect with career counselors and prospects for field placements.
Finally, the authors explain that the senior year prepares the student for the transition into the world of work or graduate school. Academic advisors assist students by providing self-help career resources along with career services representatives in areas such as resumes and interviewing. Students are also encouraged to finalize graduation paperwork such as academic audits and curriculum guides. Schilling and Schilling (1998) believed the senior year is a year of questioning and reflection. As they leave their institutions, students begin to ask if everything they have learned fits together. Effective advisors can help students by bridging the gap for them to graduate school or getting jobs by providing information on these areas.

Yudof (2003) suggested that advisors must be cross-trained and understand a number of different disciplines including educational theory, psychology, sociology, and cultural studies. Academic advising makes such an impact on a very large scale. It is the only structured campus activity that every single student must participate in. This gives advisors a unique opportunity, as they are able to provide direction and advice in specialized one-on-one interactions. Yarbrough and Brown (2003) proposed, “advisors help students to reach their potential, understand themselves and their institution, and develop skills such as perspective taking and decision making” (p. 67).

As varied as colleges and universities are, so is the institutional make-up of advising services. Upcraft, Gardner, and Barefoot (2005) wrote that faculty usually provide academic advising to freshmen, however, professional full-time advisors are the second most frequent group that provides service to freshmen. These staff members are usually more accessible because advising is their primary responsibility. They continue
recognizing that full-time advisors "have student development training, are generally skilled in advising exploratory or undecided students, and may have the best skills in interpreting often complex academic requirements to first-year students" (p. 322).

Today, it is obvious to higher education administrators and faculty that academic advising contributes to student success. They understand and, more importantly, recognize that students who formulate a sound educational and major plan will have an increased chance for academic success, satisfaction, and persistence. Substantive advising services are a prerequisite to the successful transition of students into the postsecondary system as well as to their persistence to completion (Habley & Crockett, as cited in Habley, 1988).

Student Retention and Persistence

The retention of students is an extremely important, but oftentimes equally difficult, factor in the success of colleges and universities (Swail, 2006). The ability of an institution to retain its students year after year has a direct effect on its budget. A loss of students shows up as a direct loss of tuition dollars from students and also a loss of monies from state government, therefore impacting the institution's financial future (Swail, Redd, & Perna, 2004). College student retention has become a daily task for all involved in higher education. Swail (2006) also stated that losing students "is just bad business" (p. 1). As each student leaves an institution so does tuition and fees, books and services, housing and even potential alumni contributions. In order to minimize these occurrences it is imperative for colleges and universities to immediately assess the needs
of their students so that services and campus resources are designed with the goal of retaining and graduating students.

Pursuing higher levels of education also produces both economic and non-economic benefits for the society at large, including reduced crime, reduced dependence on public welfare and Medicaid, increased volunteerism, higher voting rates, and greater civic involvement (Bowen, 1997). Higher education, according to Kuh (2006), is essential to insuring a vital democracy and increasing the quality of life for the American citizenry. Bowen goes on to say that "the single most important effect of higher education is intergenerational, an effect that is manifested most clearly by the increased educational attainment of one’s children" (p. 28). College graduates will more likely encourage their children to go to college and so it continues throughout the generations.

As more and more people enter college in the U.S., there is then a swell in the country’s ability to compete globally. Seidman (2005) stated:

Education is the great equalizer. No matter what economic stratum a person is born into, he or she can acquire the skills necessary to succeed through education. A strong, vibrant, varied, and expanding national economy depends in part on the educational attainment of its citizens. A nation that values and promotes the educational attainment of its citizens is a nation that is concerned with its ability to compete in the global economy. (p. xi)

On the other hand, leaving college without obtaining a college degree is economically deleterious to the college dropout (DeBerard, Spielmans, & Julka, 2004). It is well known that students without a college education earn far less than those who complete their degree. The loss of students who fail to return for another year of college also often results in greater financial burdens, a lower graduation rate for the institution, and may also influence how the other stakeholders in higher education view the entire
educational process (Lau, 2003). Two of the measuring outcomes of an institution’s success are college persistence (retention) and graduation rates (Allen, 1999). Tinto (as cited in Seidman, 2005) suggests there are many reasons higher education must look at persistence and graduation rates stating:

Today it is more important than ever for institutions to respond to the challenge of increasing student success. Forced to cope with tight, if not shrinking, budgets, institutions face mounting pressure to improve their rates of student retention and graduation. In many cases, this pressure reflects the movement of states to include graduation rates in a system of institutional accountability. In other cases, this pressure reflects the impact of widely publicized ranking systems that include graduation rates as one measure of “quality.” In still other cases, this pressure mirrors the reality that increased student retention is critical to the stability of institutional budgets. Whatever its source, it is evident that institutions of higher education are increasingly concerned about the persistence and graduation of their students and therefore especially interested in finding useful models of student success that can guide their actions. (p. ix)

Swail, Redd & Perna (2004) go on to say that low retention rates at public institutions drive up the cost of education. As institutional costs rise, that cost is then passed onto students, families, and taxpayers through an increase in tuition and fees. When high tuition rates coupled with increased attrition rates become the primary focal point for an institution then questions arise regarding the college’s reputation as well as fiscal irresponsibility. This will then impact, not only retention, but also the recruitment of students to that college campus.

Retaining students from semester to semester and year to year is critical for colleges and universities to meet the demands from parents, legislators and potential new students (Ryan & Glenn, 2002). The first weeks and months of the freshman year are particularly unstable time for new students. Most decisions to leave college are done in the first six weeks of the semester. Elkins, Braxton, and James (2000) conducted a study
of 411 first-time, full-time freshmen at a public, four-year institution in order to examine stages of persistence. One of the dimensions, support, was found to influence persistence in a statistically significant way. They found that whether or not students have bonded with the campus environment has a direct impact on their decision to remain in college as well as the influence (support) of parents and peers \( (p < .001) \). The connection between college students and their individual college campus is formulated through active student engagement (NSSE, 2001). A study conducted by Perry, Cabrera, and Vogt (1999) found a statistically significant correlation between career maturity and academic integration \( (r^2 = .23, p < .01) \) as well as career maturity and institutional commitment \( (r^2 = .12, p < .05) \).

Both the student and the institution are responsible for creating and developing ways for students to bond with the campus. Obviously, students are responsible for putting forth effort in their studies. However, the campus also has a responsibility to engage students enough so they will participate in on-campus activities and utilize campus resources that are designed and developed to promote success and provide support both academically and socially (Davis & Murrell, 1994; Lau, 2003). Students who do not make a connection with the campus can be easily swayed to leave college and return home or transfer to another institution.

Peel (1997) conducted a longitudinal study of students moving from high school to college and examined college persistence. He found that new students who felt isolated while in college had less of a commitment to the campus. He also found that college professors and administrators play a critical role in the retention of students. Students from 26 Victorian institutions took part in this qualitative research study and the
end results showed that strong links between students and their academic and social campus relationships increased first year retention.

Student retention has also received increased attention because so many students are leaving college resulting in an increase in attrition rates. Research consistently indicates that college students who drop out usually do so by the time they finish their first year (Noel, Levitz, & Saluri, 1985). Unfortunately, the student retention rate usually includes students who also transferred to other colleges and complete their degree at another institution (Adelman, 2006). Therefore, the retention rate does not provide an accurate account of the number of students who actually dropped out of college (Lau, 2003). By 1970, this led to an increase in the discussion on college student retention (Seidman, 2005). Colleges and universities became more and more concerned about dropouts and student satisfaction.

Research on retention began with William Spady developing a sociological model of student departure examining the interaction between students and the campus environment. Spady’s model was enhanced by Vincent Tinto (1975) who originally began studying student attrition at four-year institutions by examining a single institution and producing a theoretical model of attrition and persistence. The research that will be conducted by this study’s examination of the retention of undecided and decided students will enhance the work done by these previous researchers.

Tinto’s model of student retention combines both psychological and organizational theoretical models (Seidman, 2005). His model included the following components: 1) pre-entry attributes (prior schooling and family background), 2) goals
and commitment (student aspirations and institutional goals), 3) institutional experiences (academics, faculty interaction, co-curricular involvement, and peer group interaction), 4) integration (academic and social), 5) goals and commitment (intentions and external commitments), and 6) outcome (departure decision-graduate, transfer, dropout). Tinto examined the longitudinal process of student persistence and investigated why behaviors occurred and the effects of these behaviors on student retention (Metz, 2002). Through criticisms of this model, Tinto expanded on his classic 1975 work, acknowledging the need for additional information to assess the role that academics and social integration play in this conceptual model of persistence.

Tinto’s (1987) revision of his work included developing and understanding the evolving nature of student retention research. He defined the new theoretical bases as psychological, societal, economic, organizational, and interaction factors. Tinto (1993) continued to revise his model and it showed that 44% of first-time college freshmen leave their university within the first two years of attendance. This trend has continued to go up in colleges and universities in the United States where fewer than 55% of college students graduate after five years (Desruisseaux, 1998; Geraghty, 1996; Perry, Hladkyj, Pekrun, Clifton & Chipperfield, 2005). Therefore, college student retention tends to be a major focus for higher educational institutions in order for them to gauge persistence in student enrollment (Herzog, 2005).

Astin (1993) and Tinto (1975, 1987, 1993) have both done foundational work on college student retention. They both contend that institutional relationships between the college or university and the student are critical to retention. Tinto’s model of student
departure views a student's voluntary decision to leave the institution as a result of failure on both the parts of the academic and social systems of that institution to interact with the student over time in order to produce a student connection with the campus thus creating the student's commitment to remain at that institution.

Tinto's (1993) work suggests it is the students themselves, who play the most important role in their own adjustment and integration into the social and academic milieu of the university. However, he also believed that the institution fails the student if the academic and social opportunities are not present for the student to connect to their new environment. Four propositions were found to be interconnected (Braxton, 2000):

1) Students bring to college different entry characteristics which will impact their initial commitment to the institution.

2) A student's initial commitment to the institution will impact the student's future commitment to the institution.

3) Students' continued commitment to the institution is enhanced by the level of social integration they realize early on.

4) The greater the level of commitment to the institution, the higher the likelihood of the student being retained through graduation.

Likewise, Bean's early retention studies (1980, 1986; Bean & Metzner, 1985) posit that while college definitely has a social side, the decision to stay in college is psychologically motivated and those colleges and universities that understand how students perceive the campus experience can help identify why students leave. Allen (1999) concurred that motivation to complete college is a significant link for students.
unsure of their abilities to be successful in college. For these reasons, it seems short-sided for colleges and universities to pay less attention to retention of the first year student. This is particularly true for the first year student who has not selected a major. Without successful freshmen, there will be no upperclassmen and success for those who remain will be impeded.

When high attrition rates become the focus of attention for an institution, the quality of the institution is not only put into question but also doubts are raised about its reputation and the negative fiscal impact can be monumental. It is evident that student retention affects the entire campus community and therefore is critical to both the success of the student and the institution. Many colleges and universities are going as far as hiring consultants who promise a proven formula for successful retention (Tinto, 1999). The needs of students must be identified early so that retention services are available for the student to persist until graduation. In a traditional program where students graduate in four years, it can cost the college or university that many years (many times five or more years) of tuition and fees when students leave the institution. It can be a financial disaster for institutions that are not recruiting enough students to make up the difference and compensate for the number of students who did not return. While the responsibility of recruiting can be traced to the admissions department, Bean (1982) suggested the factors that affect retention occur throughout the entire institution. As concerns escalate over college student retention, more attention needs to be focused on methods of increasing and retaining first-year students (Jurgens, 2000; Mayo, Helms, & Codjoe, 2004).
For decades prior to the mid to late 1980s, institutions have seen student persistence as a student problem rather than an institutional responsibility. According to Upcraft, Gardner and Barefoot (2005) it was believed that "...dropouts are simply nature's way of separating the wheat from the chaff" (p. 5). The authors continue by observing that in the past most institutions did not pay particular attention to freshmen. They note that if an individual institution does have an interest in first year students, "it happens by tradition, habitual practice and unexamined assumptions with no clearly thought out sense of purpose" (p. 5). Today, however, less financial support comes from governmental entities so every student who leaves college creates a bigger hole in the institution's pocketbook. The necessity for institutions to keep the students they already have becomes obvious. Seidman (2005) wrote "the soaring costs of higher education in conjunction with decreased ability of institutions to raise tuition and fees created more pressure for institutions to retain students already enrolled rather than spending greater resources on attracting new students" (p. 4).

More and more, however, within the last decade colleges and universities are concerned about student persistence. In 1994, Winston and Sandor wrote, "...with college enrollment declining and college populations changing, recruitment and retention have become key issues that affect the success of the institution" (p. 5). This concern is especially critical on today's college campuses because of the direct link college retention has to the institution's financial success or downfall. Bean and Eaton (2001) asserted that institutional concern with retention is motivated by economical, ethical, and institutional reasons. The economic reason is obvious. Institutions that lose students will lose money,
so the budget is directly affected. This, in turn, impacts employee wages, the campus landscape, building maintenance, etc. Declining student enrollment could possibly lead to employee lay-offs, low employee morale, and a disconnected student body. An investment must be made in the needs of students if the institution has any chance of retaining its students and improving the overall campus environment. This may mean the focus of the institution must change. Bean (1986) argued that it is unethical to admit students for the “benefit of the institution and not for the good of the student” (p. 47). Institutions that operate more like a revolving door, where students enter but leave before graduation and then admit new students, may struggle to stay afloat.

As the U.S. economy has shifted over the last 10 years, students have become more important to the institution’s financial bottom line forcing colleges and universities to pay attention to students and the services needed to keep them in college. Higher educational institutions have several stakeholders. More and more students, parents, employers, local communities, government agencies, and the general-public are holding post-secondary institutions accountable for increased graduation rates (Bailey, 2005). In a survey of 130 chief academic officers at public and private two-year and four-year institutions, nearly three-quarters of the respondents report taking specific steps within the past five years to increase their accountability to two major constituents, students and government agencies (Dubrow, 2000). The “millennial student” or students born after 1982, have the distinguishing characteristic of receiving greater parental involvement than previous generations (Brownstein, 2000; Skarra, Cronk, & Nelson, 2001). Since institutions are receiving less money from state government, parents and students are
bearing more of the financial burden of college attendance (Pascarella, 2001). Parents and students are increasingly expecting that higher educational institutions will have the resources that fit the unique needs of their college student.

Institutions, however, are not the only focal point. There have also been many changes in college students over the decades. More and more students are entering college without a major. History shows that postsecondary educational needs arose out of the need for men, predominately white males, to benefit from higher education (Altbach, Berdahl, & Gumport, 1994). Prior to the 1800s college degrees had little or no importance in early American society (Seidman, 2005). In 1800, only 2% of young men attended college (Horowitz, 1987). History shows that as more students came to college, student life changed, so programs were developed to create loyalty to the institution.

