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The University of Southern Mississippi

HOW DID THE STUDENTS CROSS THE STAGE? THE RELATIONSHIP OF  
DEMOGRAPHIC FACTORS ON EARLY SELECTION OF COLLEGE MAJOR

by

Christy Lea Riddle

Abstract of a Dissertation  
Submitted to the Graduate School  
and the Department of Human Capital Development  
at The University of Southern Mississippi  
in Partial Fulfillment of the Requirements  
for the Degree of Doctor of Philosophy

December 2015

## ABSTRACT

### HOW DID THE STUDENTS CROSS THE STAGE? THE RELATIONSHIP OF DEMOGRAPHIC FACTORS ON EARLY SELECTION OF COLLEGE MAJOR

by Christy Lea Riddle

December 2015

Student retention is a highly researched topic studied for many decades, but low retention of college students still exists today. As more states move to success-based funding formulas, it is more important than ever for higher education institutions to increase retention efforts (Swecker, 2011). Colleges and universities launch programs trying to combat and improve retention deficits. Research reveals that student engagement, academic advising, demographics, socioeconomic factors, and early selection of major within the first academic year play a role in retention.

The purpose of this study is to determine if early selection of college majors relates to the demographic factors of gender, ethnicity, age, first-generation college student, and Pell-eligibility. This study is a nonexperimental, descriptive research design utilizing the chi-square test of independence and binary logistic regression. Results indicate that gender is independent of early selection of major, while ethnicity, age, and Pell-eligibility are dependent on early selection of major. The researcher was unable to analyze first-generation college student due to lack of data available.

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2015

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December 2015

## DEDICATION

*Family is not an important thing, it's everything.*

-Michael J. Fox

Thank you to my family, Mary Taylor Montesi, Murray and Laura Riddle, and Clint Johnson, for your constant support and encouragement as I worked on my dissertation. I could not have done this without each of you motivating me along the way. This accomplishment is our accomplishment, and I am forever grateful.

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Three models serve as components of the theoretical framework for this study. Thank you to Dr. Vincent Tinto and Dr. John Bean for the permission to use their models. Thank you to Dr. Corinna Ethington and Dr. John Smart for your guidance on the use of the Holland Model.

Special thanks to individuals and groups at Delta State University for their support and encouragement throughout my dissertation process: Mr. William LaForge, President; Dr. Charles McAdams, Provost/Vice President of Academic Affairs; Dr. Myrtis Tabb, Assistant Vice President of Finance and Administration; and Dr. Beverly Moon, Dean of Graduate & Continuing Studies and Research. Also, special appreciation to Dr. Wayne Blansett, Former Vice President of Student Affairs; and Dr. Ann Lotven, Former Provost/Vice President of Academic Affairs.

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## LIST OF ABBREVIATIONS

<i>ACT</i>	American College Test
<i>DSU</i>	Delta State University
<i>FAFSA</i>	Free Application For Student Aid
<i>GPA</i>	Grade Point Average
<i>SPSS</i>	Statistical Package for the Social Sciences

## CHAPTER I

### INTRODUCTION

In today's economy, a productive workforce is essential. With budget cuts occurring in almost every employment sector, employers must find ways to increase the effectiveness of employees (Ware, Craft, & Kerschenbaum, 2007). Workforce development is no longer an option but a necessity. Research indicates that by 2018, the economy will fully recover from the recession with 46.8 million job openings, 13.8 million newly created jobs and 33 million open positions (Carnevale, Smith, & Strohl, 2010). However, an estimated three million fewer college students will graduate than the job market will require (Sewall, 2010). In 2004, 55% of jobs required postsecondary education (Lotkowski, Robbins, & Noeth, 2004). In 2010, 59% of jobs required postsecondary education (Sewall, 2010). By 2018, researchers anticipate 63% of workers will need a college education (Sewall, 2010).

As the retirement rates for the silent generation and baby boomer generation increase, the skills of the remaining workforce are exceedingly more important (Ware et al., 2007). The Employment Policy Foundation estimates that only 20% of the worker shortage is due to the number of available workers with the remaining 80% due to the lack of skilled workers (Dychtwald, Erickson, & Morison, 2006). Because of the lack of skilled workers, all sectors of society must recognize the importance of developing tomorrow's workforce (Veenstra, 2009).

As cited by Lotkowski et al. (2004), the Education Commission of the States reveals that while recruiting students to universities is still important, retaining them to earn degrees "is just as vital to the economic and social health of the nation" (p. 2). The

lack of college graduates reduces the level of employee talent, threatens the nation's economy, and hinders the vitality of higher education institutions (Lotkowski et al., 2004). Colleges and universities play an integral role in workforce development so they must identify innovative strategies to retain students to graduation (U.S. Department of Education, 2013). Higher education is a valuable component to strengthening tomorrow's workforce and improving the quality of life for the citizens of the United States (Lotkowski et al., 2004). Higher education increases a person's chances of securing positions that offer advancement, higher salaries, and benefits (Lotkowski et al., 2004).

Higher education institutions across the United States struggle with student retention issues (Braxton, Brier, & Steele, 2007; Swecker, 2011; Tinto, 2006). Veenstra (2009) identifies two primary challenges facing higher education institutions: recruitment and retention. Universities must identify effective strategies to first recruit students and then utilize strategies to retain them to graduation (Swecker, 2011). Veenstra (2009) stresses that because of the increase in the number of Millennials entering college, universities cannot continue status quo efforts and expect to see different results, and "the University has a social responsibility to support each student to be successful" (p. 21).

The United States' workplace demands skilled employees with many positions requiring at least a bachelor's degree (U.S. Department of Education, 2013). College dropouts are not qualified for higher skilled jobs, so when universities fail to retain students, the workforce suffers (Lotkowski et al., 2004). Adding to the national retention struggle, many states are moving towards a success-based funding formula linked to graduation rates (Swecker, 2011). The funding formula does not provide equal per-student funding for universities (Hessler, Ziskin, Moore, & Wakhueha, 2008).

Universities with low retention rates receive less funding, which in turn hinders future success of the institution (Hessler et al., 2008). Because of the decline in state and federal funding for higher education and the change in funding formulas, retaining students is more important than in years past (Swecker, 2011).

#### Statement of the Problem

Colleges and universities struggle with student retention (Braxton, Brier, & Steele, 2007). Retention, although widely studied for many years, persists as a problem for most universities (Swecker, 2011). The new trend in public university funding includes adding retention rates and graduation rates in the funding formula provided by state legislatures (Swecker, 2011). Because of the increased pressure of state funding based upon retention and success rates, higher education institutions search for new and enhanced approaches to retain students.

The average fall-to-fall retention rate in four-year universities in the United States is approximately 45-55% (Swecker, 2011). State funding formulas are associated with retention and success rates. As a result, universities without successful strategies to increase graduation and retention rates jeopardize their ability to secure adequate funding and lose the ability to prepare tomorrow's workforce (Becker, 2012; Swecker, 2011). The ultimate goal of attending college is to graduate and secure a career because a bachelor's degree prepares students for life in the real world and teaches the basics needed to succeed in life (Wilcoxson & Wynder, 2010). Early selection of a major discipline contributes to retention and graduation of college students (Cuseo, 2005; Leppel, 2001).

### Purpose of the Study

Research indicates early selection of college major leads to graduation (Wilcoxson & Wynder, 2010). In addition, certain demographic factors including gender, ethnicity, age, first-generation college students, and family income levels play a role in graduating from college (Almaraz, Bassett, & Sawyerr, 2010; Nguyen, Allen, & Fraccastoro, 2005; Stephens, Fryberg, Markus, & Johnson, 2012; Swecker, 2011; Wendover, 2008). The purpose of this study is to determine if early selection of major relates to the demographic factors of gender, ethnicity, age, first-generation college students, and Pell-eligibility.

### Conceptual Underpinnings of the Study

Several demographic and socioeconomic factors play a role in student retention: gender; ethnicity; age; first-generation; and family income level (Swecker, 2011). Nguyen et al. (2005) state that females have a higher retention rate than males. Mangan (2014) contends that African Americans struggle more than other ethnicities to succeed in college. Pullan (2009) indicates that millennials are more likely to drop out or change colleges than previous generations. Stephens et al. (2012) finds that first-generation college students face more difficulty in staying in college than second- or third-generation students. Stephens et al. (2012) also identifies low family income as a challenge of college success.

This study seeks to determine if specific demographic factors play a role in the early selection of college major, which in turn affects retention leading to graduation. This study builds upon three theories: (a) Tinto's student integration theory, (b) Bean and



Eaton's psychological model of student success, and (c) Holland's person-environment fit theory. Figure 1 depicts the conceptual framework of this study.