During this time, there were approximately 110,000 students attending about 1,000 institutions (Seidman, 2005). However, Zis (2002) wrote that today there are almost 15 million students, men and women, undergraduates and graduates, attending college. The Chronicle of Education (2001) also predicts that by the year 2010, college and university enrollments will reach nearly 17.5 million. If 20–50% of these undergraduate students are undecided as predicted by Gordon (1995b), it is imperative for postsecondary institutions to develop retention programs that assist these exploring students if these institutions want to increase student persistence.

Over the last 30 years, many researchers have offered thoughts on student persistence. Cope and Hannah (1975), Eimers and Pike (1996), and Sandler (1998) believed that a personal commitment from students to either an academic or occupational
goal is the single most important determinant to persistence in college. Likewise, studies over the last three decades such as Hackman and Dysinger (1970) and Tinto (1993) suggested the higher the level of commitment to a major program of study, the more likely students will remain in college.

It is often assumed that college-bound students are academically and socially mature enough to handle the rigors of college life. This, however, is usually not the case. Typical college challenges such as time management, increased reading assignments, and different pedagogical styles make it difficult for new students to remain in college (AFT Higher Education, 2003). The transition from home to college life affects persistence and is generally considered very stressful and, for some, extremely difficult (Pascarella & Terenzini, 1991). Nora, Castandeda, and Cabrera (1992) found that family support has a major impact on persistence. Eimers and Pike (1996) agree stating there is a high correlation between encouragement from family and friends and intent to persist in college. One can assume, therefore, that if the institution does not provide the resources that parents, family and or friends believe are important to their student, students may be persuaded to leave the institution.

One of the first concerns that new freshmen experience is navigating the campus and understanding its environment. As students become familiar with the campus layout, they can start to become overwhelmed by their classes and their previous academic preparation. Assistance at this beginning stage of the college experience is critical or the institution will lose students in the first few weeks and months of the semester. Interestingly, all students face these problems, but the issues are exacerbated for students
of color as they face additional difficulties associated with racial differences (Ford, 1996). Examining the extremely diverse student body is important since retention efforts may need to vary for subgroups such as ethnic minorities or women (Seidman, 2005). Studying demographics such as race and gender will shed light on whether retention is different for the variety of students attending college.

The Influence of Race and Gender

Race

Research centered on college graduation rates, grade point averages, and retention rates has been looked at for decades. Landry (2002) suggested that college retention is an issue in which college administrators continue to struggle, especially for women and students of color. For years, colleges and universities have developed programs to integrate and build campus connections both academically and socially (Seidman, 1996), but student retention and therefore, graduation rates are still quite low (Landry, 2002). Among data taken from the list of top 100 institutions that produce undergraduate degrees, the National Center for Education Statistics shows the average rate of increase for students of color at 5% over the last 10 years (Borden, Brown, & Majesky-Pullmann, 2007). Congos and Schoeps (1997) pointed out that when students dropout of college both institutions and students experience such negative consequences as loss of revenue and career opportunities. Problems with retaining students can also pit the campus community against each other, with the blame for student dropout, especially among minority students, being placed on the admissions office admitting students who are not
qualified and or the blame being placed on academic advisors and student life personnel for their inability to retain them (Chenoweth, 1999).

Other research in this area focuses primarily on how the college environment affects the experience for students of color. Over the past 20 years, these empirical studies have suggested, for example, that the college environment has a direct influence on academic experiences and outcome, especially for African American students (Allen, 1992; Davis, 1995). Some authors have argued both sides of this issue, suggesting that students of color will benefit from matriculating at predominately White institutions (PWI) (Wenglinsky, 1995) while others believe that race-specific campuses will better fulfill social and academic needs, particularly for African American students (Coleman, 1990).

An examination of 143 undergraduate students from a large, Midwestern, public PWI and 134 students from a large southern, public historically Black college (HBC), suggests there is a difference between male and female African American students and how each responds to their campus environment (Chavous, Harris, Rivas, Helaire, & Green, 2004). The study focused on the students' perceptions of race and its affect on their campus environment. Participants were compared across background, gender, and institutional type using Analysis of Variance (ANOVAs). Overall, the findings suggest that racial stereotypes may function in different ways for African American men and women, depending on their institutional and academic majors. For African American men and women at predominately White institutions, results indicated a significant predictive model \( F(5,50) = 2.11, p < .05 \) and at historically Black institutions, a
significant predictive model for women [F(5, 91) = 2.54, p < .05]. Other research suggests that all students tend to graduate at lower rates when they attend primarily minority colleges (Bailey, Calcagno, Jenkins, Kienzl, & Leinbach, 2005). Using grouped logistic regression method on data from the Integrated Postsecondary Education Data System (IPEDS) Graduation Rate Survey (GRS), Bailey, Calcagno, Jenkins, Kienzl & Leinbach present three sequential models to examine the effect of campus or other environmental factors on completing a two-year degree. After controlling for other characteristics of the college and examining demographic variables, these authors suggests that decreased graduation rates are not because students of color are less likely to graduate, but because all students who attend high minority schools tend to graduate at lower rates. They do, however, recognize the need for more research in this area. On the other hand, Vaznis (2007) states that graduation rates are improving across the country for minority students, but there is still a large gap between these students and white students.

Over the years, college student retention has been studied with the merged and collaborated works of Astin (1978), Bean (1980), Pascarella and Terenzini (1980), and Tinto (1975). Retention is not limited to only Black and White students. Receiving a college degree is important to all individuals, and is linked to the improvement of local and state economies (Fry, 2002; Walters, 2005). The Pew Hispanic Center (PHC), a non-partisan research organization, tracks the experiences of Latinos in the United States. A report published by the PHC reveals that more than 10% of all Latinos are enrolled in college (Fry, 2002). However, it also states that Latinos lag behind all racial groups in
attaining college degrees. The authors suggest one reason for this lag is that only 75% of Latinos attend college full-time while 85% of whites attend full-time. Part-time college attendance negatively affects college completion. The U.S. Department of Education considers part-time enrollment a risk-factor for college graduation no matter what course of study a student pursues (Bailey, Calcagno, Jenkins, Kienzl, & Leinbach, 2005). The second reason for the low graduation rates for Latino American college students is that these students usually work while attending college. The pressure to contribute financially to the household is extremely high, especially for males.

Interestingly, more and more states across the U. S. are voting to end affirmative action programs designed to increase college enrollment for students of color. Using the same logistic regression models from the 2004 study conducted by Espenshade, Chung, and Walling, another study found that without affirmative action initiatives, college enrollment will decrease significantly for African (by two-thirds) and Latino (by one-half) Americans at “elite” universities (Espenshade & Chung, 2005). Coupled with already low college student retention rates for all college students, the authors suggest there will be a considerably negative impact on diversity on college campuses ($\chi^2 = 7000.2, p < 0.001$). Likewise, an article in the New York Times states banning of affirmative action programs by the state of California in mid-1990, has caused the enrollment of minorities in California’s public university system to decrease (Hardin, 2007). With less students of color already represented in four-year institutions, an obvious concern is the need college administrators have to boost college completion rates. Raising the standardized test (ACT or SAT) score for college admission has
become a quick and easy choice of action (Bailey, Calcagno, Jenkins, Kienzl, & Leinbach, 2005) to lower the number of minority students even more.

Interestingly, there has continued to be very modest gain in college enrollment for students of color. These students, however, still lag behind at every degree level (Collison, 2000). Fry's (2002) PHC study also shows that today large numbers of Latinos attend college; however, most are not graduating from institutions that lead to a bachelor's degree. Race has also been compared to academic achievement. It has been suggested that any racial group who has a negative social status will have academic belief systems and exhibit behaviors that can be detrimental to successful academic achievement (Chavous, Bernat, Schmeelke-Cone, Caldwell, Kohn-Wood, & Zimmerman, 2003). Other psychological researchers such as Osbourne (1997) and Steele & Aronson (1995) have posited that "individuals who identify with a group that is not valued by the larger society may protect their self-concept by disengaging from environments in which their group members are expected to fare poorly" (p. 2). Therefore, a direct link to low grade point averages and retention rates in higher education is demonstrated. Likewise, Hawley and Harris (2005) studied variables that impact college student retention. They examined 108 students and administered the Cooperative Institutional Research Program (CIRP) Freshman Survey as a part of a nationwide survey given at 717 colleges across the country, both two and four-year institutions. The results from this study suggest that race is a barrier to college retention, especially for Black and Latino Americans ($X^2 = 115.533, p = .000$).
Gender

Most of the research on the gender differences of college students speaks to the educational development and functioning of these students. Relatively few studies have examined the influence of gender and race on which college majors are selected. Some research has shown differences in major and occupational goals between males and females, suggesting men are more highly represented in business, physical sciences, and medical fields while women are more likely to choose majors in the humanities and social sciences (Bae & Smith, 1996; Stumpf & Stanley, 1996). Men, according to Malgwi, Howe, and Burnaby (2005), were significantly influenced by the major programs of study that have high potential for career advancement, job advancement, and compensation such as business and computer information systems ($p = .016$). Leppel (2001) agreed but suggests that the student’s family socioeconomic level impacts women’s choice of major. Women from less affluent families will also tend to select majors such as the natural sciences with the most potential for high income. Other research compares major selection and race and gender. For example, Kuo (2001) suggested that Asian American undergraduate college students across gender are affected by persistent stereotypes so struggle with having to make a choice between selecting major programs of study that connect with their individual identity or the group’s image. This study’s comparison of all students among racial groups will provide another look at any differences that may exist.

The difference between men and women in college persistence and graduation also needs further examination. Women are beginning to outnumber men in college.
This increase has been growing over three decades (Freeman, 2004; Peter & Horn, 2005). Based on current rates, it is predicted that women will make up approximately 57% of undergraduate college enrollment (Gerald & Hussar, 2003). These authors state that retention and graduation rates for women are higher than for men and women will increase to 8.9 million or two-thirds of college enrollment. The analysis conducted by Peter and Horn (2005) examined differences according to gender using standard t-tests ($p \leq 0.05$) to determine statistical differences from data taken from postsecondary datasets of undergraduate students collected by the U. S. Department of Education National Center for Education Statistics (NCES). This data, shown in Figure 5, presents the increase in females college students over a 10-year period.

![Figure 5. Percentage of Undergraduates Attending Full Time, by Gender and Year Enrolled (NCES).](image)

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In the online newsletter, Opportunity, Mortenson (2003) agrees stating that between 1975 and 2001, the number of bachelor's degrees earned by men increased by 5%. During the same period the number of bachelor’s degree earned by women increased 70%. His research also shows this gender shift in college enrollment is both at the public and private institution. Similarly, the National Center for Education Statistics (2004) shows males represent a shrinking share (and females a growing share) of bachelor's degrees awarded in every major program of study in college. The gains of females have been greatest in business, psychology, agriculture, biology/life sciences, communications, architecture and physical sciences. Females are least likely to be in mathematics, engineering, and computer/information sciences.

Horn, Berger, and Carroll (2004) conducted a longitudinal study of persistence and graduation rates for first-time freshmen who began in the early 1990s and compared them to persistence and graduation rates for students who began in the mid-1990s. The study focused on the rate at which each cohort graduated within a five year period and also examined those who were still enrolled after five years. The survey included students from all 50 states, the District of Columbia, and Puerto Rico. Using descriptive statistics, there was not a significant difference in graduation rates; however, a significant difference was found in persistence rates \( (p < 0.05) \). Students in the more recent cohort (1995–96) were more likely to continue enrollment after five years, an increase from 76% to 80%. In this study, the authors also saw a decrease in males from 46% to 45.2% and an increase in females from 54% to 54.8%. Table 3 shows that while practically the same number of four-year degrees were granted, there was a 3.5% increase in the number of
students still enrolled at a four-year school after five years. The table also shows an increase in the total number of students (including those at two-year institutions and pursuing certificates) from 63.2% to 64.9% remaining in college after five years. The increase in enrollment after five years was accompanied by an overall decline in degree completion.

Table 3
Percentage of Beginning College Students Completing a College Degree or Still Enrolled After 5 Years

<table>
<thead>
<tr>
<th></th>
<th>Total Completed</th>
<th>Bachelor's Degree completed</th>
<th>Still enrolled at 4-year</th>
<th>No degree, not enrolled</th>
<th>Total completed or persisted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989–90</td>
<td>49.9</td>
<td>25.8</td>
<td>8.1</td>
<td>36.8</td>
<td>63.2</td>
</tr>
<tr>
<td>1995–96</td>
<td>46.6</td>
<td>25.1</td>
<td>11.6</td>
<td>35.2</td>
<td>64.9</td>
</tr>
</tbody>
</table>

In a study of 257 African American female college students conducted by Schwartz and Washington (1999), race and both cognitive and non-cognitive variables were examined. The results found that social adjustment along with academic integration, and commitment were the best predictors of retention for these freshmen at this historically Black college ($p \leq .01$). Interestingly, Bailey, Calcagno, Jenkins, Kienzl, & Leinbach (2005) posited that while there is an increase in college women, a higher proportion of women were negatively associated with completion rates.
Summary

A review of the literature shows that students who enter college undecided with the need to still explore majors need a great deal of support to be retained. The research suggests that college student retention has a direct impact on institutional budgets. Institutions that fail to retain its students will face financial hardships due to a loss of students. Colleges and universities are now doing more and more to form campus environments that create a sense of belonging. Some students may feel they do not deserve to be in college and their ineligibility will soon be exposed. Known as imposter syndrome, these feelings of inadequacy can negatively affect student retention. Institutions are turning to campus resources such as academic advising to play an extremely important role in retaining and graduating college students. Academic advisors are assisting students who struggle with decision making as well as students who have difficulty making connections with the campus environment, making friendships, and struggling academically.

As institutions receive less and less money from the state, budget woes have made college student retention a central focus during the past several years. Retaining college students is not only critical to the success of the individual student but also to the financial well-being and growth of the institution and the local and state economies. The first several weeks of the semester usually determines if the student will successfully adjust to campus life and sets the foundation for the student leaving or remaining at said institution.
Academic advising plays an important role in helping undecided students become adjusted to campus life. Advisors who specialize in working with undecided students have the ability to put students at ease with their decision to explore majors. Students understand the importance of exploration and therefore concentrate less on feeling guilty about being undecided. Advisors also help to elucidate the requirements needed for graduation, thereby, helping students explore within the confines of their degree requirements. This information makes it clear that they can take time to explore different majors and still graduate in a timely fashion.

While always a part of college services, academic advising was prescriptive in nature. Advisors were only giving students information about the courses needed for graduation and assisting with registration. Over the years, however, academic advising has become more concerned about the student's total development encompassing all phases of a student's college experience, academic, personal, social, and career. It is now designed to promote the intellectual, personal, and social development of students and connects their academic and personal worlds, thereby linking these three areas. This is considered more of a holistic approach to student development. Since college student retention is critical to both the student and the institution, it is imperative for the institution to develop programs that encourages the success of undecided students. Academic advising programs dedicated to undecided students can play a fundamental role in the retention of these students.