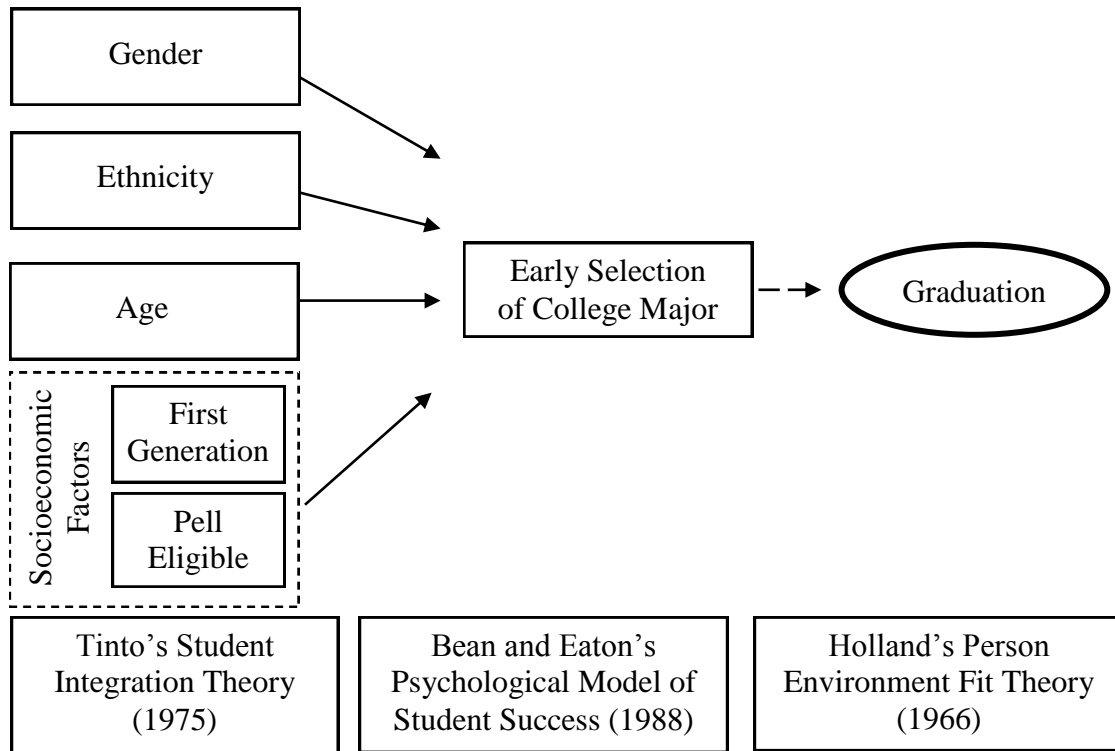


Figure 1. Conceptual Framework

Tinto's student integration theory links student retention to the internal motivation of the student. The theory proposes that for students to experience success in college, they must have an internal locus of control and be self-motivated to succeed (Tinto, 1975). In addition, the theory relies on the individual student's commitment to goal attainment and success (Tinto, 1975).

Bean and Eaton's psychological model of student retention differs from Tinto's theory, because Bean and Eaton's theory contends that student retention is dependent on external factors outside of the student's control (Swecker, 2011). According to Bean and Metzner (1985), Tinto does not address external factors in the student integration theory. Bean and Eaton's model focuses on the external circumstances that help students

succeed, such as environmental factors, family, friends, and the efforts of the university (Sandler, 2000).

Known traditionally as a career development theory, Holland's person-environment fit theory focuses on the connection between internal and external factors (Smart, Feldman, & Ethington, 2006). In recent years, researchers recognize the relationship of this theory to student success and retention because Holland's theory combines Tinto's theory with Bean and Eaton's model and provides implications that both internal and external factors must coincide for effective retention efforts (Smart et al., 2006). Holland's theory describes psychological and sociological components that include both internal behaviors of college students and external attributes that university environments provide (Smart et al., 2006).

#### Research Objectives

Three research objectives guide this study. To determine if a relationship exists between demographic factors and early selection of college major, this study examines the specific factors of gender, ethnicity, age, first-generation college student, and Pell-eligibility. Early selection of major is the selection of a major within the first year of attending college (Cuseo, 2005). The research objectives of this study are as follows:

- RO1:* Describe the demographic characteristics of the fall 2006, fall 2007, and fall 2008 cohorts of the Delta State University (DSU) student population.
- RO2:* Determine the relationship between the early selection of college major and (a) gender, (b) ethnicity, (c) age, (d) first-generation college student, and (e) Pell-eligibility.

*RO3:* Determine the influence of gender, ethnicity, age, first-generation college student, and Pell-eligibility on the early selection of college major.

### Limitations and Delimitations

Limitations and delimitations exist with every research study (Simon, 2011).

Limitations are possible issues that exist but are out of the researcher's control (Simon, 2011). Delimitations are possible issues that exist but are within the researcher's control (Simon, 2011). The following limitations and delimitations exist with this study.

#### *Limitations*

Four limitations exist for this study. First, this study focuses on the DSU freshmen population from 2006-2008. DSU is a small, rural university located in northwest Mississippi. Because of the differences between urban and rural areas in the United States, the results of this study may not be applicable to urban areas in the United States.

Second, while it would be helpful to ask students who dropped out of DSU why they left, the researcher did not have access to students who left the university. Attrition is the loss in the total overall population over time (Braxton et al., 2007). Students who have dropped out of college are not included in the sample, therefore the data is lacking on this group of students. Shadish, Cook, and Campbell (2002) explain attrition as the impact that the reduction in the population has on the results of the study. Therefore, the data is limited to those students who continued attendance at DSU. This study tracks the fall 2006, fall 2007, and fall 2008 freshmen cohorts through the subsequent six years.

Third, this study examines socioeconomic factors of DSU students. However, the DSU admission application does not ask about socioeconomic factors of first-generation students or household family income. The researcher anticipated obtaining data for first-

generation from the Free Application For Student Aid (FAFSA). However, the FAFSA is not required for admission; therefore, accurate first-generation data was not available, so the researcher was unable to generalize for first-generation. The DSU admission application also does not ask for family income level. However, the DSU Office of Institutional Research does collect data related to Pell grant eligibility. Therefore, the researcher utilized Pell-eligibility for this study.

Fourth, this study utilizes archival data. Archival data is preexisting data collected previously for a different purpose (Lewis-Beck, Bryman, & Liao, 2004). Two primary limitations exist with archival data, selective deposit and selective survival. Selective deposit influences what researchers capture in the data collection process so the researcher's data is limited to data initially entered (Shaughnessy, Zechmeister, & Zechmeister, 2009). Selective survival occurs when existing data records are incomplete, yet the researcher is not aware until data is requested (Shaughnessy et al., 2009).

#### *Delimitations*

Two delimitations exist for the study. First, the study only examines archival data from the fall 2006, fall 2007, and fall 2008 six-year student cohorts, tracking students for six years to determine the success rate. This study does not include other cohorts.

Second, this study only focuses on one rural university located in the Mississippi Delta. The Mississippi Delta is a very poor region in the State of Mississippi and in the United States (Slack et al., 2009). DSU is the second most diverse university in the state with a student population of approximately 55% Caucasian, 40% African American, and 5% other (Mississippi Institutions of Higher Learning, 2015). Because of differences in

ethnicity and socioeconomic factors of students at the other universities in the State of Mississippi, retention issues may differ.

### Definitions of Key Terms

Many definitions and interpretations exist for retention-related terms. For consistency of this study, the researcher utilizes several key terms. The definitions for these terms follow:

*Archival Data.* Data utilized in a different manner than originally collected (Lewis-Beck et al., 2004).

*Attrition.* “A reduction in the overall number of students enrolled at a given institution” (Braxton et al., 2007, p. 378).

*Continuing Generation College Student.* “Students who have at least one parent with a 4-year college degree” (Stephens et al., 2012, p. 1179).

*Departure.* “Decisions made by students to voluntarily leave their college or university” (Braxton et al., 2007, p. 378).

*Descriptive Statistics.* “Involves techniques for describing data in abbreviated, symbolic fashion; a shorthand, a series of precise symbols for the description of what could be great quantities of data” (Sprinthall, 2007, p. 19).

*Early Selection of Major.* “Selecting an academic major within the first year of college attendance” (Cuseo, 2005, p. 28).

*First-Generation College Students.* “Students whose parents have not graduated from college with a four-year degree and have little to no college experience” (Swecker, 2011, p. 22).

*Four-Year Institution.* “A postsecondary institution that offers programs of at least four years duration or one that offers programs at or above the baccalaureate level,” (National Center for Education Statistics, 2014, para. 1).

*Generation.* “A common age location in history and a collective peer personality” (Casison, 2008, p. 44). The four generations in higher education today are as follows below (Howden & Meyer, 2011).

- *Mature/Traditionalist/WWII Generation.* Born prior to 1946.
- *Baby Boomer.* Born 1946-1965.
- *Generation X.* Born 1966-1980.
- *Millennial.* Born 1981-2000.

*Goal Commitment.* “How sure, confident, and committed a student is to an academic and career path” (Tinto, 1993, p. 113).

*Inferential Statistics.* “Involves making predictions of values that are not really known; must be representative of the entire group” (Sprinthall, 2007, p. 19).

*Institutional Commitment.* “The feelings of attachment or belonging that students establish with the institution” (Sandler, 2000, p. 562).

*Integration.* “The extent of shared normative attitudes and values of peers and faculty in the institution and abides by the formal and informal structural requirements for membership in the community” (Sandler, 2000, p. 542).

*Locus of Control.* “A person’s beliefs about control over life events.” (Gifford, Briceno-Perriott, & Mianzo, 2006, p. 20).

*Persistence.* “The continuous enrollment at same four year institution” (Lohfink & Paulsen, 2005, p. 412). Persistence is another term for retention (Braxton et al., 2007).

*Retention.* “The rate at which students persist in their educational program at an institution, expressed as a percentage. For four-year institutions, this is the percentage of first time bachelor’s (or equivalent) degree-seeking undergraduates from the previous Fall who are enrolled in the current fall” (U.S. Department of Education, 2010, p. 27).

*Six-Year Cohort.* The Student Right-To-Know Act of 1990 requires higher education institutions to report graduation rates at 150% of the normal time to complete a bachelor’s degree. The normal time to complete a bachelor’s degree is four years. Therefore, a six-year timeframe is the standard method of measure for college graduation rates. (National Center for Education Statistics, 2014).

*Socioeconomic Factors.* “The social standing or class of an individual or group. It is often measured as a combination of education, income, and occupation” (American Psychological Association, 2015, para. 1).

*Social Responsibility.* “Universities have a social responsibility to help students be successful-especially students admitted because they contribute a desired attribute to the university” (Veenstra, 2009, p. 21).

*Validity.* “A researcher’s data are valid to the extent that the results of the measurement process are accurate. A measuring instrument is valid to the extent that it measures what it purports to measure” (Huck, 2008, p. 88).

*Withdrawal.* “The act of leaving school before graduation, whether or not the student actually formally withdrew from the university” (Murtaugh, Burns, & Schuster, 1999, p. 356).

## Summary

Veenstra (2009) contends that colleges play an integral role in workforce development because higher education institutions prepare tomorrow's workforce. Researchers add that higher education institutions not only play a role in educating tomorrow's workforce, but a social responsibility for colleges to train tomorrow's workforce (Veenstra, 2009). To retain students to graduation, higher education institutions must employ creative strategies to retain students to graduation (Lotkowski et al., 2004). Although studied for years, problems with college student retention continue to be an issue (Braxton et al., 2007; Swecker, 2011; Tinto, 2006). In the past, state funding to higher education institutions linked funding to student ratios and institution size (Hessler et al., 2008). However, the trend of state legislatures in public university funding includes incorporating retention and graduation rates into future funding formulas (Hessler et al., 2008). Because of the change in state funding, colleges and universities search for new, enhanced approaches to improve student retention (Jones, 2013). Once the new funding formula exists, reductions in revenue may occur because of low retention rates (Doubleday, 2013).

Research reveals several basic indicators of college student success, including early selection of major, gender, ethnicity, age, and socioeconomic factors (Almaraz et al., 2010; Chen, 2005; Mangan, 2014; Nguyen, et al., 2005; Swecker, 2011). Research focuses on individual indicators, with specific recommendations for each. Building upon previous research, the purpose of this study is to determine if a relationship exists between demographic factors of gender, ethnicity, age, and the socioeconomic factors of first-generation college student and Pell-eligibility to the early selection of college major.



## CHAPTER II

### REVIEW OF RELATED LITERATURE

Demographic factors play a role in college student retention (Mangan, 2014; Raines, 2002). The early selection of major improves student success and retention to graduation (Cuseo, 2005; Wilcoxson & Wynder, 2010). The purpose of this study is to determine the relationship between demographic factors and the early selection of college major. The following literature review supports this study by first defining today's college student and college student retention. Next, the researcher explains the importance of college student retention and includes a review of existing retention research. The literature review concludes with reasons why students leave college.

#### Today's College Student

The *Condition of Education 2014* report analyzes developments and trends in postsecondary education and reviews fall 2012 college student enrollment across the United States (Grace, Aud, & Johnson, 2014). In fall 2012, approximately 10.6 million students pursued bachelor's degrees at four-year higher education institutions in the United States with 77% of students attending college full time (Grace et al., 2014). In 2012, approximately 97% of the full time undergraduate students attending four-year public higher education institutions were millennials between the ages of 17-33, with 63% Caucasian, 12% African American, 14% Hispanic, 7% Asian, and 4% other ethnicities (Grace et al., 2014). Approximately 41% of full time students worked while attending college, with 7% working 35 or more hours per week, 18% working 20-34 hours per week, and 15% working less than 20 hours per week (Grace et al., 2014).

Understanding the millennial generation is important because the majority of today's full time college students at four-year public institutions are in the millennial generation (VanMeter, Grisaffe, Chonko, & Roberts, 2013). Other names for millennials are generation Y, digital natives, generation like, selfie generation, rainbow generation, and 9/11 generation (Caumont, 2014). Millennials do not know a world without instant access from iPads, cell phones, faxes, laptops, ATM's, and DVD's (Wendover, 2008). Millennials grow up in a vastly different world than their parents and give respect only after they receive respect (Wendover, 2008). Millennials believe in self-expression over self-control, are easily bored, and link their personal beliefs to career goals (Wendover, 2008). Rasmus (2007) contends, "Their lives have been structured with practices, rehearsals, and recitals. Anything that interests them is part of the whole, where traditional distinctions between work, life, learning, and service are blurred" (p. 31).

VanMeter, et al. (2013) states that millennials expect to succeed and are "confident in both themselves and their future, motivated, goal-oriented, optimistic, assertive, and they believe they are 'right'" (p. 94). Millennials have grown up where reports occur 24 hours a day through news media and social media (VanMeter et al., 2013). As cited by Safer (2007), Jeffrey Zaslow, a Wall Street Journal columnist, blames Mister Rogers for a tagline associated with Generation Y, 'You're Special,' and states,

You have a guy like Mister Rogers on TV. He was telling his preschoolers, 'You're special.' And he meant well. But we, as parents, ran with it. And we said, 'You're special.' And for doing what? We didn't really explain that. (para. 25)

Researchers argue as to the level of difference between millennials and other generations. One point of view states millennials are not much different from previous

generations, and the other point of view is that they are completely different from other generations. Nowak (2008) states, “While we once celebrated their childhood confidence and thought they were cute, we now condemn them for their confidence, and they’re arrogant” (p. 1). When asked why millennials lack the skills needed to work, Robert Wendover (2008), Editorial Director of The Center for Generational Studies, defends Generation Y by acknowledging that,

- The millennial generation’s exposure to work differs from previous generations because of the available technology.
- Society as a whole views manual labor as menial tasks and look down upon these type of labor. For example, children do not mow yards; lawn care services do. Parents do not require chores as their parents did when they were young.

Becker (2012) describes key characteristics of today’s college students as choice, flexibility, impatience, result-oriented, and lack of reading. Colleges and universities must understand how to effectively motivate and retain today’s college student, because a one-size-fits-all approach is ineffective (Berger & Lyon, 2005; Swecker, 2011; Tinto, 1993). Employees of universities are often people from previous generations. Therefore, as the millennial students enter college, the previous generations employed at universities face challenges when dealing effectively with the younger generation and its impact on college student retention (Murtaugh et al., 1999).

### College Student Retention

The goal of attending college is to graduate with a degree in order to pursue a career (Tinto, 2006). Along the way of pursuing a degree, obstacles and challenges arise that may hinder students from succeeding and graduating from college. The U.S.

Department of Education (2010) defines *college student retention* as, “The rate at which students persist in their educational program at an institution, expressed as a percentage” (p. 27). The retention rate calculates the percentage of full-time, baccalaureate students who return the following fall (U.S. Department of Education, 2010). Students enter during the first year as one cohort of students and remain as a cohort throughout the degree. *Attrition* is defined as, “A reduction in the overall number of students enrolled at a given institution” (Braxton et al., 2007, p. 378).

Student retention, studied for more than 80 years, is a problem higher education institutions continue to face today (Becker, 2012; Braxton et al., 2007; Tinto, 2006). Each higher education institution has its own set of admissions’ standards with students normally admitted to college three times per year: in fall, spring, or summer. Students have basic similarities, but the demographics, experiences, and interests of the students vary greatly (Becker, 2012). Research reveals that demographic factors are predictors of college student retention (Mangan, 2014; Nguyen et al., 2005; Santonocito, 2008). Veenstra (2009) describes four choices students make at the end of each semester that play a role in the significance of retention: (a) return to the same institution and the same major; (b) remain in the same institution but switch major; (c) leave the institution, and transfer to another institution; or (d) drop out of college.