More and more students are entering college undecided. Institutions, more specifically public institutions because they provide resources to assist and reassure
undecided students through the exploration process, can expect to have higher retention rates. These students must be made comfortable with the exploration process so they can make a commitment to continuing their education. Academic advising plays a critical role in empowering and encouraging students to explore different types of majors and then select one that is suitable for their needs.

The literature also shows a need for more study regarding the differences between college students based on race and gender. The studies in this area tend to be race specific, thereby limiting a more extensive examination of all racial groups. The discussion of students of color at predominately White institutions is particularly important as more and more minority students enter these colleges and universities. More research on the differences among demographics may assist college administrators in developing programs that will continue to increase students on college campuses and improve their persistence and, ultimately, graduation rates.

The sheer volume of literature on retention and especially academic advising may make one question why continue research in this area. It will become evident, however, that the resources available are either dated or limited in scope. This study restarted the discussion and continues the examination on exploring students and on the importance of academic advising and its impact on college student retention.

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CHAPTER III

METHODOLOGY

The purpose of this study was to examine the difference in retention rates, grade point averages, and graduation rates for college students who enter either with (declared) or without (undecided) a major. The study focused on the college students who entered this institution in the Fall of the 2000 academic year. It also examined the extent of the influence race, gender and enrollment status (undecided or decided) has on this cohort of students. Retention rates, grade point average, and graduation rates were tracked for six years. The study also provided a deeper understanding of the influence of race, gender, and whether declaring an academic major impacts college student retention, grade point averages, or eventual graduation from college.

This chapter discusses the research design including the setting of the study, the student population, the issue of confidentiality, and the handling of institutional data along with the design for analyzing the data.

Research Design

Quantitative methods are useful for looking at relationships and patterns (Rudestam & Newton, 2001). These types of methods are appropriate to discover the impact of an intervention on a particular outcome and discover the factors that may influence that specific outcome (Creswell, 2003). Creswell goes on to identify case
studies such as this study as a form of quantitative research that allows the researcher to explore a program, event, activity, process or individual in depth. Fink and Kosecoff (2005) submit that data provided by quantitative studies can either be descriptions, attitudes, values, or habits. This study employed quantitative methods in order to focus on factors that affect retention of undecided and decided students who attended the institution beginning in the Fall of 2000.

The design of this study was cohort-based and non-experimental (Schutt, 1996). The study was also longitudinal in that it looked at information for this group of students over the course of six years. Retention rates, grade point averages, and graduation rates for students who have not declared a major compared to those students who have declared a major was assessed using data routinely gathered by the institution’s Office of Institutional Research. The primary data has been gathered as a part of the institution’s normal business practices. Therefore, the data collection process did not require the use of survey instruments or the recording of responses for statistical analysis. No subject in the population was influenced by the nature of the study or by it being performed. Given that the students in this population may have left this institution, only cognitive measures of academic achievement such as grade point average were analyzed through regression analysis.

Inferential statistics is the science of making reasonable decisions with limited information (Ary, Jacobs, Razavieh, & Sorensen, 2006). Utilizing this method for this study allowed the researcher to formulate conclusions about the data and then infer those results to the larger population of first year students across the country. Demographic
data consisted of race, gender, and enrollment status (undecided or decided). Since these data are nominal in nature, chi-square analysis was used to examine the goodness of fit for this data. In order to compare, analysis of variance (ANOVA) was used. Finally, simple linear regression analysis was utilized to predict the extent to which race and gender influence the rate of graduation between undecided and decided students.

Setting of the Study

The institution used for this study was a Midwestern institution referred to in this study as the University. It is a public, research university and holds the classification of a Doctoral/Research University-Extensive by the Carnegie Commission on Higher Education (2005). Its accreditation is from the Higher Learning Commission. In 2005, the institution served approximately 26,000 students.

Sample Population and Participants

The quantitative research method used for this study examined a cohort of freshmen who enrolled at the University in the Fall semester of 2000. Two groups, undecided and decided students were compared in this study. The goal of this study was to examine retention rates (how long students stay in college), grade point averages (on a 4.00 scale), and graduation rates (up to six years). Few studies that examine the grade point averages for undergraduate students involve more than one institution (Astin, 1993). Since grades only reflect how students compare with each other at any given time (Astin, 1975, 1991, 1993), looking at these students over several semesters revealed
additional important information. Permission was sought from the institution’s Human Subjects Institutional Review Board (HSRIB). Authorization from HSRIB is found in Appendix A. For this study, there was no involvement of subjects. This was an archival study and used multiple quantitative methods to analyze student records. The target sample size was the entire population of the year 2000 freshmen class, approximately 4000 students.

Confidentiality: Protecting the Participants

Confidentiality was a primary concern. This research project was conducted so the names of the participants are unknown. A unique identification number was substituted for the student’s identification number. This provided security for the institution and the students. The data was used for professional research only and no attempt was made by the researcher to identify any student who is a part of the dataset. This study was in compliance with the 1974 Family and Educational Rights and Privacy Act (FERPA) (Brannon, 1974) in that no information about any subject was used outside of this study.

Institutional Data

All students selected for this study began in Fall 2000. The data that was examined for this study was collected as a part of normal institutional data collection. Selecting the cohort from Fall 2000 allowed for an in-depth look at the students over
several years. The criteria for selecting students for the cohort was as follows (all other students were eliminated):

1) First time enrolled in any college (FTIAC),
2) Enrolled in 12 or more credit hours (full-time status),
3) Continuous enrollment until graduation (up to 6 years),
4) Enrolled in main campus classes only.

The data was assembled during the Summer 2007 session.

Only students who were admitted as full-time, first-time enrolled main campus students were selected. Matching the research criteria with institutional data records created the data. Confidentiality was maintained by assigning a different identifier, a masked identification number. Meaningful results were obtained without intruding on the students’ privacy. All information was reported in aggregate form.

Each student’s record will have the following characteristics:

1) Subject identifier – a masked number used for identification purposes only,
2) Gender – male or female,
3) Race/ethnicity – as indicated on institutional records,
4) Grade point average – after each semester,
5) Major selection – semester the undecided student declares a major,
6) Retention – continuous enrollment each semester,
7) Decision status – identifies academic college of entry.
Data Analysis

The data analysis for this study compared differences of three conditions: retention, grade point average, and graduation rates. This analysis took place in two phases. The first phase of the analysis tested significance of potential relationships and will happen in two parts. The first three hypotheses called for an examination of the significance of the relationships between undecided and decided students when comparing retention rates, grade point average, and graduation rates (within six years). The first part of the analysis used an ANOVA test to compare the two groups and assess the evidence for some difference among the population means. This formal test is important and helped to guard against being misled by chance variation. A multiple regression analysis was used for the second part to predict which variables influence retention, graduation, and grade point average. If no significance was found, the results suggested there was no difference between these two independent variables in relationship to retention rates, grade point average, and graduation rates.

The second phase answered hypotheses four through nine and examined the nominal demographic data of race and gender and its influence on retention rates, grade point average, and graduation rates on the two student groups. Chi-square analysis was used to decide whether observed differences among sample proportions can be attributed to chance. In this regard, the chi-square test was used to determine whether the difference the populations of declared and non-declared students, as categorized by race and gender, can be attributed to chance, or whether they are indicative of actual differences in the two different populations of students.

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To analyze the data in this study, the Statistical Package for the Social Sciences (SPSS) be used. The 0.05 level of confidence was used to test for statistical significance.

Summary

A quantitative methodological approach was employed to analyze the relationships between the independent variable, enrollment status, and the dependent variables, retention rates, grade point average, and graduation rates. It also examined the influence of specific demographic variables on both student groups.

This cohort-based, longitudinal study was non-experimentive. Confidentiality was strictly maintained because no subjects were identified. The data is gathered as a part of the institution’s normal data collection. Chi-square analysis, ANOVA, and regression analysis were used to determine the level of significance when comparing the two groups.
CHAPTER IV

PRESENTATION OF THE RESULTS

The purpose of this study was to compare first year college students who began in the Fall 2000 by examining students without a major (undecided) with those who have declared a major (decided). The comparison took place in two parts: 1) it examined whether there was a difference in retention rates, grade point averages, and graduation rates (within six years) for these two groups; and 2) it measured the demographic influence of race and gender on retention, grade point averages, and graduation (within six years) for these students. The intention of this study was to examine and describe any significant differences between the two groups (decided and undecided students). This chapter represents the results of the statistical analysis performed. Analyses of Variance (ANOVAs) were computed to compare the variables for each cohort group and also were used to determine the influence of race and gender on retention rates, grade point averages, and graduation rates between the two student groups. Finally, an analysis of the factors that influenced this cohort's graduation rates was done using Correlation and Regression analysis. Alpha levels were set at 0.05 for statistical significance. However, higher levels of significance, if found, were also reported.

In this chapter, the researcher will restate each hypothesis and then provide appropriate statistical analysis in order to accept or fail to accept the hypothesis. If the
hypothesis is not accepted, the alternative hypothesis will be accepted. Finally, a summary of the results will be presented.

Response to the Research Questions

This section represents the results of the analysis to answer each of the research questions guiding this study.

Research Question 1

Research question number one asked if there was a significant difference in overall retention rates between undecided and decided students. An ANOVA test was used between the subjects and for this combination the results were $F(7, 4427) = 11.935$, $p < .01$ (see Table 4). Comparing these two cohorts shows there was a statistically significant difference between the undecided and decided students so the null hypothesis for question number one is rejected. This leads to the acceptance of the alternative hypothesis that there is a significant difference between retention rates for decided and undecided students.

Table 4

ANOVA Table for Overall Retention

<table>
<thead>
<tr>
<th>Source</th>
<th>$df$</th>
<th>$F$</th>
<th>$p$</th>
<th>Obs Pwr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Retention</td>
<td>7</td>
<td>11.935</td>
<td>.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Error</td>
<td>4427</td>
<td>(2.497)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Values enclosed in parentheses represent mean squared errors; *$p < .05$.  

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Research Question 2

Research question number two asked if there is a significant difference in grade point average at the end of the freshman year between undecided and decided students. The ANOVA analysis revealed there was no significance in the relationship between decision and grade point average at the end of the freshman year. This combination produced $F(1) = .185, p = .667$ (see Table 5). As a result, the null hypothesis which states there is no significant difference in grade point average between decided and undecided students at the end of first year was accepted.

Table 5
ANOVA Table for Cumulative Grade Point Average, Fall 2000

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>Obs Pwr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative GPA</td>
<td>1</td>
<td>.185</td>
<td>.667</td>
<td>.071</td>
</tr>
<tr>
<td>Error</td>
<td>4388</td>
<td>(.855)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Values enclosed in parentheses represent mean squared errors; *p < .05.

Research Question 3

Research question three asked if there was a significant difference in graduation rates (within six years) between undecided and decided students. The data was examined through an ANOVA analysis. The relationship between graduation rate (within six years) and student decision was highly significant, $F(1) = 12.742, p < .001$ (see Table 6). Since the relationship is significant, the null hypothesis that there is no
significant difference in graduation rates (within six years) between undecided and decided students was rejected. Therefore, the alternative hypothesis that there was a statistically significant relationship in graduation rates between undecided and decided students is accepted.

Table 6
ANOVA Table for Graduation Rates (Within 6 Years)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>Obs Pwr</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Year Graduation Rate</td>
<td>1</td>
<td>12.742</td>
<td>.000</td>
<td>.946</td>
</tr>
<tr>
<td>Error</td>
<td>4433</td>
<td>(.248)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Values enclosed in parentheses represent mean squared errors; *p < .05.

Research Question 4

The fourth hypothesis stated there will be no significant difference in retention rates between undecided and decided student when race is considered. Examining retention based on race between undecided and decided students, through an ANOVA analysis, produced results that showed race does impact overall retention based on major decision. There was significance between these groups, $F(11) = 2.734$, $p = .002$ (see Table 7). Therefore, the hypothesis stating there is no significant difference in overall retention rates between undecided and decided students, when race is held constant, was rejected. The alternative hypothesis, that there was a statistically significant relationship between undecided and decided students when holding race constant, was accepted.
Table 7

ANOVA Table for Overall Retention (Race Constant)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>Obs Pwr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Retention</td>
<td>11</td>
<td>2.734</td>
<td>.002</td>
<td>.980</td>
</tr>
<tr>
<td>Race</td>
<td>5</td>
<td>1.332</td>
<td>.248</td>
<td>.477</td>
</tr>
<tr>
<td>Race*Decision</td>
<td>5</td>
<td>.743</td>
<td>.591</td>
<td>.271</td>
</tr>
<tr>
<td>Error</td>
<td>4420</td>
<td>(2.529)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Values enclosed in parentheses represent mean squared errors; *p < .05.

Research Question 5

Hypothesis number five stated there would be no significant difference in retention rates between undecided and decided students when gender was considered. An ANOVA analysis was used to examine the data. Like race, gender was significant, and had an influence on retention based on major decision, \( F(3) \ 4431 = 9.718, p < .001 \) (see Table 8). Therefore, the hypothesis that there was no significant difference in retention rates between undecided and decided students was rejected and the alternative hypothesis stating there was a statistically significant difference in retention between undecided and decided students when gender was held constant was accepted.
Table 8
ANOVA Table for Overall Retention (Gender Constant)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>P</th>
<th>Obs Pwr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Retention</td>
<td>3</td>
<td>9.718</td>
<td>.000</td>
<td>.998</td>
</tr>
<tr>
<td>Gender</td>
<td>1</td>
<td>12.803</td>
<td>.000</td>
<td>.947</td>
</tr>
<tr>
<td>Gender*Decision</td>
<td>1</td>
<td>0.034</td>
<td>.853</td>
<td>.054</td>
</tr>
<tr>
<td>Error</td>
<td>4431</td>
<td>(2.529)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Values enclosed in parentheses represent mean squared errors; *p < .05.

Research Question 6

Hypothesis number six stated there would be no significant difference in grade point average between undecided and decided students when race is considered. An ANOVA analysis was used. When considering grade point average and decision as in research question two, there was no difference between undecided and decided students. However, in examining grade point averages between undecided and decided students, when race was held constant, shows there was significant difference after the 2000 academic year, $F(11) = 3.043$, $p < .001$ (see Table 9). Therefore, the null hypothesis that there was no significance in grade point average after the first year between the two groups factoring in race was rejected. The alternative hypothesis stating there was a statistically significant difference for grade point average when race was held constant was accepted.
Table 9
ANOVA Table for Grade Point Average (Race Constant)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>Obs Pwr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Point Average</td>
<td>11</td>
<td>3.043</td>
<td>.000</td>
<td>.990</td>
</tr>
<tr>
<td>Race</td>
<td>5</td>
<td>4.917</td>
<td>.000</td>
<td>.983</td>
</tr>
<tr>
<td>*Decision Error</td>
<td>4375</td>
<td>(.849)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Values enclosed in parentheses represent mean squared errors; *p < .05.