#### Significance of Retention

Berger and Lyon (2005) explain that college student retention became an issue in the 1970’s, and continues to be an issue faced by colleges today. Charlie Nutt, Executive Director of the National Academic Advising Association states, “There is no silver bullet. Student retention is based on improving the entire undergraduate experience”

(Doubleday, 2013, p. A6). In 1995, only 55% of undergraduates earned a bachelor's degree within six years at the same university (Lotkowski et al., 2004). Seven years later, a 2002 study conducted by the Consortium for Student Retention Data Exchange reports that the statistic remains unchanged with only 55% of students earn a bachelor's degree from the four-year higher education institution where first enrolled (Reason, Terenzini, & Domingo, 2006). In 2010, the statistic is only 60% of undergraduates earning degrees within six years (Schneider, 2010; Swecker, 2011). According to the Education Commission of the States, the retention of students is as important as the recruitment of students because the loss of students before graduation affects the future economic status of the United States (Lotkowski et al., 2004).

According to Reason et al. (2006), universities lose 25% of freshmen before the second year of enrollment. Terenzini, Cabrera, & Bernal (2001) add low-income and underrepresented students drop out at a higher rate. The authors contend, this is “an unacceptable and unnecessary waste of individual, institutional, and national talent and resources” (p. 150). A successful first year of college is essential, because it lays the foundation for the students' remaining years (Reason et al., 2006).

Universities must establish strategies to assist students in successfully graduating from college with the skills needed for tomorrow's jobs (Saco, 2008). Veenstra (2009) defends it is a social responsibility for universities to help ensure students succeed. He compares university responsibility to the physician's Hippocratic Oath of “Do no harm,” as society expects physicians to do no harm, society expects universities to prepare tomorrow's workforce (Primum Non Nocere, n.d.). Veenstra states it is a university's responsibility to help students graduate. Seidman (2005) adds, if a college accepts a

student, then it is the college's responsibility to "meet the student where he or she is academically and socially," (p. 313), and the college should "provide the academic and personal support needed for the student to be successful" (p. 313). The four main reasons for colleges and universities to continue addressing retention are the preparedness of tomorrow's workforce, governmental policies tying retention to state and federal funding, the losses associated directly to universities, and earning potential of graduates.

#### *Preparedness of Tomorrow's Workforce*

Four generations function simultaneously in the workplace today, including the Mature Generation, Baby Boomers, Generation X, and Millennials (Santonocito, 2008). Casison (2008) defines generation as "a common age location in history and a collective peer personality" (p. 44). Research reveals various names and age ranges for the generations. As cited by Howden and Meyer (2011), this study utilizes the U.S. Census Bureau's definitions of the four generations.

With the impending retirements of the mature generation and baby boomers, the workforce will decline by approximately 1.2 billion employees (Raines, 2002). In 2007, 50% of the U.S. workforce was eligible to retire (Ware et al., 2007). "It's those dang baby boomers who are causing the problems," states Raines (2002, p. 7). He reports the average age for a nurse is 47, and approximately 50% of all certified kindergarten through high school teachers will retire in the next five years. Raines also estimates 60% of all federal government workers are baby boomers and are nearing retirement. Millennials will step into the workforce and fill this void. Table 1 depicts the four generations in the workplace (Howden & Meyer, 2011).

Table 1

*U.S. Census Bureau Generations in the Workplace, 2011*

Generation	Year of birth	# in workforce	% of workforce
Mature	Prior to 1946	40.3 million	15.0%
Baby Boomers	1946-1965	81.5 million	30.4%
Generation X	1966-1980	61.1 million	22.8%
Millennial	1981-2000	85.4 million	31.8%
Total		268.3 million	100.0%

Note. # = number.

As shown in Table 1, in 2010, the millennial generation has the largest number of people in the workplace, with the baby boomers in a very close second. Organizations must develop strategies to recruit, retain, and motivate generation Y, because in a few years, once the mature generation and baby boomers retire from the workforce, the millennials will comprise almost two-thirds of the workforce (Raines, 2002).

Baby boomers are retiring, leaving a void in the workplace and making the skills of tomorrow's employees vital to the future (Ware et al., 2007). A 2013 study conducted by the Organization for Economic Co-operation and Development on adult skills in 23 countries reveals that despite other countries improving effective skill training of its adults, the improvement in the United States remains unchanged in the last decade, and in turn falls short of other countries (U.S. Department of Education, 2013). While two-thirds of the low-skilled workers in the survey had jobs, they lacked employment in jobs with livable wages. The 2013 study recommends that it is imperative to "ensure effective and

accessible education opportunities for young adults” (U.S. Department of Education, 2013, p. 6).

Additional data confirms that the education system in the United States is lacking in training tomorrow’s workforce. Lotkowski et al. (2004) states, while Americans are more educated now than in the past with increased high school graduation rates, the United States has fallen behind in postsecondary education. To succeed in today’s world, individuals without a college degree will struggle with obstacles hindering success (Lotkowski et al. (2004). The United States must be strategic in developing its workforce and create inventive opportunities to help the workforce contribute to society (U.S. Department of Education, 2013). According to the U.S. Department of Education (2013), “Access to education is both an economic necessity and moral imperative,” (p. 3) and improving economic growth in the United States is essential to expanding the middle class. Universities play a vital role in this skill development and must work diligently to lead the efforts to educate tomorrow’s workforce (Veenstra, 2009). As more states link state funding to retention, higher education institutions will face economic hardships if retention rates do not improve (Barefoot, 2004).

#### *Higher Education Funding Linked to Retention*

Low retention rates affect the bottom line of higher education institutions. One financial loss is tuition dollars, calculated by multiplying the number of credit hours by the cost of tuition per credit hour by the number of students leaving an institution (Swecker, 2011). Prior funding formulas focused on access to college with funding provided to universities based on the number of students enrolled at a given point in a semester (Jones, 2013).



As a way to assess institutional effectiveness, linking college student retention to funding formulas is the latest trend for federal and state governments (Hessler et al., 2008). Researchers suggest connecting federal and state funding to student success (Hearn & Holdsworth, 2002; Stedman, 2003). Barefoot (2004) reports funding tied to graduation rates could be detrimental to public colleges and universities enrolling a high percentage of at-risk students. In 2013, 14 states were investigating the use of student outcome-related funding formulas for public institutions (Doubleday, 2013).

In 2014, 25 states utilized a formula based on performance indicators (National Conference of State Legislatures, 2014). Across the United States, best practices for the new funding formulas include several common criteria: (a) select funding range between five to 25% for performance funding, (b) allow different standards for different university missions, (c) engage stakeholders in the creation of the funding formula, (d) gradually phase in the new funding structure to ease transition, (e) create rewards for progress, and (f) offer incentives for colleges that increase graduation rates of low-income and minority students (National Conference of State Legislatures, 2014).

In addition to legislation linking funding to graduation rates, the Federal Student Right to Know Act of 1991 passed by Congress requires institutions to publicize completion or graduation rates of students (National Center for Education Statistics, 2014). President Obama proposes linking federal aid availability at universities to student and college success rates. The White House College Scorecard (2014) highlights President Obama's statement regarding the importance of higher education:

If we want America to lead in the 21st century, nothing is more important than giving everyone the best education possible — from the day they start preschool

to the day they start their career. Earning a postsecondary degree or credential is no longer just a pathway to opportunity for a talented few; rather, it is a prerequisite for the growing jobs of the new economy.” (para. 1)

The White House College Scorecard (2014) evaluates universities using indicators such as graduation, loan default rates, and employment outcomes for graduates. The online system holds all degree-granting institutions in the United States accountable for the numbers and helps students view information about individual colleges and universities before students ever apply to universities (Doubleday, 2013).

The State of Mississippi, with oversight from the Board of Trustees of the Mississippi Institutions of Higher Learning, is one of the 25 states moving towards a success-based funding formula (Mississippi Institutions of Higher Learning, 2013). Mississippi previously utilized a Constant Percentage Formula with predetermined allocations that do not change with enrollment numbers (Mississippi Institutions of Higher Learning, 2013). Since the mid 1990s, in Mississippi, the same allocation funding formula operates which uses enrollment as the main driver and a fixed percentage of overall enrollment at each university (Mississippi Institutions of Higher Learning, 2013).

However, since 2000, the Board of Trustees for the Mississippi Institutions of Higher Learning has attempted to revise and update the 1990’s formula (Mississippi Institutions of Higher Learning, 2013). In the year 2000, state appropriation provided 56% of each university’s budget with only 32% of funding based on tuition (Mississippi Institutions of Higher Learning, 2013). In 2004, the Mississippi Institutions of Higher Learning Board of Trustees adopted a new model based on costs to maintain academics and number student credit hours submitted by each university (Mississippi Institutions of

Higher Learning, 2013). However, due to Hurricane Katrina and the recession in 2005, the Board did not implement the new formula. Again, in 2009, the Board attempted to phase in a new formula over a six-year period, but the Mississippi State Legislature blocked it during the 2009 state legislative session (Mississippi Institutions of Higher Learning, 2013).