Research Question 7

The seventh hypothesis stated there would be no significant difference in grade point average between undecided and decided students when gender was considered. Using an ANOVA analysis, the results showed that there was significant difference between the two population means, \( F(3) 4386 = 45.866, p < .001 \) (Table 10), when gender was held constant. Based on the outcome, the null hypothesis was rejected and the alternative hypothesis maintaining there was a statistically significant difference between grade point average of the two groups when gender was held constant was accepted.
Table 10
ANOVA Table for Grade Point Average (Gender Constant)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>Obs Pwr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Point Average</td>
<td>3</td>
<td>45.866</td>
<td>.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Gender</td>
<td>1</td>
<td>98.097</td>
<td>.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Gender*Decision</td>
<td>1</td>
<td>.289</td>
<td>.349</td>
<td>.555</td>
</tr>
<tr>
<td>Error</td>
<td>4375</td>
<td>(.829)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Values enclosed in parentheses represent mean squared errors; *p < .05.

Research Question 8

The last set of questions examined graduation rates (within six years) for the two groups. The eighth research hypothesis stated that there was no significant difference in the graduation rates when considering race. The results from an ANOVA analysis that examined if the two groups graduated in six years showed there was significant difference between the two populations, $F(11) = 3.832$, $p < .001$ (see Table 11). Therefore, this hypothesis was rejected and the alternative hypothesis affirming significant difference in graduation rates when race was considered was accepted.
Table 11
ANOVA Table for Graduation Rates (Race Constant)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>Obs Pwr</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Year Graduation Rate</td>
<td>3</td>
<td>45.866</td>
<td>.000</td>
<td>.999</td>
</tr>
<tr>
<td>Race</td>
<td>1</td>
<td>3.540</td>
<td>.003</td>
<td>.922</td>
</tr>
<tr>
<td>Race*Decision</td>
<td>1</td>
<td>.395</td>
<td>.853</td>
<td>.155</td>
</tr>
<tr>
<td>Error</td>
<td>4420</td>
<td>(.247)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Values enclosed in parentheses represent mean squared errors; *p < .05.

Research Question 9

Research question number nine asked if there was a significant difference in graduation rates (within six years) based on gender between undecided and decided students. Using an ANOVA analysis, this combination yielded $F(3, 4431) = 26.197, p < .001$ (see Table 12). As a result of this discovery, the null hypothesis that graduation rates were not significant between the two populations based on sex was rejected. The alternative hypothesis that there is a significant difference in graduation rates when sex is held constant is accepted.
Table 12

ANOVA Table for Graduation Rates (Gender Constant)

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>P</th>
<th>Obs Pwr</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Year Graduation Rate</td>
<td>3</td>
<td>26.197</td>
<td>.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Gender</td>
<td>1</td>
<td>53.554</td>
<td>.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Gender*Decision</td>
<td>1</td>
<td>.301</td>
<td>.583</td>
<td>.085</td>
</tr>
<tr>
<td>Error</td>
<td>4431</td>
<td>(.244)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Values enclosed in parentheses represent mean squared errors; *p < .05.

Summary

The results of testing the nine hypotheses showed there was a statistically significant difference in retention and graduation rates (within six years) between undecided and decided students. Grade point average, on the other hand, was not significant between the two groups. However, when race and gender were considered, retention and graduation was significant and grade point average also becomes significant. This shows that race and gender influences these variables.

Correlation and Regression analysis also showed there was a difference in graduation rates (within six years) when considering race and gender. These combinations were highly significant.

The next chapter of this study will discuss the findings and the final chapter will give a summary and overview of the research and provide recommendations for future research on undecided and decided college students.
CHAPTER V

DISCUSSION

This study was designed to compare retention rates, grade point averages, and graduation rates of students who began college without a major (undecided) with those who began with a declared major (decided) in the year 2000 at a Midwestern university. It also examined if race and gender influenced the three variables for both groups.

Typically, research studies on college students focus on specific areas such as retention and graduation rates of college students as a whole. However, this researcher found very little research that examined all of these variables for students and then compared them based on whether or not they selected a major field of study upon entering the university. As institutions across the U. S. struggle with retaining and graduating students (Carey, 2004), information that will lead to students staying in college until graduation is imperative. The information from this study can lead to increased retention, which in turn, leads to higher graduation rates but also goes further by suggesting that academic services play a critical role too. The research suggested a need to look at institutional environment because of the influence of race and gender.

All of these factors impact college persistence and graduation rates. Increasing these rates improves credibility among stakeholders in higher education, potential college students, parents, and lawmakers and can lead to the institution’s economic survival (Mayo, Helms, & Codjoe, 2004).
It was hypothesized that there would be no significant difference in retention, grade point average, and graduation rates between students who had chosen a major and those students who had not selected a major. It was also hypothesized that there would be no significant difference in these variables when race and gender were held constant.

Review of Results

One of the goals of this study was to compare undecided students with students who begin college decided in order that similar institutions, like the one in this study, might begin to consider the specific needs of undecided students and utilize resources such as academic advising to retain and graduate them from college in a timely manner. Academic advising has been shown to be critical to students building relationships and making connections to college campuses (Upcraft, Gardner, & Barefoot, 2005).

Research Question 1

The first research question asked if there is a significant difference in overall retention rates between undecided and decided students. The results conducting an ANOVA test for overall retention and decision revealed there was a statistically significant difference between decided and undecided students in retention, so the hypothesis was rejected. Previous research suggests that undecided students who enter college without selecting a major are usually not ready or are unable to make this important decision (Gordon, 1995b). The majority of undecided students are usually: 1)
those who have ideas but need more information, 2) those who lack decision making skills, and 3) those who have self-conflict (Frost, 1991; Steele, 2003).

In examining the data further, significance was found after each academic year. In addition to the overall retention, the ANOVA table (Table 13) shows the $F$ statistic increases each year until the majority of students graduate or stop attending the institution in year five.

Table 13

<table>
<thead>
<tr>
<th>Variable</th>
<th>df</th>
<th>$F$</th>
<th>$\eta$</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall retention (R)</td>
<td>7</td>
<td>11.935</td>
<td>.019</td>
<td>.000</td>
</tr>
<tr>
<td>Student retention year 2</td>
<td>7</td>
<td>6.117</td>
<td>.010</td>
<td>.000</td>
</tr>
<tr>
<td>Student retention year 3</td>
<td>7</td>
<td>7.693</td>
<td>.012</td>
<td>.000</td>
</tr>
<tr>
<td>Student retention year 4</td>
<td>7</td>
<td>9.851</td>
<td>.015</td>
<td>.000</td>
</tr>
<tr>
<td>Student retention year 5</td>
<td>7</td>
<td>21.524</td>
<td>.033</td>
<td>.000</td>
</tr>
</tbody>
</table>

These findings were similar to the results of Cooney's (2000) study. Entering college as an undecided student is not a deterrent to success, however, remaining undecided for an extended period of time, without a major exploration plan, has a negative impact on persistence and success (Kramer, Taylor, Chynoweth & Jensen, 1987). The greatest loss of students after the sophomore year was in the University Curriculum (143) followed by the colleges of arts and sciences (93) and business (91). This is shown in Table B18 (Appendix B).
Further investigation of the data revealed that after the first year, only 77% of the total freshmen class returned for the second year (Appendix B). This overall loss coupled with the concern that many undecided students will not commit to the institution could lead to a negative financial bottom line for the institution. Many of freshmen at this particular institution (26%) begin college undecided. Therefore, college student retention must be an institutional priority because losing students can create a financial hardship (Mayo, Helms, & Codjoe, 2004). This, in turn, leads to an increase in tuition rates in order to make up for the financial deficit, thereby, making it more expensive for other students. Institutions such as the one in this study may want to consider programs that have been instituted at other institutions such as Freshmen and Sophomore Year Experience (FSYE) that combine mentoring and academic advising to assist students during their first two years.

Appendix B includes a complete breakdown of student retention after each year of the students' college career. Table B14 showed that 25% of the students who returned the second year were in the University Curriculum.

Research Question 2

Research question number two hypothesized there was no significant difference in grade point average at the end of the freshman year between undecided and decided students. An ANOVA analysis combined grade point average at the end of the first year with decision. The outcome of the relationship showed this hypothesis was accepted. No significance was found between undecided and decided students in regards to grade point
average. This shows that undecided students are equally capable of being academically successful in college as students who enter college with a declared program of study.

Grade point average has a direct link to college retention and student success which in turn can impact students graduating from college. Kirby and Sharpe (2001) stated there is a consistent relationship between college academic achievement and retention, with higher performing students persisting in their studies to a greater degree than their lower achieving cohorts. Since there was no significant difference between undecided and decided students in grade point average, both groups have the ability to achieve academic success in order to complete their college education.

Another interesting point was that grade point average did become significant if the student remained undecided beyond the freshmen year. This was true for each year for as long as they remained undecided until year 2005 when most students have graduated or stopped attending the institution (see Table 14).

Table 14
ANOVA Table for Grade Point Average

<table>
<thead>
<tr>
<th>Year</th>
<th>df</th>
<th>F</th>
<th>η</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade point average year 2000</td>
<td>1</td>
<td>4388</td>
<td>.185</td>
<td>.667</td>
</tr>
<tr>
<td>Grade point average year 2001</td>
<td>1</td>
<td>3371</td>
<td>5.780</td>
<td>.016</td>
</tr>
<tr>
<td>Grade point average year 2002</td>
<td>1</td>
<td>2289</td>
<td>15.981</td>
<td>.000</td>
</tr>
<tr>
<td>Grade point average year 2003</td>
<td>1</td>
<td>2714</td>
<td>12.076</td>
<td>.001</td>
</tr>
<tr>
<td>Grade point average year 2004</td>
<td>1</td>
<td>1803</td>
<td>10.423</td>
<td>.001</td>
</tr>
<tr>
<td>Grade point average year 2005</td>
<td>1</td>
<td>630</td>
<td>.139</td>
<td>.709</td>
</tr>
</tbody>
</table>
Additionally, post hoc results comparing the seven colleges as depicted in Table 15 shows there is significance between the College of Engineering and each of the other six colleges as well as the College of Arts and Sciences with the Colleges of Business, Education, Fine Arts and Health and Human Services.

Table 15
Post Hoc Analysis of Fall 2000 Cumulative GPA

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Demographic Variable</th>
<th>Mean Difference</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>.4849</td>
<td>.05482</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>.4855</td>
<td>.05568</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine Arts</td>
<td>.6662</td>
<td>.07643</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Health &amp; Human Svcs</td>
<td>.5523</td>
<td>.09478</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Aviation</td>
<td>.4233</td>
<td>.08271</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Business</td>
<td>.2069</td>
<td>.04536</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>.2075</td>
<td>.04640</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Sciences</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine Arts</td>
<td>.3882</td>
<td>.06996</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Health &amp; Human Svcs</td>
<td>.2742</td>
<td>.08964</td>
<td>.046</td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td>.2781</td>
<td>.05491</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>

Research Question 3

Research question three used an ANOVA analysis to determine if there was a significant difference in graduation rates (within six years) between undecided and
decided students. The results showed significance when examining this relationship, so this hypothesis was rejected. It was determined through cross-tabulation that overall, a total of 54% of the students from this institution who entered college in the year 2000 graduated within six years (Table 16). This is slightly better than the national average. Approximately 80% of U.S. four-year institutions graduate fewer than 50% of its first-time, full-time, degree-seeking students within six years (Carey, 2004). A deeper examination of the data also showed there was significance between undecided and decided students who graduated in both four and five years. The College of Education had the highest rate of graduation with 62% and the lowest rate was the College of Engineering with 46%. Therefore, the likelihood of graduating from this institution in four to six years is just as good as other institutions in the United States. Table 17 continues to look at the relationship with students who graduated in four and five years, respectively. These years were also highly significant.

Table 16
ANOVA Table of the Number of Students who Graduated in 4, 5, and 6 Years

<table>
<thead>
<tr>
<th>Graduated</th>
<th>df</th>
<th>F</th>
<th>η</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Years</td>
<td>1</td>
<td>9.609</td>
<td>.002</td>
<td>.002</td>
</tr>
<tr>
<td>5 Years</td>
<td>1</td>
<td>22.600</td>
<td>.005</td>
<td>.000</td>
</tr>
<tr>
<td>6 Years</td>
<td>1</td>
<td>12.742</td>
<td>.003</td>
<td>.000</td>
</tr>
<tr>
<td>R within-group</td>
<td>4433</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 17

Number of Students who Graduated in Six Years (by College)

<table>
<thead>
<tr>
<th>College of Enrollment</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>192</td>
<td>225</td>
<td>417</td>
<td>46</td>
</tr>
<tr>
<td>Business</td>
<td>496</td>
<td>318</td>
<td>814</td>
<td>61</td>
</tr>
<tr>
<td>Education</td>
<td>457</td>
<td>284</td>
<td>741</td>
<td>62</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>121</td>
<td>94</td>
<td>215</td>
<td>56</td>
</tr>
<tr>
<td>Health and Human Services</td>
<td>65</td>
<td>56</td>
<td>121</td>
<td>54</td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>399</td>
<td>414</td>
<td>813</td>
<td>49</td>
</tr>
<tr>
<td>Aviation</td>
<td>103</td>
<td>69</td>
<td>172</td>
<td>60</td>
</tr>
<tr>
<td>University Curriculum</td>
<td>566</td>
<td>576</td>
<td>1142</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2399</td>
<td>2036</td>
<td>4435</td>
<td>54</td>
</tr>
</tbody>
</table>

However, this examination was unable to account for the amount of times students switch majors. Obviously, students do not graduate from University Curriculum so the data only looked at the students in their original majors. An implication for practice and future research would show the final major that the 566 students listed as graduates from the University Curriculum actually graduated from. It would also determine how long it took students to commit to their final major.

Research Question 4

An ANOVA analysis was used to examine the impact of race on retention by looking at the relationship between the two groups. The fourth research question
hypothesized there would be no significant difference in retention for undecided and
decided students when race was held constant. This hypothesis was rejected. Race had a
definite impact on retention, not just after the first year but each year of the student's
college career. While modest gains have been made in the enrollment of students of
color, these students continue to lag behind in every academic level (Collison, 2000).
Further examination of the data showed that retention continued to be significant for each
year, except for year five when most students graduated or were no longer attending the
institution. For students who remained in college and began year six, retention became
significant again for those students who continued to take classes.

Further examination of retention rates based on race between undecided and
decided students was calculated by looking at the relationship for each consecutive year.
Significance was present each year. Table 18 shows the ANOVA analysis results for
each year. Retention continued to be significant for each year until year five when most
students graduate or no longer attend college. However, retention becomes significant
again for those students who remain and stay for a sixth year. Also, the strongest
relationships were between the second and third years \[F(11, 4420) = 2.708, p = .002\] and
\[F(11, 4420) = 2.801, p = .001, \text{ respectively}\] as well as the third and fourth years \[F(11,
4420) = 2.801, p = .001\] and \[F(11, 4420) = 3.516, p < .001, \text{ respectively}\]
Table 18
ANOVA Table for Retention (Race Held Constant)

<table>
<thead>
<tr>
<th>Retention rates when race is held constant</th>
<th>df</th>
<th>F</th>
<th>η</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall retention</td>
<td>11</td>
<td>2.734</td>
<td>.007</td>
<td>.002</td>
</tr>
<tr>
<td>Retention - Year 2</td>
<td>11</td>
<td>2.708</td>
<td>.007</td>
<td>.002</td>
</tr>
<tr>
<td>Retention - Year 3</td>
<td>11</td>
<td>2.801</td>
<td>.007</td>
<td>.001</td>
</tr>
<tr>
<td>Retention - Year 4</td>
<td>11</td>
<td>3.516</td>
<td>.009</td>
<td>.000</td>
</tr>
<tr>
<td>Retention - Year 5</td>
<td>11</td>
<td>1.134</td>
<td>.003</td>
<td>.330</td>
</tr>
<tr>
<td>Retention - Year 6</td>
<td>11</td>
<td>2.286</td>
<td>.006</td>
<td>.009</td>
</tr>
<tr>
<td>R within-group</td>
<td></td>
<td>4420</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Clearly, the results showed the strongest levels of significance were between the second and third years. The data in Appendix B (Table B16) showed that a substantial amount of students left the institution after the second year. Future research may also show the need for institutions to consider programmatic strategies designed to retain students to the junior year.

Research Question 5

Similarly, research question number five examined retention rates between undecided and decided students while gender was held constant using an ANOVA analysis. This hypothesis was rejected when the results showed that gender also impacted retention significantly. Like Horn, Berger and Carroll (2004), this study found more women were enrolled and retained than men. This study also showed that this
institution's undergraduate enrollment by gender was a little lower than the average across the U. S. according to the National Center for Education Statistics (see Figure 5). The retention among gender continued to be statistically significant each year of the six year study, until year five when most students graduated or were no longer attending college.

Also like race, gender continued to be highly significant for retention rates throughout the student's college career (Table 19). While the fifth year was less significant due to large numbers of students graduating or no longer attending, significance was seen again for those who persisted to the sixth year.

### Table 19

<table>
<thead>
<tr>
<th>Retention rates when gender is held constant</th>
<th>df</th>
<th>F</th>
<th>η</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall retention</td>
<td>3</td>
<td>9.718</td>
<td>.007</td>
<td>.000</td>
</tr>
<tr>
<td>Retention – Year 2</td>
<td>3</td>
<td>6.174</td>
<td>.004</td>
<td>.000</td>
</tr>
<tr>
<td>Retention – Year 3</td>
<td>3</td>
<td>15.482</td>
<td>.010</td>
<td>.000</td>
</tr>
<tr>
<td>Retention – Year 4</td>
<td>3</td>
<td>15.081</td>
<td>.010</td>
<td>.000</td>
</tr>
<tr>
<td>Retention – Year 5</td>
<td>3</td>
<td>.552</td>
<td>.000</td>
<td>.647</td>
</tr>
<tr>
<td>Retention – Year 6</td>
<td>3</td>
<td>4.383</td>
<td>.003</td>
<td>.004</td>
</tr>
<tr>
<td>R within-group</td>
<td></td>
<td>4431</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tables B10 and B11 (Appendix B) show chi-square analysis and correlations between race, gender, college of enrollment, and retention. These relationships are
significant for race and grade point average \((r = .064, p < .01)\), race and retention to the second year \((r = .037, p = .015)\), gender and college of enrollment \((r = .101, p < .01)\), gender and the retention to the second year \((r = .042, p < .005)\), college of enrollment and retention to the second year \((r = -.054, p < .01)\), and grade point average and retention to the second year \((r = .369, p < .01)\). An interesting note is that the relationship between college of enrollment and retention to the second year is negative, which tells us that while significant, college of enrollment does not lead to retention to the second year.

**Research Question 6**

Research question number six stated there will be no significant difference in grade point average between undecided and decided students when race was held constant. This hypothesis was rejected. The results of the ANOVA analysis showed there was a statistical difference between the two groups when race was held constant.

Appendix B shows the breakdown for grade point average ranges on a 4.00 scale. The majority of students from each racial group had above a 2.00 grade point average, which at this particular institution is good academic standing.

Table 20 shows that race was statistically significant each year until year 2006. At this time, the majority of students have graduated and only a few from the year 2000 are continuing enrollment.
Table 20

ANOVA Table for Grade Point Average (Race Held Constant)

<table>
<thead>
<tr>
<th>Grade Point Average when race is held constant</th>
<th>df</th>
<th>F</th>
<th>η</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2001 Cumulative GPA</td>
<td>11</td>
<td>3359</td>
<td>.014</td>
<td>.000</td>
</tr>
<tr>
<td>Fall 2002 Cumulative GPA</td>
<td>11</td>
<td>2877</td>
<td>.023</td>
<td>.000</td>
</tr>
<tr>
<td>Fall 2003 Cumulative GPA</td>
<td>11</td>
<td>2702</td>
<td>.023</td>
<td>.000</td>
</tr>
<tr>
<td>Fall 2004 Cumulative GPA</td>
<td>10</td>
<td>1794</td>
<td>.030</td>
<td>.000</td>
</tr>
<tr>
<td>Fall 2005 Cumulative GPA</td>
<td>10</td>
<td>621</td>
<td>.034</td>
<td>.016</td>
</tr>
<tr>
<td>Fall 2006 Cumulative GPA</td>
<td>6</td>
<td>258</td>
<td>.010</td>
<td>.850</td>
</tr>
</tbody>
</table>

Interestingly, the data also showed that grade point averages improved for each racial group, particularly minority students (Table B7, Appendix B). The second year, for example, shows that 82% of Whites, 91% of Latino Americans, 92% of Native Americans and 84% of African Americans and Asian Americans had a grade point average above a 3.00. The numbers also improved for the third year. Ninety-eight percent of Asian Americans, Whites, and Latino Americans students had above a 3.00 while 100% of Native Americans and 94% of African Americans were in this grade point average range. A complete breakdown of grade point averages by race and college of enrollment is in Appendix B (Table B7 and Table B9).

Further examination of the data, in Table 21, through a post hoc analysis of race and grade point average after the first year shows statistical significance between African Americans, foreign and international, and Caucasian students. Likewise, a cross-tabulation table of Fall 2000 cumulative grade point averages and race verifies this data.
by showing that 63% of foreign and international students fell into the 3.00–4.00 range while 34% of African Americans and 42% of Whites were in the same range (see Appendix B).

Table 21
Post Hoc Analysis of Fall 2000 Cumulative GPA

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Demographic Variable</th>
<th>Mean Difference</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>Foreign/International</td>
<td>.5442</td>
<td>.12622</td>
<td>.000</td>
</tr>
<tr>
<td>Caucasian (White)</td>
<td>African American</td>
<td>.3540</td>
<td>.06945</td>
<td>.000</td>
</tr>
</tbody>
</table>

These results showed that students, whether they were undecided or decided about a major program of study have the potential to be academically successful. College campuses that want academically successful students, of all races, will provide the right academic support tools such as tutoring, Supplemental Instruction, mentoring and the like in order to retain and graduate their students.

Research Question 7

The seventh hypothesis stated there would be no significant difference in grade point average between undecided and decided students when gender is considered. This hypothesis was rejected. Examining the data over the next six years, through an ANOVA analysis, elicits that gender continued to impact grade point average between the two groups (see Table 22) until the majority of students were no longer attending the
institution. A complete breakdown of grade point averages by gender is in Appendix B (Table B8).

Table 22
ANOVA Table for Grade Point Average (Gender Held Constant)

<table>
<thead>
<tr>
<th>Grade Point Average when gender is held constant</th>
<th>df</th>
<th>F</th>
<th>η</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2000 Cumulative GPA</td>
<td>3</td>
<td>4386</td>
<td>.030</td>
<td>.000</td>
</tr>
<tr>
<td>Fall 2001 Cumulative GPA</td>
<td>3</td>
<td>3369</td>
<td>.036</td>
<td>.000</td>
</tr>
<tr>
<td>Fall 2002 Cumulative GPA</td>
<td>3</td>
<td>2887</td>
<td>.040</td>
<td>.000</td>
</tr>
<tr>
<td>Fall 2003 Cumulative GPA</td>
<td>3</td>
<td>2712</td>
<td>.043</td>
<td>.000</td>
</tr>
<tr>
<td>Fall 2004 Cumulative GPA</td>
<td>3</td>
<td>1801</td>
<td>.049</td>
<td>.000</td>
</tr>
<tr>
<td>Fall 2005 Cumulative GPA</td>
<td>3</td>
<td>628</td>
<td>.026</td>
<td>.000</td>
</tr>
<tr>
<td>Fall 2006 Cumulative GPA</td>
<td>3</td>
<td>261</td>
<td>.020</td>
<td>.158</td>
</tr>
</tbody>
</table>

Differences in grade point average among college students need further examination. The results of research question number two shows that students admitted to college are academically capable of being successful. The impact of race, in question six, and now gender creating a statistical difference between the two groups suggests that other factors may play a role in why there is a difference. The types of major programs of study students select may be an important area to conduct future research. More males had less than a 2.00 grade point average than females (Appendix B, Table B8). Additional research may find the types of majors most often chosen by males produces lower grade point averages.
Research Question 8

The eighth research hypothesis stated there was no significant difference in the graduation rates when considering race. This hypothesis was rejected after performing an ANOVA analysis. This was contrary to Horn and Berger’s (2004) study that found no significant difference in graduation rates. This study also found a difference in persistence with Horn and Berger. These authors found a significant difference in persistence. In their study, students in the more recent cohort (1995–96) were more likely to continue enrollment after five years, an increase from 76–80%. While not the focus of this study, this study saw significant loss in student enrollment from year to year, especially after the sophomore year. An additional examination can be seen in Table 23 and depicted significance in the other years that students typically graduate.

Table 23

<table>
<thead>
<tr>
<th>Students Graduated</th>
<th>df</th>
<th>F</th>
<th>η</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Years</td>
<td>11</td>
<td>3.150</td>
<td>.008</td>
<td>.000</td>
</tr>
<tr>
<td>5 Years</td>
<td>11</td>
<td>4.779</td>
<td>.012</td>
<td>.000</td>
</tr>
<tr>
<td>6 Years</td>
<td>11</td>
<td>3.832</td>
<td>.009</td>
<td>.000</td>
</tr>
<tr>
<td>R within-group</td>
<td></td>
<td>4420</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A cross-tabulation analysis of the data shows that only 43% of the students of color (African Americans, Latino American, Asian Americans, and Native Americans)
graduated compared to 55% of Whites (Appendix B, Table B25). These dismal results are a strong indicator that more research is necessary on campus environment, especially on predominately White college campuses.

**Research Question 9**

Research question number nine stated there is no significant difference in graduation rates (within six years) when gender is considered between undecided and decided students. As with race, gender remained significant if students graduated in four or five years (see Table 24).

**Table 24**

<table>
<thead>
<tr>
<th>Students Graduated</th>
<th>df</th>
<th>$F$</th>
<th>$H$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Years</td>
<td>3</td>
<td>17.658</td>
<td>.012</td>
<td>.000</td>
</tr>
<tr>
<td>5 Years</td>
<td>3</td>
<td>33.536</td>
<td>.022</td>
<td>.000</td>
</tr>
<tr>
<td>6 Years</td>
<td>3</td>
<td>26.197</td>
<td>.017</td>
<td>.000</td>
</tr>
<tr>
<td>R within-group</td>
<td></td>
<td>4431</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A Correlation analysis was also used to examine the relationship among the demographic variables. As Table 25 shows, all of the relationships with both race and gender were significant with graduation. In four years, race ($r = .053, p < .01$) and gender ($r = .095, p < .01$) were highly significant. Likewise, both race ($r = .065, p < .01$) and gender ($r = .128, p < .01$) were highly significant for graduation in five years. In the
sixth year, race \((r = .071, p < .01)\) and gender \((r = .119, p < .01)\) still remained highly significant.

Table 25

Correlations Between Race, Gender and Graduation

<table>
<thead>
<tr>
<th>Race of Participant</th>
<th>Gender of Participant</th>
<th>Did student graduate in 4 years</th>
<th>Did student graduate in 5 years</th>
<th>Did student graduate in 6 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.006</td>
<td>0.693</td>
<td>0.053**</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>4432</td>
<td>4432</td>
<td>4432</td>
<td>4432</td>
<td>4432</td>
</tr>
<tr>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>4432</td>
<td>4432</td>
<td>4432</td>
<td>4432</td>
<td>4432</td>
</tr>
<tr>
<td>0.053**</td>
<td>0.128**</td>
<td>0.119**</td>
<td>0.453**</td>
<td>0.453**</td>
</tr>
<tr>
<td>4435</td>
<td>4435</td>
<td>4435</td>
<td>4435</td>
<td>4435</td>
</tr>
<tr>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>4435</td>
<td>4435</td>
<td>4435</td>
<td>4435</td>
<td>4435</td>
</tr>
<tr>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>4435</td>
<td>4435</td>
<td>4435</td>
<td>4435</td>
<td>4435</td>
</tr>
<tr>
<td>0.053**</td>
<td>0.128**</td>
<td>0.119**</td>
<td>0.453**</td>
<td>0.453**</td>
</tr>
<tr>
<td>4435</td>
<td>4435</td>
<td>4435</td>
<td>4435</td>
<td>4435</td>
</tr>
<tr>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>4435</td>
<td>4435</td>
<td>4435</td>
<td>4435</td>
<td>4435</td>
</tr>
<tr>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>4435</td>
<td>4435</td>
<td>4435</td>
<td>4435</td>
<td>4435</td>
</tr>
</tbody>
</table>

** Significant at 0.01 level (2-tailed).

Regression analysis was also calculated to examine graduation as related to race, gender, and college of enrollment. Table 26 shows the result of combining race, gender, and graduation in six years. These variables were predictors in the graduation of students in six years. This linear combination explained approximately 14% of the variance for graduation in six years for the cohort. The ANOVA for this combination was \(F(2) 4429 = 43.127, p < .001\).
Table 26

Regression Analysis of Students who Graduated in 6 Years (Race and Gender Constant)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Se</th>
<th>t-ratio</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>race of participant</td>
<td>.071</td>
<td>.007</td>
<td>4.792</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>gender of participant</td>
<td>.119</td>
<td>.015</td>
<td>7.984</td>
<td>2</td>
<td>.000</td>
</tr>
</tbody>
</table>

For the next table, Table 27, dummy variables were created in order to extrapolate the data and identify significance when comparing specific groups. The table shows significance was present for Whites and females indicating these two groups were the most likely to graduate. Again, 14% of the variance was identified through an ANOVA of $F(5, 4429) = 17.484, p < .001$. Interestingly, males did not generate any results so were excluded from this table.