Finally, in 2011, the Mississippi State Legislature passed House Bill 875 allowing for the development of a new funding formula for the eight public higher education institutions. By 2012, overall university revenue continued to decline dramatically with 57% of the budget derived from tuition dollars and only 37% provided through state allocations, a dramatic decrease from 56% in the year 2000 (Mississippi Institutions of Higher Learning, 2013). In 2013, the Mississippi State Legislature removed restrictive language from Senate Bill 2851-IHL General Support for FY 2014, thus paving the way for implementation of a new allocation model for the eight public institutions of higher learning. In 2013, the Board of Trustees for the Mississippi Institutions of Higher Learning approved a funding allocation model linked to student success and productivity effective for the 2014-2015 year. This formula changes funding allocations from the number of students enrolled in classes to the number of students who complete courses and complete degrees. Completed credit hours include 90% of funding, with 10% established by Board priorities and outcomes (Mississippi Institutions of Higher Learning, 2013).

The funding model for Mississippi includes performance measures, such as success rates, retention rates, and productivity outcomes and takes into account completed courses instead of enrollment at the beginning of the semester (Mississippi

Institutions of Higher Learning, 2013). Alan Perry, Chair of the Finance Committee for the Mississippi Institutions of Higher Learning, stated this allocation model evaluates the factors that make university unique and focuses on completed courses in addition to enrollment (Mississippi Institutions of Higher Learning, 2013). This change “provides an incentive for each university to become more effective and efficient” (Mississippi Institutions of Higher Learning, 2013, para. 3).

Three main components drive the new funding formula for the public higher education institutions in the State of Mississippi: (a) operational support, (b) completed credit hour production, and (c) board priorities. Operational support includes a varied base amount for each university, with emphasis on enrollment, number of on-campus students, number of buildings, acreage, number of off-site facilities, and infrastructure. Three-year averages in three categories of spending determine the allocations within the operational support component: Institutional Support, Operations & Maintenance, and Student Services. Completed credit hour production analyzes the number of total credit hours produced at each institution. Course weights based on the actual cost to teach each class, include student to faculty ratios, facilities required, equipment needed, and consumable goods used. The third component, Board Priorities, includes the remaining 10% based on programs deemed as priorities by the Board, such as degrees awarded, number of at-risk students served, number of students who exceed 30 and 60 credit hour thresholds, and research activity (Mississippi Institutions of Higher Learning, 2013). In addition to retention influencing the overall funding provided by state legislatures, retention also affects universities directly in monetary and nonmonetary terms.

*Losses to Universities*

Students are essential attributes to universities in both monetary and nonmonetary terms. Nonmonetary attributes include diversity, personal attributes, and opinions that enrich the university and society. In monetary terms, when students do not return to college, it costs the university and is a loss of revenue in several areas in addition to a loss in tuition. Swecker (2011) adds losing students also influences a university in several ways: (1) individual student revenue spent on campus or in the community, (2) revenue generated by friends and family members attending institutional events, (3) loss of alumni support, (4) poor public relations, and (5) lower student morale. (p. 10)

The loss indirectly affects the recruitment of new students, including, “(a) travel time and expenses for student recruiters, (b) mailings, and (c) time away from other institutional priorities” (Swecker, 2011, p. 10). Veenstra (2009) describes costs related to four categories of financial loss to the institution when a student leaves a university: (a) returns with same major, (b) returns with different major, (c) leaves university or transfers to another university, and (d) drops out of school. With Decisions A and B, the student’s initial freshman year investment is returned the next year, because the student remains at the university. For students who choose Decision B by changing majors, the same university retains the funds associated with the student. For Decision C however, the original university loses the funds, but the next university gains the funds. While this is a loss to the individual institution, it is still a win for society, because the student remains in college. With Decision D, the student completely drops out of college, and a cost to both the individual university and to society occurs. Since this student does not earn a college degree, the income potential of this student is stifled and the types of jobs qualified for are limited (Veenstra, 2009).

### *Earning Potential of College Graduates*

For the past two decades, research shows that college graduates earn more than high school graduates (Day & Newburger, 2002). As far back as 1993, statistics reveal a college graduate earns double the amount of a high school graduate and six times more than a high school dropout. In regards to wealth, a college graduate earns two and one half times the amount that a high school graduate earns and five times more than a high school dropout (Murphy & Welch, 1993). The earning potential of a person with a bachelor's degree is 4.9 times higher than the earning potential of a person without a high school diploma (Bureau of Labor Statistics, 2014). The earning potential of a person with a bachelor's degree is 1.4 times higher than the earning potential of a person with a high school diploma (Bureau of Labor Statistics, 2014). College graduates have more earning potential than non-college graduates do, which reiterates the importance of studying retention (Day & Newburger, 2002).

The 2002 report, *The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings*, verifies that over an adult's life, a person with a high school diploma earns \$1.2 million, a person with a bachelor's degree earns \$2.1 million, and a person with a master's degree earns \$2.5 million (Day & Newburger, 2002). Recent statistics continue the trend recognizing the increased earning potential of adults with higher education degrees. To explain the importance of retention, a historical review of retention follows.

#### Historical Review of Retention

Many researchers have studied retention, but similar to the term leadership, theories vary. Since the 1960's, two retention theories guide retention efforts: Tinto's

student integration theory and Bean and Eaton's psychological model of student retention (Swecker, 2011). Within the last decade, Holland's person-environment fit theory is now a viable retention-related theory. Holland's theory began as a career development theory and is now linked to retention by connecting the student's internal motivators in Tinto's theory with the external environment in Bean and Eaton's theory to create the person-environment appropriate fit (Smart et al., 2006).

#### *Tinto's Student Integration Theory*

Known as the Father of Retention, Tinto's student integration theory focuses on internal motivation factors and the process that individuals move between in three rites of passage: separation, transition, and incorporation (Barefoot, 2004). Arnold Van Gennep, an early 20th century Dutch anthropologist, originally developed these rites of passage (Elkins, Braxton, & James, 2000). Tinto's theory serves as the foundation upon which other retention models are compared (Barefoot, 2004). Elkins et al. (2000) discuss how Tinto extended Van Gennep's theory and relate the first stage of "separation" to first-year college students. This framework centers on the belief that, as a student enters college, the student disengages from home communities and friends, causing separation and anxiety. Tinto's theory is included as Figure 2.

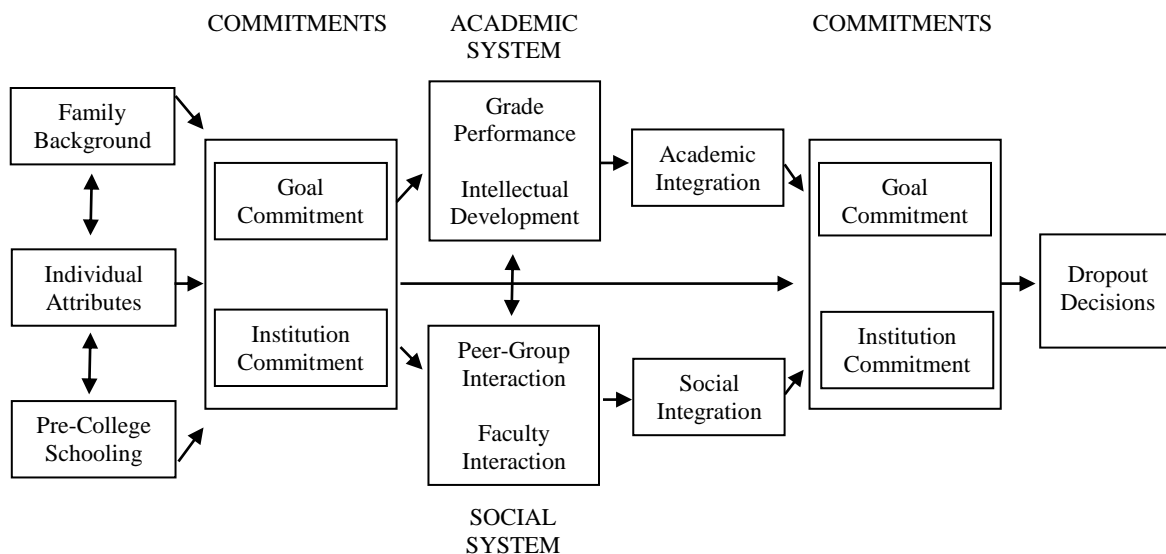


Figure 2. Tinto's Student Integration Theory. Adapted from *Leaving College: Rethinking the Causes and Cures of Student Attrition*, by V. Tinto, 1987. Copyright 1987 by University of Chicago Press. Used with permission. (Appendix A)

Tinto (2006) adds that an effective retention model with policies, procedures, and implementation for the entire college experience does not exist; therefore, retention continues as a problem. Tinto (1993) developed a longitudinal model of retention, and he contends the students' traits must effectively combine with their experience at a university. A student's traits and experience positively influence the commitment to achieve goals. Cabrera, Nora, and Castaneda (1993) adds, when other factors are equal, if factors important to students and factors important to the university coincide, then students have a higher commitment to obtaining a degree and a stronger connection to the university. Tinto explains students internally commit to achieve and connect with the university, which leads to success and accomplishment of goals (Sandler, 2000; Tinto, 1975). Pascarella and Terenzini (1983) explain students arrive on campus with built-in traits including ethnicity, gender, and family experiences. The traits establish the initial



connection to the university and sway the academic and social performance of the student (Pascarella & Terenzini, 1983).