Table 27

Regression Analysis for Demographic Variables for Graduation in 6 Years

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Se</th>
<th>t-ratio</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>dummy White</td>
<td>.067</td>
<td>.053</td>
<td>2.168</td>
<td>5</td>
<td>.030</td>
</tr>
<tr>
<td>dummy female</td>
<td>.118</td>
<td>.015</td>
<td>7.924</td>
<td>5</td>
<td>.000</td>
</tr>
<tr>
<td>dummy Black</td>
<td>-.016</td>
<td>.064</td>
<td>-.628</td>
<td>5</td>
<td>.530</td>
</tr>
<tr>
<td>dummy Hispanic</td>
<td>.007</td>
<td>.076</td>
<td>.341</td>
<td>5</td>
<td>.733</td>
</tr>
<tr>
<td>dummy Asian</td>
<td>.013</td>
<td>.079</td>
<td>.649</td>
<td>5</td>
<td>.516</td>
</tr>
</tbody>
</table>
Post hoc tests were also done to provide a deeper look at the data. Graduation in six years was explored by comparing it with the college of enrollment in the fourth year. University Curriculum was excluded because by the fourth year students are usually firm in their major course of study. As seen in Table 28, the Colleges of Engineering, Arts and Sciences, Education, Aviation, and Health and Human Services held the strongest combinations for graduating students in six years. There was no significance for students in the Colleges of Business and Fine Arts. A cross-tabulation table of the colleges shows the number of graduates in Table 29. It also showed that 95% of the graduates were in the College of Health and Human Services followed by the College of Engineering (87%) and the College of Business (86%).

Table 28

Post Hoc Analysis by College of Enrollment for Graduation in 6 Years

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Demographic Variable</th>
<th>Mean Difference</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>Arts &amp; Sciences</td>
<td>.09</td>
<td>.026</td>
<td>.020</td>
</tr>
<tr>
<td>Business</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Health &amp; Human Svcs</td>
<td>.015</td>
<td>.045</td>
<td>.029</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health &amp; Human Svcs</td>
<td>Arts &amp; Sciences Aviation</td>
<td>.16</td>
<td>.044</td>
<td>.007</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.19</td>
<td>.058</td>
<td>.025</td>
</tr>
</tbody>
</table>
Table 29
Number of Graduates by College (Within 6 Years) by Gender

<table>
<thead>
<tr>
<th>College</th>
<th>Yes Males</th>
<th>Yes Females</th>
<th>No Males</th>
<th>No Females</th>
<th>Total</th>
<th>% graduated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>113</td>
<td>257</td>
<td>36</td>
<td>17</td>
<td>423</td>
<td>87</td>
</tr>
<tr>
<td>Business</td>
<td>229</td>
<td>134</td>
<td>40</td>
<td>19</td>
<td>422</td>
<td>86</td>
</tr>
<tr>
<td>Education</td>
<td>104</td>
<td>158</td>
<td>31</td>
<td>33</td>
<td>326</td>
<td>80</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>26</td>
<td>56</td>
<td>5</td>
<td>13</td>
<td>100</td>
<td>82</td>
</tr>
<tr>
<td>Health &amp; Human Svc</td>
<td>7</td>
<td>71</td>
<td>2</td>
<td>2</td>
<td>82</td>
<td>95</td>
</tr>
<tr>
<td>Arts &amp; Sciences</td>
<td>131</td>
<td>165</td>
<td>44</td>
<td>36</td>
<td>376</td>
<td>79</td>
</tr>
<tr>
<td>Aviation</td>
<td>45</td>
<td>11</td>
<td>17</td>
<td>1</td>
<td>74</td>
<td>76</td>
</tr>
</tbody>
</table>

A similar post hoc analysis was done for graduation in six years by race. Table 30 shows the results of this analysis. Table B25 (Appendix B) shows that Whites graduated at the highest rate (55%) followed by Asians (49%) and Hispanics (46%). Native Americans were at the lowest level at 23%.

Examining the data through the students’ college careers, significance continues at both the four and five year mark. The data showed that the students with the highest probability of graduating are White and female. However, for this institution, no matter which one of the colleges were selected, students’ have over a 75% chance of graduating within six years.
Table 30
Post Hoc Analysis by Race for Students who Graduate in 6 Years

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Demographic Variable</th>
<th>Mean Difference</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>Caucasian</td>
<td>.12</td>
<td>.044</td>
<td>.049</td>
</tr>
<tr>
<td>Native American</td>
<td>Caucasian</td>
<td>.47</td>
<td>.128</td>
<td>.004</td>
</tr>
<tr>
<td>Asian</td>
<td>Native American</td>
<td>.44</td>
<td>.145</td>
<td>.030</td>
</tr>
<tr>
<td>Foreign/International</td>
<td>Native American</td>
<td>.48</td>
<td>.151</td>
<td>.021</td>
</tr>
<tr>
<td>Hispanic</td>
<td>Native American</td>
<td>.44</td>
<td>.145</td>
<td>.030</td>
</tr>
</tbody>
</table>

Summary

The review of the findings in this study shows there is a statistically significant difference between undecided and decided college students when comparing retention and graduation rates. This institution loses a lot of students after the second year. It is critical to connect students to academic advisors and develop programs such as First Year and Sophomore Year Experience. These programs are geared to helping students establish relationships to peers and faculty.

On the other hand, there is no statistically significant difference between the two groups when examining grade point average. This shows that entering college without a major does not automatically mean students will leave college without a degree or are not academically able to handle the rigors of college. Retaining students must be done from a holistic perspective. The results of this study suggest that both groups are academically capable of persisting and graduating from college. However, examining these two
cohorts from the perspective of race and gender shows a statistical difference in retention rates, grade point average, and graduation rates. If students are admitted to college, the results of this study suggests that not only academic support tools such as tutoring and Supplemental Instruction but also areas that focus on the students’ experiences outside of the classroom such as multicultural affairs and gender services are critical to overall retention and graduation rates.
CHAPTER VI

CONCLUSION AND RECOMMENDATIONS

The purpose of this study was to compare students who entered college undecided with those who entered decided in two ways: 1) by examining whether there was a difference in retention rates, grade point averages, and graduation rates between the two groups; and 2) measuring the demographic influences of race and gender on these same variables for undecided and decided students.

To answer these questions, this study hypothesized that the two student groups would be relatively equal in retention rates. However, the results showed there was a difference in retention rates between the two study populations. Students who remained undecided after the first year were more likely to leave college. Gordon (1995b) suggested that traditional-aged first-year freshmen are the most obvious group of undecided students because they enter the institution "unable, unready, or unwilling to commit themselves to a specific academic direction" (p. 59). This speaks to the importance of exploring (undecided) students receiving a lot of information in their first year to help them understand themselves as well as academic majors. Research studies have shown that academic advising is an important campus resource that can assist students in building connections and developing campus relationships (Light, 2001; Smith & Gordon, 2003). Creamer (2000) stated the purpose of academic advising is student learning and personal development and academic advising can help a student
begin the development and implementation of educational and life plans. Relationships with academic advisors help to ease some of those initial fears and frustration associated with being undecided and can encourage students to take risks in order to select a major (Beck, 1999).

This study also hypothesized that the two groups would be equal in grade point averages. This hypothesis was accepted. Both undecided and decided students have the same academic ability and can be successful in college. In spite of this, the findings of this study also showed students leave this institution in large numbers, despite good academic standing. This leads one to wonder about campus environment.

While this study showed a difference in graduation rates between the two groups, it also showed that once students have committed to a major, they have better than a 75% chance of graduating within six years.

Likewise, this study answered the question of the influence of race and gender. The study found that race and gender influenced retention rates, grade point average, and graduation rates. Regarding retention, females had a higher retention rate than males. The findings also revealed that grade point averages improved in the second and third year for each racial group. Similar to the study conducted by Hawley and Harris (2005) the impact of race suggests the need for colleges and universities to think about the overall college campus atmosphere. The college environment has a direct influence on academic experiences and outcome, especially for African American students (Allen, 1992; Davis, 1995).
Recommendations for Future Research

This study does generate more questions, so the following is a list of suggestions for future research:

First, it is suggested that this study be replicated. During the replication process it is recommended that the amount of students listed as undecided within the academic colleges be combined with the University Curriculum. Examining all students who were undecided may shed light on the actual number of students who have not decided on a major course of study and could show there are more undecided students than originally thought. It can determine if there still is a difference in retention and graduation rates. Replication could also show the number of times students switch majors and how long it takes for students to make a commitment to a major. Replicating this study could also be conducted with other institutions of similar sizes or with different institutional types. This study was done at a large public institution. Conducting the study at small private schools, schools with religious affiliations or at community colleges will yield more information in order to generalize to a larger population.

Second, it is suggested that more research be done with students of color and their perceptions about their experiences on predominately White college campuses and race specific campuses? The question as to whether students of color would be more successful at race specific institutions has been raised for over a decade. Additional studies in the area of retention at these different campuses through an analysis of the college student experience would enlarge the scope of similar studies done by Wenglinsky (1995) and Coleman (1990). Future research may also need to look at
campus environment including campus resources such as academic advising (Chavous, Harris, Rivas, Helaire, & Green, 2004). A qualitative examination of student’s perception of academic advising services at both types of institutions may address if students are really building campus relationships and making connections on both types of campuses.

Third, it is suggested that more research be done on the perceptions of male and female college students and their experience? Like race, future research should examine why men are more likely to leave college. Social adjustment along with academic integration and commitment as was studied by Schwartz and Washington (1999) would be a good start in examining this difference and possibly determining strategies for retaining males. A longitudinal qualitative analysis comprised of male college students contacted each academic year and during an exit interview when it is determined the student will leave can deepen the examination of why males leave college.

Fourth, it is suggested that more research be done to examine if stereotyping plays a role in the selection of academic major? Kuo (2001), for example, suggested that across gender, Asian American undergraduate students are affected by persistent stereotypes. This means these students struggle with having to make a choice between selecting major programs of study that connect with their individual identity or the group’s image. As with Asian American students, this dilemma may be experienced across races and among males and females. Through a qualitative analysis, it may be possible that stereotypes impact how men and women select major programs of study and therefore affect how academically successful they are in those majors. A quantitative
analysis of gender, college of enrollment, and grade point average may also determine the differences in grade point average between males and females in various majors.

Finally, it is suggested that academic advising services be assessed for effective in the retention of students? Assessment is also a critical component of any campus resource designed to retain college students. Effective academic advising services assist students with making both educational and personal decisions. “Choosing a major, deciding on a career, getting the requisite education for that career, and overcoming obstacles to studying efficiently are the most salient issues” for new college freshmen (Hill & Sedlacek, 1995, p.34). Resources that are student and learning-centered such as academic advising must regularly be evaluated in order to improve those services and determine how effectively they are serving students. Through a mix of qualitative and quantitative analysis, student satisfaction surveys and focus groups may highlight how academic advising is perceived by students.

Summary

This chapter, as well as this study, was designed to examine the differences between college students who entered their first year undecided or decided about a major program of study. The study compared retention rates, grade point average, and graduation rates for both groups of students. An examination of the impact of race and gender was also examined on these three variables for the two categories of students. It was hypothesized that there would be no significant difference between the two groups. Differences were found, however, in retention and graduation rates. There was no
difference in grade point average. Both groups of students were found to be academically capable to persist and ultimately graduate, but it was determined that students are not making a commitment to this institution in the first or second year. More questions should be considered about the campus environment and student perceptions to improve student retention and graduation rates. Students need to build connections in order to commit to staying in colleges. Research indicates that academic advising has been shown to be the only student service that every college student will utilize so is critical to college student retention and graduation. More studies that examine academic advising and student perception about academic advising may help this institution improve its retention and graduation rates.

Through this study, it was shown that race and gender has a definite impact on retention rates, grade point average, and graduation rates. Again, this raises more questions about campus environment and student perceptions. If all students, no matter the race or gender are academically capable of succeeding in college, this institution should consider promoting more resources aimed at students of color and men that will improve their overall retention and ultimately, graduation rates.

More questions were generated from this study for future research. Suggestions for future studies include replication of this study along with qualitative analyses by race and gender on students’ perceptions of campus environment. An examination of the impact of stereotyping on major selection and more assessment of academic advising services was also recommended.
REFERENCES


Ferris State University. Faculty Center for Teaching and Learning. Retrieved April 13, 2006 from http://www.ferris.edu/HTMPLS/academics/center/Teaching_and_Learning_Tips/College_Student_Development_Theories_and_Application/indexCollegeStudentDev.htm


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Western Michigan University (2005) Undergraduate Catalog. Self-Published.


Appendix A

HSIRB Approval Letter
Date: June 19, 2007

To: Charles Warfield, Principal Investigator
    Betty Davis, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number: 07-06-13

This letter will serve as confirmation that your research project entitled “Retaining Exploring Students: A Comparison Study of Decided and Undecided College Students” has been approved under the exempt category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: June 19, 2008
Appendix B

Study Population and Demographics
Study Population

The data for this study consisted of information gathered as a part of normal institutional research. There was no student participation.

Demographics

Twenty-six percent (n = 1,142) of the students entered college undecided (UNV). The other students selected majors in the seven academic colleges for a total of 4,435 students.

Race and Gender

Table B1 tells us that largest group of students were Whites (Caucasians) with 4,018, followed by African Americans (n = 179) and then Hispanic students (n = 80).

Table B1

Demographic Breakdown by Race

<table>
<thead>
<tr>
<th>Race</th>
<th>(N)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American (Black)</td>
<td>179</td>
<td>4</td>
</tr>
<tr>
<td>White</td>
<td>4018</td>
<td>91</td>
</tr>
<tr>
<td>Latino (Hispanic)</td>
<td>80</td>
<td>1.8</td>
</tr>
<tr>
<td>Native American</td>
<td>13</td>
<td>.3</td>
</tr>
<tr>
<td>Asian</td>
<td>89</td>
<td>2</td>
</tr>
<tr>
<td>Foreign/International</td>
<td>73</td>
<td>1.6</td>
</tr>
<tr>
<td>Missing Data</td>
<td>3</td>
<td>.07</td>
</tr>
<tr>
<td>Total</td>
<td>4435</td>
<td></td>
</tr>
</tbody>
</table>
Likewise, Table B2 shows there were 2,352 (53%) women enrolled in the fall 2000 semester and 2,083 (47%) men were enrolled.

### Table B2
Demographic Breakdown by Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>(N)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>2083</td>
<td>47</td>
</tr>
<tr>
<td>Female</td>
<td>2352</td>
<td>53</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>4435</td>
<td>100</td>
</tr>
</tbody>
</table>

**College of Enrollment**

The data in Table B3 shows a breakdown of student by college. University Curriculum (UNV) had the largest number of students with 26% (n = 1,142). This was followed by the College of Business (n = 814) and the College of Arts and Sciences (n = 813).

### Table B3
Breakdown of College Enrollment

<table>
<thead>
<tr>
<th>College</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering and Applied Sciences</td>
<td>417</td>
</tr>
<tr>
<td>Business</td>
<td>814</td>
</tr>
<tr>
<td>Education</td>
<td>741</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>215</td>
</tr>
<tr>
<td>Health and Human Services</td>
<td>121</td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>813</td>
</tr>
<tr>
<td>Aviation</td>
<td>172</td>
</tr>
<tr>
<td>University Curriculum</td>
<td>1142</td>
</tr>
<tr>
<td>Total</td>
<td>4435</td>
</tr>
</tbody>
</table>
Next, Tables B4 and B5 show the seven academic colleges broken down by race and gender. Table B4 shows the majority of African Americans select a major in the College of Arts and Sciences (n = 44) followed by the University Curriculum (n = 43). The majority of Latinos conversely select the University Curriculum (n = 22) and then the College of Arts and Sciences (n = 19). By the same token, the majority of Asians select Business as their top choice for major (n = 21) followed by the University Curriculum (n = 15) while the top choice for Whites was the University Curriculum (n = 1058) and the College of Business (n = 714). Native Americans select the College of Arts and Sciences (n = 4) followed by the College of Fine Arts (n = 3). Table B5 shows the most popular major for women was University Curriculum (n = 638) and the College of Education (n = 552). Similarly, the top choice for men was University Curriculum (n = 504) followed by the College of Business (n = 474).

Table B4
College Enrollment by Race

<table>
<thead>
<tr>
<th>Race</th>
<th>African American</th>
<th>Native American</th>
<th>Asian</th>
<th>Foreign</th>
<th>Latino (Hispanic)</th>
<th>White</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>21</td>
<td>2</td>
<td>7</td>
<td>10</td>
<td>12</td>
<td>365</td>
<td>417</td>
</tr>
<tr>
<td>Business</td>
<td>38</td>
<td>0</td>
<td>21</td>
<td>26</td>
<td>15</td>
<td>714</td>
<td>814</td>
</tr>
<tr>
<td>Education</td>
<td>18</td>
<td>1</td>
<td>7</td>
<td>5</td>
<td>10</td>
<td>700</td>
<td>741</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>199</td>
<td>215</td>
</tr>
<tr>
<td>Health and Human Services</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>115</td>
<td>121</td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>44</td>
<td>4</td>
<td>8</td>
<td>25</td>
<td>19</td>
<td>712</td>
<td>812</td>
</tr>
<tr>
<td>Aviation</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>155</td>
<td>171</td>
</tr>
<tr>
<td>University Curriculum</td>
<td>43</td>
<td>2</td>
<td>15</td>
<td>1</td>
<td>22</td>
<td>1058</td>
<td>1141</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>13</td>
<td>69</td>
<td>73</td>
<td>80</td>
<td>4018</td>
<td>4432</td>
</tr>
</tbody>
</table>
Table B5

College Enrollment by Gender

<table>
<thead>
<tr>
<th>College</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering and Applied Sciences</td>
<td>357</td>
<td>60</td>
<td>417</td>
</tr>
<tr>
<td>Business</td>
<td>474</td>
<td>340</td>
<td>814</td>
</tr>
<tr>
<td>Education</td>
<td>189</td>
<td>552</td>
<td>741</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>60</td>
<td>155</td>
<td>215</td>
</tr>
<tr>
<td>Health and Human Services</td>
<td>8</td>
<td>113</td>
<td>121</td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>350</td>
<td>463</td>
<td>813</td>
</tr>
<tr>
<td>Aviation</td>
<td>141</td>
<td>31</td>
<td>172</td>
</tr>
<tr>
<td>University Curriculum</td>
<td>504</td>
<td>638</td>
<td>1142</td>
</tr>
<tr>
<td>Total</td>
<td>2083</td>
<td>2352</td>
<td>4435</td>
</tr>
</tbody>
</table>

Grade Point Average

The next set of tables depicts grade point averages after the first year of college.

The majority (46%) of the students, as shown in Table B6, had above a 3.00 grade point average (n = 2,042).

Table B6

Fall 2000 Grade Point Average

<table>
<thead>
<tr>
<th>Range</th>
<th>(N)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.00 - 3.00</td>
<td>2042</td>
<td>46</td>
</tr>
<tr>
<td>2.99 - 2.00</td>
<td>1516</td>
<td>34</td>
</tr>
<tr>
<td>1.99 - 1.00</td>
<td>566</td>
<td>13</td>
</tr>
<tr>
<td>0.99 - 0.00</td>
<td>266</td>
<td>6</td>
</tr>
<tr>
<td>Missing</td>
<td>45</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>4435</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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A deeper examination of grade point averages follows. The data depicted in Tables B7 and B8 show a comparison. It reveals, by race and gender that combined 38% of Blacks, Latinos, Native Americans and Asians (n = 128) fell in the top range for grade point average (4.00–3.00) and 47% of Whites (n = 1867) were in the same range.

Likewise, Blacks, Latinos, and Asians had approximately the same percentage of students above the 2.00 grade point average range, 71.5% (n = 128), 74% (n = 58), and 75% (n = 52) respectively. Moreover, a look at gender (Table 12) shows 53% of women (n = 1237) and 39% of men (n = 805) were in the top grade point average range. Overall 86% (n = 2000) of females and 75% (n = 1558) of males had above a grade point average of 2.00 (up to 4.00).

Table B7

<table>
<thead>
<tr>
<th>Race</th>
<th>4.00 – 3.00</th>
<th>2.99 – 2.00</th>
<th>1.99 – 1.00</th>
<th>0.99 – 0.00</th>
<th>Total</th>
<th>% (above 2.00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>61</td>
<td>67</td>
<td>34</td>
<td>17</td>
<td>179</td>
<td>71.5</td>
</tr>
<tr>
<td>Caucasian</td>
<td>1867</td>
<td>1375</td>
<td>500</td>
<td>233</td>
<td>3975</td>
<td>81.5</td>
</tr>
<tr>
<td>Latino (Hispanic)</td>
<td>33</td>
<td>25</td>
<td>11</td>
<td>9</td>
<td>78</td>
<td>74</td>
</tr>
<tr>
<td>Native American</td>
<td>5</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>13</td>
<td>92</td>
</tr>
<tr>
<td>Asian</td>
<td>29</td>
<td>23</td>
<td>15</td>
<td>2</td>
<td>69</td>
<td>75</td>
</tr>
<tr>
<td>Foreign/International</td>
<td>46</td>
<td>18</td>
<td>5</td>
<td>4</td>
<td>73</td>
<td>88</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2041</strong></td>
<td><strong>1515</strong></td>
<td><strong>566</strong></td>
<td><strong>265</strong></td>
<td><strong>4387</strong></td>
<td><strong>81</strong></td>
</tr>
</tbody>
</table>
Likewise, Table B9 shows a breakdown of grade point averages by college of enrollment. Students in the College of Fine Arts were more likely to fall in the range of 4.00–3.00 (60%) followed by the College of Health and Human Services (57%) and the College of Business (54%). The College of Engineering had the least amount of students above a 3.00 grade point average (27.5%).

Table B9
Grade Point Average by College of Enrollment

<table>
<thead>
<tr>
<th>College</th>
<th>4.00 - 3.00</th>
<th>2.99 - 2.00</th>
<th>1.99 - 1.00</th>
<th>0.99 - 0.00</th>
<th>Total</th>
<th>% (above 3.00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>115</td>
<td>171</td>
<td>84</td>
<td>47</td>
<td>417</td>
<td>27.5</td>
</tr>
<tr>
<td>Business</td>
<td>438</td>
<td>243</td>
<td>82</td>
<td>44</td>
<td>807</td>
<td>54</td>
</tr>
<tr>
<td>Education</td>
<td>363</td>
<td>251</td>
<td>100</td>
<td>24</td>
<td>738</td>
<td>49</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>129</td>
<td>61</td>
<td>18</td>
<td>6</td>
<td>214</td>
<td>60</td>
</tr>
<tr>
<td>Health &amp; Human Svcs</td>
<td>67</td>
<td>33</td>
<td>14</td>
<td>4</td>
<td>118</td>
<td>57</td>
</tr>
<tr>
<td>Arts &amp; Sciences</td>
<td>346</td>
<td>274</td>
<td>115</td>
<td>65</td>
<td>800</td>
<td>43</td>
</tr>
<tr>
<td>Aviation</td>
<td>75</td>
<td>70</td>
<td>19</td>
<td>7</td>
<td>171</td>
<td>44</td>
</tr>
<tr>
<td>University Curriculum</td>
<td>509</td>
<td>413</td>
<td>134</td>
<td>69</td>
<td>1125</td>
<td>45</td>
</tr>
</tbody>
</table>

An analysis of the nominal variables (race, gender, college of enrollment and retention) was examined. Table B10 is the Chi square analysis for these variables.
B9 shows that all variables were significant. However, caution should be used when
determining generalizability for gender and retention because the groups are small (Glass
& Hopkins, 1996).

Table B10

<table>
<thead>
<tr>
<th>Variable</th>
<th>(df)</th>
<th>(N)</th>
<th>($X^2$ Value)</th>
<th>(p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>5</td>
<td>4435</td>
<td>1748.96</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Gender</td>
<td>1</td>
<td>4435</td>
<td>16.32</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>College of Enrollment</td>
<td>7</td>
<td>4435</td>
<td>1772.26</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Retention</td>
<td>1</td>
<td>4435</td>
<td>1278.28</td>
<td>&lt;.01</td>
</tr>
</tbody>
</table>

Following college enrollment and race demographics, the relationships between
race, gender, college of enrollment, grade point average and retention were examined.
Table B11 examines these relationships.

An examination of which students returned for the second year was also done.
Tables B12, B13, and B14 show the breakdown by race, gender, and college of
enrollment, respectively. Seventy-seven percent of the total number of students returned
for the second year. While Whites (77%) had the largest number of students to return,
followed by African Americans (70%), Hispanics (74%) and Asians (74%), it was Native
Americans with the highest rate of return (92%).
Table B11

Correlations Between Demographics Fall 2000

<table>
<thead>
<tr>
<th></th>
<th>Race of Participant</th>
<th>Gender of Participant</th>
<th>College of Enrollment (Fall 2000)</th>
<th>Fall 2000 Cumulative GPA</th>
<th>Retention to the 2nd Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race of Participant</td>
<td>—</td>
<td>-.006</td>
<td>.020</td>
<td>.064**</td>
<td>.037**</td>
</tr>
<tr>
<td>Gender of Participant</td>
<td>.693</td>
<td>.173</td>
<td>4432</td>
<td>.000</td>
<td>.015</td>
</tr>
<tr>
<td>College of Enrollment</td>
<td>—</td>
<td>.000</td>
<td>4432</td>
<td>.000</td>
<td>.005</td>
</tr>
<tr>
<td>Fall 2000</td>
<td>—</td>
<td>4390</td>
<td>4435</td>
<td>.005</td>
<td>.054**</td>
</tr>
<tr>
<td>Cumulative GPA</td>
<td>—</td>
<td>—</td>
<td>4435</td>
<td>—</td>
<td>.369**</td>
</tr>
<tr>
<td>Retention to the 2nd Year</td>
<td>—</td>
<td>—</td>
<td>4390</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

** Significant at 0.01 level.

Table B12

Students Who Returned For Second Year by Race

<table>
<thead>
<tr>
<th>Did student return for second year?</th>
<th>African American</th>
<th>Native American</th>
<th>Asian</th>
<th>Foreign International</th>
<th>Hispanic</th>
<th>White</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>126</td>
<td>12</td>
<td>51</td>
<td>48</td>
<td>59</td>
<td>3110</td>
<td>3406</td>
</tr>
<tr>
<td>No</td>
<td>53</td>
<td>1</td>
<td>18</td>
<td>25</td>
<td>21</td>
<td>908</td>
<td>1026</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>13</td>
<td>69</td>
<td>73</td>
<td>80</td>
<td>4018</td>
<td>4432</td>
</tr>
</tbody>
</table>

A look at gender shows more females (78.5%) than males (75%) returned for the second year.

152
Table B13

Students Who Returned For Second Year by Gender

<table>
<thead>
<tr>
<th>Did student return for second year?</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1561</td>
<td>1847</td>
<td>3408</td>
</tr>
<tr>
<td>No</td>
<td>522</td>
<td>505</td>
<td>1027</td>
</tr>
<tr>
<td>Total</td>
<td>2083</td>
<td>2352</td>
<td>4435</td>
</tr>
</tbody>
</table>

Table B14 shows the number of students who returned for the second year by college. University Curriculum had the largest number of students returning (839) followed by the Colleges of Business (657), Education (602), and Arts and Sciences (591).

Table B14

Students Who Returned For Second Year by College

<table>
<thead>
<tr>
<th>Student return?</th>
<th>Engineering</th>
<th>Business</th>
<th>Education</th>
<th>Fine Arts</th>
<th>Health &amp; Human Svcs</th>
<th>Arts &amp; Sciences</th>
<th>Aviation</th>
<th>University Curriculum</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>313</td>
<td>657</td>
<td>602</td>
<td>172</td>
<td>86</td>
<td>591</td>
<td>148</td>
<td>839</td>
<td>3408</td>
</tr>
<tr>
<td>No</td>
<td>104</td>
<td>157</td>
<td>139</td>
<td>43</td>
<td>35</td>
<td>222</td>
<td>24</td>
<td>303</td>
<td>1027</td>
</tr>
<tr>
<td>Total</td>
<td>417</td>
<td>814</td>
<td>741</td>
<td>215</td>
<td>121</td>
<td>813</td>
<td>172</td>
<td>1142</td>
<td>4435</td>
</tr>
</tbody>
</table>

The subsequent years were also examined using correlation analysis. For the second and third years, both race and gender with grade point average showed significance ($r = .097, p < .01$ and $r = .183, p < .01$, respectively). However, significance was found for gender with college of enrollment ($r = .089, p < .000$) and retention ($r = .081, p < .01$). A negative relationship with no significance was found between college of enrollment and the two variables Fall 2001 grade point average ($r = -.003, p < .851$) and
retention to the third year \((r = -.045, p < .009)\). Also, race showed no significance with retention to the third year \((r = .034, p < .024)\). Table B15 shows this data.

Table B15

Correlations Between Demographics Fall 2001

<table>
<thead>
<tr>
<th></th>
<th>Race of Participant</th>
<th>Gender of Participant</th>
<th>College of Enrollment (Fall 2001)</th>
<th>Fall 2001 Cumulative GPA</th>
<th>Retention to the 3rd Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race of Participant</td>
<td>-0.006</td>
<td>.011</td>
<td>.097**</td>
<td>.034*</td>
<td></td>
</tr>
<tr>
<td>Participant</td>
<td>.693</td>
<td>.514</td>
<td>.000</td>
<td>.024</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4432</td>
<td>3406</td>
<td>3371</td>
<td>4432</td>
<td></td>
</tr>
<tr>
<td>Gender of Participant</td>
<td>.089</td>
<td>.097**</td>
<td>.183**</td>
<td>.081**</td>
<td></td>
</tr>
<tr>
<td>Participant</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3408</td>
<td>3373</td>
<td>4435</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Enrollment</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>(Fall 2001)</td>
<td>—</td>
<td>—</td>
<td>.003</td>
<td>-.045**</td>
<td></td>
</tr>
<tr>
<td>Fall 2001</td>
<td>.851</td>
<td>.851</td>
<td>.380**</td>
<td>.3373</td>
<td></td>
</tr>
<tr>
<td>Cumulative GPA</td>
<td>3372</td>
<td>3408</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retention to the 3rd Year</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Significant at 0.01 level.