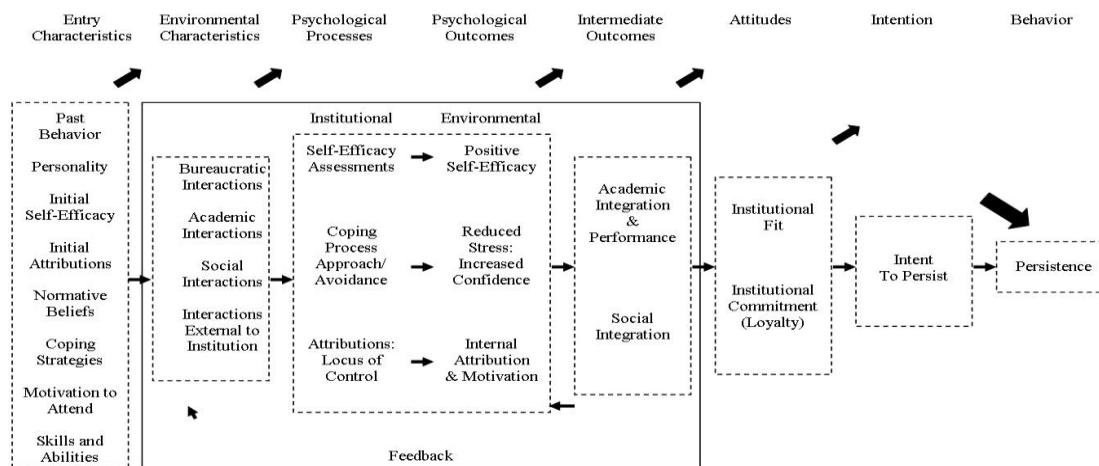
Tinto's theory contends students stay in college because of individual backgrounds and internal motivation. As students become more involved in a university, internal motivation increases; which, in turn, motivates students to stay in college. However, students that do not adapt well are more likely to drop out of college (Casison, 2008). Coll and Stewart (2008) describe Tinto's theory as "the degree of fit between the individual student and the college environment" (p. 43). The theory links the student's internal motivation with the student's academic ability, which in turn creates two commitments: "commitment to the educational goal and commitment to remain at the institution" (Sandler, 2000, p. 541-542). Graunke and Woosley (2005) further expand Tinto's belief and proposes three major reasons for student dropout: (a) difficulty succeeding in classes, (b) lack of educational goals, and (c) lack of connection to the campus. The researchers add that negative experiences, such as lack of campus involvement and connection with faculty, may cause a disconnection and lead to the student leaving college (Graunke & Woosley, 2005).

A large portion of Tinto's research highlights students leaving during or after the first year of college. Because of this, recent studies focus on first year students. Graunke and Woosley (2005) proposes that other classifications need further study, and therefore, conducted a study addressing second semester sophomores to examine how their experiences during the sophomore year influence success. The results show a strong commitment to an academic major as a significant predictor of grade point average. Tinto's theory focuses on internal factors of the student. External factors, such as the

influence of family, friends, and the environment are not included in Tinto's theory (Bean & Metzner, 1985). Cabrera et al. (1993) contends Tinto's theory does not address external factors beyond the student's control.

### *Bean and Eaton's Psychological Model of Student Retention*

Developed in the late 1980's, Bean and Eaton's psychological model of student retention opposes Tinto's beliefs. External factors, instead of internal factors explained with Tinto's theory, are the basis for Bean and Eaton's psychological model of student retention. Bean and Eaton's model is included as Figure 3.



*Figure 3.* Bean and Eaton's Psychological Model of Student Retention. Adapted from "The Psychology Underlying Successful Retention Practices," by J. P. Bean and S. B. Eaton, 2001. *Journal of College Student Retention*, 3(1). Copyright 2001 by Sage Publishing Company. Used with permission. (Appendix B)

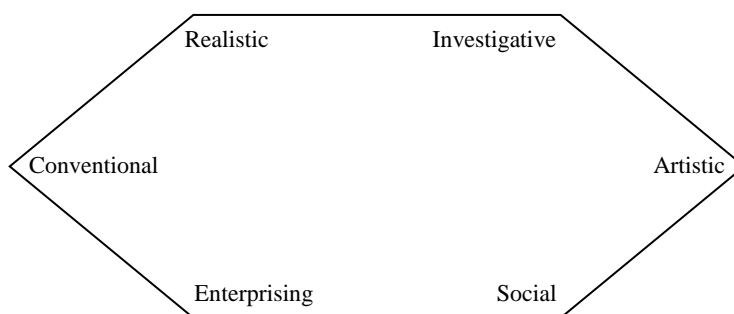
Throughout the college student's time at a university, factors outside of the control of the student play a role in attitudes and retention decisions. In addition, Bean purports environmental factors play a vital role (Sandler, 2000). Bean and Eaton's model "shows how psychological processes flesh out the overall structure of traditional retention models and how academic and social integration can be viewed as outcomes of psychological processes" (Bean & Eaton, 2001, p. 75).

As shown in Figure 3, Bean and Eaton's model describes the student's entry characteristics when the student enters college, including past behavior, personality, self-efficacy, beliefs, coping mechanisms, motivations, skills, and abilities. Environmental factors influence the student through bureaucratic, academic, social, and external interactions. Psychological process and outcomes within the institution and the external environment play a role through assessments, locus of control, stress relief, and motivation. Intermediate outcomes of academic and social integration increase the likelihood of retaining the student. Attitudes, intentions, and ultimately, behavior collaborate to accomplish college persistence (Bean & Eaton, 2001). Cabrera et al. (1993) supports Bean and Eaton's model, because of the role external factors play on decisions in college. Bean and Eaton's model identifies the importance of external factors related to persistence (Bean, 1980; Cabrera et al., 1993; Sandler, 2000). Swecker (2011) states, "Individuals apply characteristics and past experiences to the current environment. This interaction influences their choices on how to adapt to the new environment and affects their actions academically" (p. 21). Similar to Bean and Eaton's model, Holland's person-environment fit theory links the individual to the environment.

#### *Holland's Person-Environment Fit Theory*

Initially designed as a career development theory in 1966, Holland's person-environment fit theory assists individuals in selecting an occupation that is satisfying, rewarding, and a good fit with future goals and stability (Smart et al., 2006). The theory describes six personality types and relates the types to vocational choice: (a) realistic, (b) investigative, (c) artistic, (d) social, (e) enterprising, or (f) conventional. Figure 4 identifies the six types. However, since the inception of the theory, Holland contends

educational motivators are similar to vocational behavior. Holland adds vocational choice satisfaction is congruent to educational choice satisfaction. Smart et al. (2006) contend, “The choice of stability in, satisfaction with, and achievement in a field of training or study follow rules identical to those outlined for vocational behaviors” (p. 6).



*Figure 4.* Holland’s Person-Environment Fit Theory, Adapted from “Holland’s Theory and Patterns of College Student Success,” by J. C. Smart, K. A. Feldman, and C. A. Ethington, 2006. *Commissioned Report for National Symposium on Postsecondary Student Success: Spearheading a Dialog on Student Success*. Copyright 2006 by National Postsecondary Educational Cooperative. Used with permission. (Appendix C)

Smart et al. (2006) summarizes Holland’s personality types. Realistic types enjoy the outdoors and prefer dealing with objects instead of people. Investigative types enjoy math and science and prefer working with ideas rather than people or objects. Artistic types enjoy creativity and prefer working with ideas rather than people or objects. Social types enjoy helping others and prefer working with people rather than ideas or objects. Enterprising types enjoy being influential and prefer working with people and ideas rather than objects. Conventional types enjoy working indoors and organizing and prefer working with objects rather than people or ideas (Smart et al., 2006).

Within the last decade, researchers recognize the appropriateness of Holland’s theory for retention-based efforts and determine the application of Holland’s theory for either vocational or educational success. The theory is frequently cited and validated in

social science research and includes psychological and sociological aspects to “encompass both predispositions and behaviors of college students (psychological component) and attributes of college and university environments (sociological component)” (Smart et al., 2006, p. 7). Holland’s theory gives equal rating to both the internal motivation of students and the environments surrounding the students. “Reliance on Holland’s theory would help address concern that contemporary efforts to understand student success in postsecondary education are likely to have only moderate success because they lack sufficiently systematic theoretical guidance, focus disproportionately on the predispositions and behaviors of college students, and then to ignore the socialization influence of college environments” (Smart et al., 2006, p. 2). Smart et al., (2006) proposes four reasons for the utilization of Holland’s theory in retention research:

(1) primarily focuses on crucial components in any generic definition of student success, (2) provides a basis for the consideration of both individuals and their environments since both have been shown to be essential in successful efforts to understand student success, (3) provides a basis for the selection of theory based constructs to guide inquiry on student success and accepted measurement instruments for those constructs, and (4) provides guidance for the use of appropriate analytic procedures to reveal more précis estimates of student-success measures. (p. 6)

Holland’s theory offers a connection between student success patterns, educational experiences, and academic environment. Smart et al. (2006) contend that students increase their likelihood of success if the institutional environment has “the same label because such an environment would provide opportunities, activities, tasks, and role

congruent with the competencies, interests, and self-perceptions of its parallel personality type” (p. 17). Conversely, students enrolled in “incongruent academic environments” reduce their likelihood for success since the “environment would provide opportunities that are not congruent with the competencies, interests, and self-perceptions of the students’ dominant personality types” (Smart et al., 2006, p. 17). Holland’s hexagonal model provides balance between the individual motivations and environmental factors. It is an “excellent theory based mechanism by which to assess the extent to which students become integrated into the academic and social systems of their institutions, the degree of students’ physical and psychological involvement in their collegiate experience, and the quality of students’ effort at their institutions” (Smart et al., 2006, p. 32).

Comparing the three theories, Tinto’s theory focuses on internal goal commitment, Bean and Eaton’s model addresses practical value, and Holland’s theory links Tinto’s theory and Bean and Eaton’s model by identifying appropriate fit between the individual and the environment. Linking career development theory with retention theory supports the ultimate goal of college: to graduate and get a good job (Smart et al., 2006). Focusing early on a career helps today’s college students identify goals early as opposed to waiting until a student is a senior to incorporate career development goals.

#### Reasons Students Leave College

Students drop out of college for a variety of reasons. This literature review discusses five reasons for college student dropout: financial hardship, ill preparedness, difficulty transitioning from high school to college, demographic factors, and uncertainty of career path.

### *The Impact of Financial Hardship on Retention*

Financial difficulty is a factor of students dropping out of college. Statistics reveal that students who receive financial aid have a higher percentage of graduation than students who do not receive any type of financial aid (Ishitani & DesJardins, 2002). Financial hardship continues to be a major issue in college student retention, and Tinto (1993) reveals students' financial situation influences goals, including if and where they will attend college. Tinto (1993) states, "The effect of finances upon student attrition can be indirect and long term as well as short term in character" (p. 65). In 2000, finance-related issues, such as student aid, tuition, fees, and living expenses, accounted for approximately one-half of the reasons why students drop out of college (Saint John, Cabrera, Nora, & Asker, 2000).

### *The Impact of Ill Prepared Students on Retention*

Research affirms a clear link between what happens personally to a student prior to enrolling in college and success in college (Cabrera & LaNasa, 2001). American College Test's (ACT) 2013 *Reality of College Readiness* and *Readiness Matters* national benchmark report confirms academic preparedness and level of interest and commitment of a student as two major factors for student success. The ACT contends the combination of academic preparedness and student commitment are two factors that create a clear picture of a student's readiness for college.

ACT reported low benchmark scores for the 2013 graduating high school class, and Caralee Adams (2013), author of *College Bound*, reports that today's students are not prepared for college. From 2006-2012, the average ACT composite score was 21.1. However, in 2013, the national average score fell to 20.9, with African American

students averaging 16.9 and Caucasian students averaging 22.2 (Adams, 2013). Students who attend lower performing high schools often have difficulty adjusting to college, because of the difference in the quality of teaching at the high school level vs. the quality at the college level. Students from lower performing high schools require additional resources, such as tutoring and emotional support (Housel & Harvey, 2009; Stephens et al., 2012).

Approximately three-fourths of college students drop out of college during the first year (Tinto, 1987). The increase in the number of ill-prepared college students occurs due to the changes in recruitment strategies offering lower entrance requirements to allow access for all, which hinders retention in the end (Rosenbaum, 2001). Trotter and Roberts (2006) reveal, “Without a corresponding change in how a university operates, there is a danger that wider participation might result in more students failing” (p. 372). Rosenbaum (2001) claims that the preparation for college, as opposed to attending college, is the factor that influences retention and graduation rates. Many students enter college today lacking adequate preparation for college level work. High schools differ in reputation, quality of teachers, and overall success rates (Robbins, Allen, Casillas, & Peterson, 2006). Ill-prepared college students often exhibit more test anxiety, lower course completion rates, and greater attrition Rosenbaum (2001). Statistics show that only 32% of high school graduates actually qualify to attend four-year universities.

Some students have difficulty transitioning from high school to college because there is no one to make sure the student wakes up, goes to class, and studies, therefore the first semester as a college freshman is often a difficult transition (Tinto, 1975). Students often suffer from isolation because of the change in culture of going from knowing many



people to not knowing many fellow students. High school graduates may view college as Grade 13, but college requirements are more stringent than high school requirements. Because of the lack of skills needed to succeed in college, more emphasis is on remedial education in college (Greene & Forster, 2003). In addition to ill preparedness, isolation and lack of family support hinders retention.

#### *The Impact of Isolation and Lack of Family Support on Retention*

Isolation affects retention, and Wilcoxson and Wynder (2010) contend that for the past 30 years, retention studies confirm that what a student brings to college in terms of “psychological predisposition or motivations” (p. 175) greatly impacts college success. Often, students go to college with high expectations, believing they will “have great academic success, a favorable social scene, make lifelong friends, and progress toward establishing a lucrative career after graduation” (Robinson & Gahagan, 2010, p. 26). Students who excelled in high school assume they will do well in college, because they anticipate their college experience will be the same as high school. However, Robinson and Gahagan (2010) explain that some experience an “academic culture shock,” because of the strenuous requirements from college professors, lack of a structured environment, and additional personal responsibility to meet requirements (p. 26).

Robinson and Gahagan (2010) add, in addition to an academic culture shock, students also experience a “social or environmental culture shock” because of unfamiliar ground. Students meet classmates with different backgrounds, cultures, and beliefs than the students in their high schools. Students face difficulties adjusting to college because of the amount of activities associated with college life (Robinson & Gahagan, 2010). While discovering the balance between academic success and engagement can be

exciting, “finding this balance challenges students” (Robinson & Gahagan, 2010, p. 27). Finding balance between internal and external control also influences retention.

Gifford et al. (2006) defines locus of control as “A person’s beliefs about control over life events (p. 20). Positive self-esteem and an internal locus of control are essential to help minimize feelings of loneliness when a student transitions to college (Sisney et al., 2000). Gifford et al. (2006) add, “Both self-esteem and locus of control are self system beliefs that individuals create about themselves and their interactions with the social environment that can cause distress or act as an interpersonal resource” (p. 19). Students who view positive and negative events as outcomes of their own behavior have an internal locus of control and accept responsibility for their own actions (Gifford et al., 2006). Students who view events as outcomes out of their control have external locus of control, base outcomes on fate or luck, and blame others for difficulties (Gifford et al., 2006). Students with an external locus of control often lack the emotional stability needed to excel in college because they are nervous, worry, and feel sorry for themselves, which leads to overreacting to external factors out of their control (Nguyen et al., 2005). However, an internal locus of control of a student to a university and to an educational goal can be a predictor of success (Barefoot, 2004). Students with an internal locus of control are more responsible, hardworking, achievement-oriented, and self-motivated (Nguyen et al., 2005).

The 1966 Coleman Report on Equality of Educational Opportunity links locus of control with retention. The study reveals that high school students with an internal locus of control correlate to higher academic success, and students with an external locus of control correlate to lower academic success (Sisney et al., 2000). A national study

conducted in 1986 strengthens the Coleman Report results indicating high school dropouts have higher external control and are less likely to stay in school than their classmates with internal control (Ekstrom, Goertz, Pollack, & Rock, 1986). A 2010 study correlates with past research, reporting students' confidence level in their ability to succeed play a major role in success (Wilcoxson & Wynder, 2010). As cited by Lotkowski et al. (2004), Tinto states, "A student's initial level of goal commitment is thought to influence academic integration, which in turn affects subsequent goal commitment" (p. 12). Students with internal locus of control face fewer challenges as they transition from their freshman to sophomore year (Wilcoxson & Wynder, 2010).

*The Impact of Transition Period from Freshman to Sophomore on Retention*

Colleges and universities focus heavily on first-year experience programs to help students adjust to college life. Research reveals that the first year in college is when most students drop out of college. The national Foundations of Excellence study examines factors that influence academic success for first-time college students. Data collected from approximately 6,700 college students and 5,000 faculty members from 30 campuses throughout the United States "sought to identify the individual, organizational, environmental, programmatic, and policy factors that individually and collectively shape first-year students' academic success" (Reason et al., 2006, p. 150).

However, once a freshman becomes a sophomore, care and attention received from university faculty and staff often dwindle, because a new group of freshmen enters (Pattengale, 2000). As Tinto affirmed decades ago, colleges and universities mostly lose students at the sophomore level more than other classifications (Juillerat, 2000). Juniors and seniors connect to the university through involvement in majors and campus life.