The next set of tables (B16, B17, B18) follows by showing students who did return for the third year. Table B16 shows this information by race, Table B17 is by gender, and Table B18 is by college of enrollment. Interestingly, this institution lost almost 500 more students after the sophomore year. The smallest group of students, Native Americans, lost an additional three students which diminishes their population significantly.

Table B17 shows that more males (276) than females (216) left after the sophomore year.
Table B16

Students Who Returned For Third Year by Race

<table>
<thead>
<tr>
<th>Did student return for third year?</th>
<th>African American</th>
<th>Native American</th>
<th>Asian</th>
<th>Foreign International</th>
<th>Hispanic</th>
<th>White</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>108</td>
<td>9</td>
<td>42</td>
<td>39</td>
<td>50</td>
<td>2666</td>
<td>2914</td>
</tr>
<tr>
<td>No</td>
<td>71</td>
<td>4</td>
<td>27</td>
<td>34</td>
<td>30</td>
<td>1352</td>
<td>1518</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>13</td>
<td>69</td>
<td>73</td>
<td>80</td>
<td>4018</td>
<td>4432</td>
</tr>
</tbody>
</table>

Table B17

Students Who Returned For Third Year by Gender

<table>
<thead>
<tr>
<th>Did student return for third year?</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1285</td>
<td>1631</td>
<td>2916</td>
</tr>
<tr>
<td>No</td>
<td>798</td>
<td>721</td>
<td>1519</td>
</tr>
<tr>
<td>Total</td>
<td>2083</td>
<td>2352</td>
<td>4435</td>
</tr>
</tbody>
</table>

Table B18

Students Who Returned For Third Year by College

<table>
<thead>
<tr>
<th>Student return?</th>
<th>Engineering</th>
<th>Business</th>
<th>Education</th>
<th>Fine Arts</th>
<th>Health &amp; Human Svcs</th>
<th>Arts &amp; Sciences</th>
<th>Aviation</th>
<th>University Curriculum</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>264</td>
<td>566</td>
<td>546</td>
<td>148</td>
<td>72</td>
<td>498</td>
<td>126</td>
<td>696</td>
<td>2916</td>
</tr>
<tr>
<td>No</td>
<td>153</td>
<td>248</td>
<td>195</td>
<td>67</td>
<td>49</td>
<td>315</td>
<td>46</td>
<td>446</td>
<td>1519</td>
</tr>
<tr>
<td>Total</td>
<td>417</td>
<td>814</td>
<td>741</td>
<td>215</td>
<td>121</td>
<td>813</td>
<td>172</td>
<td>1142</td>
<td>4435</td>
</tr>
</tbody>
</table>

Likewise, Table B19 shows the examination of students after the third year and also studies retention to the fourth year. Significance was found with race and gender with grade point average and retention to the fourth year ($r = .108, p < .01$ and $r = .183, p < .01$, $r = .059, p < .01$ and $r = .079, p < .01$, respectively). A negative relationship with no significance was found with race and college of enrollment ($r = -.011, p < .565$) while the opposite was found with gender and college of enrollment ($r = .116, p < .01$).

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Significance was also found with college of enrollment and grade point average \( (r = .056, \ p = .002) \) and retention to the fourth year, although this relationship was negative \( (r = -0.059, \ p = .001) \). A high level of significance for grade point average and retention continued this year \( (r = .250, \ p < .01) \).

Table B19

Correlations Between Demographics Fall 2002

<table>
<thead>
<tr>
<th></th>
<th>Race of Participant</th>
<th>Gender of Participant</th>
<th>College of Enrollment (Fall 2002)</th>
<th>Fall 2002 Cumulative GPA</th>
<th>Retention to the 4th Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race of Participant</td>
<td>—</td>
<td>-0.006</td>
<td>-.011</td>
<td>.108**</td>
<td>.059**</td>
</tr>
<tr>
<td>Gender of Participant</td>
<td>.693</td>
<td>.565</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4432</td>
<td>2914</td>
<td>2889</td>
<td>4432</td>
<td></td>
</tr>
<tr>
<td>Gender of Participant</td>
<td>—</td>
<td>.116**</td>
<td>.183**</td>
<td>.079**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2914</td>
<td>2891</td>
<td>4435</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Enrollment</td>
<td>—</td>
<td></td>
<td>.056</td>
<td>-0.059**</td>
<td></td>
</tr>
<tr>
<td>(Fall 2002)</td>
<td></td>
<td></td>
<td>.002</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2866</td>
<td>2916</td>
<td></td>
</tr>
<tr>
<td>Fall 2002</td>
<td>—</td>
<td></td>
<td>.250**</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Cumulative GPA</td>
<td></td>
<td></td>
<td>2891</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retention to the 4th Year</td>
<td></td>
<td></td>
<td>—</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Significantly at 0.01 level.

A more in-depth look at the retention to the fourth year is in the next three tables. Tables B20 shows race, Table B21 shows gender, and Table B22 shows retention by college. By the time students should have entered their senior year of college there was an additional loss of another 189 students.

Table B21 shows the loss of students by gender. The majority of students who didn't return for the fourth year were females (100).
Table B20

Students Who Returned For Fourth Year by Race

<table>
<thead>
<tr>
<th>Did student return for fourth year</th>
<th>African American</th>
<th>Native American</th>
<th>Asian</th>
<th>Foreign International</th>
<th>Hispanic</th>
<th>White</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>91</td>
<td>6</td>
<td>38</td>
<td>37</td>
<td>44</td>
<td>2509</td>
<td>2725</td>
</tr>
<tr>
<td>No</td>
<td>88</td>
<td>7</td>
<td>31</td>
<td>36</td>
<td>36</td>
<td>1509</td>
<td>1707</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>13</td>
<td>69</td>
<td>73</td>
<td>80</td>
<td>4018</td>
<td>4432</td>
</tr>
</tbody>
</table>

Table B21

Students Who Returned For Fourth Year by Gender

<table>
<thead>
<tr>
<th>Did student return for fourth year</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1196</td>
<td>1531</td>
<td>2727</td>
</tr>
<tr>
<td>No</td>
<td>887</td>
<td>821</td>
<td>1708</td>
</tr>
<tr>
<td>Total</td>
<td>2083</td>
<td>2352</td>
<td>4435</td>
</tr>
</tbody>
</table>

The University Curriculum (50) and the College of Arts and Sciences (45) had the greatest loss of students by college. This was followed by the College of Education with 28 students. Table B22 shows this data.

Table B22

Students Who Returned For Fourth Year by College

<table>
<thead>
<tr>
<th>Student return?</th>
<th>Engineering</th>
<th>Business</th>
<th>Education</th>
<th>Fine Arts</th>
<th>Health &amp; Human Svcs</th>
<th>Arts &amp; Sciences</th>
<th>Aviation</th>
<th>University Curriculum</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>240</td>
<td>544</td>
<td>518</td>
<td>137</td>
<td>66</td>
<td>453</td>
<td>123</td>
<td>646</td>
<td>2727</td>
</tr>
<tr>
<td>No</td>
<td>177</td>
<td>270</td>
<td>223</td>
<td>78</td>
<td>55</td>
<td>360</td>
<td>49</td>
<td>496</td>
<td>1708</td>
</tr>
<tr>
<td>Total</td>
<td>417</td>
<td>814</td>
<td>741</td>
<td>215</td>
<td>121</td>
<td>813</td>
<td>172</td>
<td>1142</td>
<td>4435</td>
</tr>
</tbody>
</table>
The next table, Table B23, not only looks at Fall 2003 and if students returned for a fifth year, but also shows the correlations with students who graduated after four years. Once again, race shows a negative relationship and is not significant with college of enrollment ($r = -.016, p = .413$). Race with grade point average is still significant ($r = .117, p < .01$) and graduation in four years ($r = .053, p < .01$) but is not significant with retention to the fifth year ($r = .006, p < .713$). The same is true for gender. With grade point average and graduation in four years, gender is significant ($r = .193, p < .01$ and $r = .095, p < .01$, respectively). However, there is no significance with gender and retention.

Table B23

Correlations Between Demographics Fall 2003

<table>
<thead>
<tr>
<th></th>
<th>Race of Participant</th>
<th>Gender of Participant</th>
<th>College of Enrollment (Fall 2003)</th>
<th>Fall 2003 Cumulative GPA</th>
<th>Retention to the 5th Year</th>
<th>Did student graduate after 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race of Participant</td>
<td>—</td>
<td>-0.06</td>
<td>-0.016</td>
<td>0.117**</td>
<td>0.006</td>
<td>0.053**</td>
</tr>
<tr>
<td>Gender of Participant</td>
<td>0.693</td>
<td>0.413</td>
<td>0.000</td>
<td>0.713</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>4.432</td>
<td>2.713</td>
<td>2.714</td>
<td>4.432</td>
<td>4.432</td>
<td></td>
</tr>
<tr>
<td>Gender of Participant</td>
<td>—</td>
<td>0.025</td>
<td>0.193**</td>
<td>0.011</td>
<td>0.095**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.200</td>
<td>0.000</td>
<td>0.471</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.715</td>
<td>2.716</td>
<td>4.435</td>
<td>4.435</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Enrollment</td>
<td>—</td>
<td>0.043</td>
<td>-0.176**</td>
<td>0.148</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Fall 2003)</td>
<td>0.025</td>
<td>0.000</td>
<td>0.471</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2003</td>
<td>—</td>
<td></td>
<td>0.200**</td>
<td>0.327**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative GPA</td>
<td>0.000</td>
<td></td>
<td>0.000</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retention to the 5th Year</td>
<td>—</td>
<td></td>
<td>-0.402</td>
<td>0.000</td>
<td></td>
<td>4.435</td>
</tr>
<tr>
<td>Did student graduate after 4 years</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Significant at 0.01 level
to the fifth year \((r = .011, p < .471)\). College of enrollment does not show significance with grade point average \((r = .043, p = .025)\). Of particular interest is the relationship between college of enrollment and retention to the fifth year. Just like retention to previous years, retention to the fifth year is negative \((r = -.176, p < .01)\), which tells us that while there is significance, college of enrollment does not lead to retention to the fifth year. On the other hand, college of enrollment with graduation after four years is significant \((r = .148, p < .01)\) so the college of enrollment does factor into students graduating after four years. Grade point average, retention to the fifth year, and graduating in four years all show significance with each other.

With students in their final years of college, college of enrollment did not change. The next year continues the negative insignificant relationship with race \((r = -.035, p = .134)\) and gender \((r = -.028, p = .240)\) and college of enrollment for the 2004 year. There continues to be significance in race and gender with grade point average \((r = .146, p < .01 \text{ and } r = .204, p < .01\), respectively\)) and with graduation in five years \((r = .065, p < .01 \text{ and } r = .128, p < .01\), respectively\). With the majority of students graduated by now, the relationships with retention to the sixth year are negative. Although there is slight significance with gender \((r = -.032, p = .035)\) and strong significance with grade point average \((r = -.255, p < .01)\), the relationships do not impact each other. Likewise, significant relationships were evident with race \((r = .065, p < .01)\), gender \((r = .128, p < .01)\), and grade point average \((r = .415, p < .01)\) with graduation after five years. This data is depicted in Table B24.
Table B24
Correlations Between Demographics Fall 2004

<table>
<thead>
<tr>
<th>Race of Participant</th>
<th>Gender of Participant</th>
<th>College of Enrollment (Fall 2004)</th>
<th>Fall 2004 GPA</th>
<th>Retention to the 6th Year</th>
<th>Did student graduate after 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-.006</td>
<td>-.035</td>
<td>.146**</td>
<td>-.002</td>
<td>.065**</td>
</tr>
<tr>
<td>-.002</td>
<td>.065**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.693</td>
<td>.134</td>
<td>1814</td>
<td>1805</td>
<td>4432</td>
<td>4432</td>
</tr>
<tr>
<td>.240</td>
<td>.000</td>
<td>1814</td>
<td>1805</td>
<td>4435</td>
<td>.128**</td>
</tr>
<tr>
<td>-.028</td>
<td>.204**</td>
<td>-1.00</td>
<td>-.039**</td>
<td>-0.63</td>
<td></td>
</tr>
<tr>
<td>.240</td>
<td>.000</td>
<td>1814</td>
<td>.094</td>
<td>.007</td>
<td></td>
</tr>
<tr>
<td>-.032</td>
<td>.128**</td>
<td>1792</td>
<td>1814</td>
<td>1814</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-0.28</td>
<td></td>
<td>-.255**</td>
<td>.415**</td>
<td></td>
</tr>
<tr>
<td>.240</td>
<td>.000</td>
<td>1805</td>
<td>.000</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>-.100</td>
<td>-.039**</td>
<td>1792</td>
<td>1805</td>
<td>1805</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-0.338**</td>
<td></td>
<td></td>
<td>-0.63</td>
<td></td>
</tr>
</tbody>
</table>

** Significant at 0.01 level

Table B25
Cross-tabulation of Graduation (within 6 years) and Race

<table>
<thead>
<tr>
<th>Race</th>
<th>Did Student Graduate within 6 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (%)</td>
</tr>
<tr>
<td>African American</td>
<td>72 (40)</td>
</tr>
<tr>
<td>Native American</td>
<td>3 (23)</td>
</tr>
<tr>
<td>Asian American</td>
<td>34 (49)</td>
</tr>
<tr>
<td>Foreign</td>
<td>33 (77)</td>
</tr>
<tr>
<td>Latino American</td>
<td>37 (46)</td>
</tr>
<tr>
<td>White</td>
<td>2219 (55)</td>
</tr>
</tbody>
</table>

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### Table B26

Cross-tabulation of Graduation (within 6 years) and Gender

<table>
<thead>
<tr>
<th>Did Student Graduate within 6 years?</th>
<th>Females (%)</th>
<th>Males (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1403 (60)</td>
<td>996 (48)</td>
</tr>
<tr>
<td>No</td>
<td>949</td>
<td>1087</td>
</tr>
<tr>
<td>Total</td>
<td>2352</td>
<td>2083</td>
</tr>
</tbody>
</table>
Appendix C

Data Codes
### Data Codes

<table>
<thead>
<tr>
<th></th>
<th>Code</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Retention</strong></td>
<td>1</td>
<td>1 year</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2 years</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3 years</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4 years</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>5 years</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>6 years</td>
</tr>
<tr>
<td><strong>Grade Point Average</strong></td>
<td>1</td>
<td>4.00 - 3.00</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2.99 - 2.00</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1.99 - 1.00</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>0.99 - 0.00</td>
</tr>
<tr>
<td><strong>Graduation</strong></td>
<td>1</td>
<td>after 4 years</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>after 5 years</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>after 6 years</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td>1</td>
<td>African American (Black)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>White (Caucasian)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Latino (Hispanic)</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Native American</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Asian American</td>
</tr>
</tbody>
</table>