Research indicates that colleges and universities should focus on factors specifically pertaining to sophomores (Graunke & Woosley, 2005). The sophomore year is a time for students to finalize career paths and personal goals (Anderson & Schreiner, 2000; Boivin, Fountain, & Baylis, 2000). Sophomores have adjusted to college life, but in the second year, new challenges arise, especially for undecided majors. Schaller (2005) examines the change between the freshman and sophomore year. In interviews with sophomores, students describe the sophomore year as “standing on a fence” (Schaller, 2005, p. 19). Sophomores report the second year as a turning point. On one side of the fence is their childhood and freshman year where the student successfully adjusts to college life with little worry about the future. On the other side of the fence is the future with uncertainties that lie ahead. Cuseo (2005) refers to the sophomore year as the “Stage of Transitional Knowing” (p. 27), because sophomores are “transitioning from the absolute thinking of the first year to the independent and contextual thinking that peak during the junior and senior years of college” (p. 27). They transition from being defined through their parents’ eyes to becoming independent thinkers, with “the opportunity for self-analysis from which emerged a sense of commitment to self-determination” (p. 35).

Gardner (2000) finds that sophomores are more likely than other classifications to state that “confirming their major selection or deciding on an appropriate career was their biggest personal problem” (p. 72). In addition to a lack of involvement with faculty, sophomores may not be actively involved in campus life yet and remain relatively isolated and limited to individual activities. Gardner (2000) reveals that sophomores tend to exist in their own “sphere” which runs “counter to the academic path of the engaged learner” (p. 73).

During the sophomore year, students make a transition from general education requirements to courses specifically related to their majors. Undeclared students face uncertainty about their future and these tensions may have a negative impact on success. Anderson and Schreiner (2000) note that sophomores with a defined major have a higher chance of academic success than sophomores, without clearly defined majors. A correlation exists between certainty of major and higher grades because of the increased motivation of sophomore students with increased focus and an idea about future directions (Anderson and Schreiner, 2000). Demographics influence the motivation of an individual, and thus influence retention (Sisney et al., 2000).

#### *The Impact of Demographics on Retention*

Higher education in the United States is “an engine of social mobility that provides equal opportunities to all deserving students, irrespective of their previous background, upbringing, or life circumstances” (Stephens et al., 2012, p. 1178). However, sociologists argue that today’s university is not an avenue for equal opportunity, but instead an avenue for inequity with unwritten rules that focus on the needs of middle-class students. They add that it constructs, maintains, and recreates social inequity (Stephens et al., 2012). For middle-class students, attending college associates with expectations of freedom and independence after graduation. Middle-class students attend college to separate themselves from parents to “find themselves, to develop their voices, to follow their passions, and to influence the world” (Stephens et al., 2012, p. 1179). However, attending college may not be an expectation for high school graduates from working-class families. Instead of focusing on independence, rules focus on interdependence by “adjusting and responding to others’ needs, connecting to others,

and being part of a community” (Stephens et al., 2012, p. 1179). Demographic factors play a vital role in how today’s students perform in college (Stephens et al., 2012). A student’s gender, ethnicity, age, and socioeconomic factors influence outlook on life and expectations for college (Ishitani, 2006; Sandler, 2000).

*Gender.* Gender plays a role in everyday life. A person’s gender influences how one thinks and acts. Gender influences student success and retention, especially in female-oriented fields (Malgwi, Howe, & Burnaby, 2005). Perception influences reality, and gender affects students’ perceptions of their skill levels for certain majors (Lackland & DeLisi, 2001). For example, Malgwi et al. (2005) describe aptitudes in a field influence women while the level of pay available in a field influences men. In addition, the retention rates of women are higher in health fields compared to women in business majors. Conversely, men pursuing business were more likely to succeed than were men pursuing health and education fields (Leppel, 2001). Ethnicity is another demographic that influences retention (Mangan, 2014).

*Ethnicity.* The demography of the United States is changing rapidly. African Americans are no longer the largest, fastest growing minority in the United States. According to Lotkowski et al. (2004), Hispanics make up more than 50% of all nonnative Americans, 13% of the entire population of the United States. Lotkowski et al. (2004) adds, within 30 years, African Americans and Hispanics will be more than one-third of the population in the United States.

Despite the increase in African Americans and Hispanics, ethnic groups continue to face more challenges in attending college than Caucasian students do (Mangan, 2014). Challenges are due in part to the educational backgrounds of minority students.

DesJardins, Ahlburg, and McCall (2002) report minority students have an increased likelihood of dropping out of college due to the lower quality of the high schools attended and due to socioeconomic factors. Mangan (2014) reports only 14% of African American students and 30% of Hispanic students meet the ACT minimum requirements of math of United States' colleges and universities, while 53% of Caucasian students do. Statistics reveal similar percentages related to the ACT reading scores, with 16% of African Americans, 29% of Hispanics, and 54% of Caucasians meeting the minimum requirement. The issue is not necessarily that minority students cannot excel in college, but because of the low performing high schools many attend, minorities start college on an uneven playing field, academically behind Caucasian students. "When you start so far behind the starting line, you can run faster and work harder, but you're still not going to catch up" (Mangan, 2014).

Minority students may worry about fulfilling negative stereotypes. Due to backgrounds, minority students may feel that no chance of getting a job exists once graduating from college. Negative employment stereotypes exist with minority races and gender. For example, women in a science field or African American men in college still face challenges related to past stereotypes (Nguyen et al., 2005). Age is the third demographic factor that influences retention (Wendover, 2008).

*Age.* Age influences a student's experience in college (Murtaugh et al., 1999). Millennial generation students are more likely to drop out or change colleges and are "wired differently with the ability to complete their education nontraditionally" (Becker, 2012, p. 480). Twenge and Foster (2010) reveal today's college student is 30% more narcissistic than the average student was in the 1980's. Barefoot (2004) discloses,

“Today’s college students do not have ‘product loyalty.’ They are on a continual search for the ‘best deal’ or ‘greener pastures,’ and higher education institutions are happy to oblige” (p. 12). However, one study reveals that because older, nontraditional students have higher opportunity costs and briefer time limits to recover monetary investments, these students are less likely to graduate (DesJardins et al., 2002).

*Socioeconomic Factor of First-Generation College Student.* First-generation college students are first in their immediate family to attend college. Their parents did not graduate from college or only attended college for a short period of time (Pike & Kuh, 2005; Swecker, 2011). Because of the shift in college access for all, one in six of today’s college students is a first-generation student (Saenz, Hurtado, Barrera, Wold, & Yeung, 2007). Many are from working-class minority families with fewer financial resources at their disposal, who speak another language than English at home (Bui, 2002; Stephens et al., 2012). In 2005, 33% of first-generation students reported as undeclared majors, and 50% of first-generation students attended college within 50 miles of home compared to 35.5% of continuing-generation students (Pryor et al., 2005).

Unfortunately, first-generation students are 1.3 times more likely to withdraw from college within the first year than continuing-generation college students (Ishitani, 2006; Swecker, 2011). In addition, only 52% of first-generation students graduate, while 67% of continuing-generation students graduate (Choy, 2001). Because many students attended low performing high schools, 55% of first-generation college students must take developmental math, reading, or English classes because of low scores on ACT or SAT college entrance exams, compared to only 27% of second- or third-generation students. In addition, 40% of first-generation students were required to take developmental math with



13% required to take developmental reading compared to 16% in math and 6% in reading for non first-generation students (Chen, 2005).

Harding (2008) identifies several internal challenges first-generation students bring to college: (a) twice as likely to drop out by second year, (b) enter college after turning 18, (c) low socioeconomic background, (d) married, (e) minority, (f) part time status instead of full time, (g) employed full time, (h) attend two-year schools more often than four-year schools, (i) underprepared for college work, (j) low self-esteem, (k) low scores on standardized tests, (l) little family support, and (m) English is not native language at home. Additional research reveals two more reasons, including lack of time management and issues with higher education bureaucracy (Swecker, 2011; Thayer, 2000). The bureaucracy of higher education is difficult to maneuver for first-generation students, because parents cannot guide them through the process, but instead they must rely on counselors or teachers (Horn & Nunez, 2000; Swecker, 2011).

First-generation students often struggle academically, earn lower grades, take fewer classes, and are less engaged in college life (Stephens, Hamedani, & Destin, 2014). The lack of outside exposure and experience increase the likelihood of first-generation college students being undeclared (Almaraz et al., 2010). Because first-generation students lack a family member with college experience, they often feel they lack family support for the importance of college, and they do not recognize the value of campus involvement and do not utilize resources for professional development (Almaraz et al., 2010; Swecker, 2011). First-generation students often lack the belief that students like them should succeed in college, because they feel left out and may not fit in with campus culture. The students may not know how to behave in college and question if they can be

successful (Stephens et al., 2012). The students also lack the knowledge to select a major or build a resume, and neither understand the implication of low performance, nor know how to improve the situation (Stephens et al., 2014). Many first-generation students must work one or more jobs to afford tuition, which leaves less time to study and concentrate on academics (Pike & Kuh, 2005; Stephens et al., 2012).

*Socioeconomic Factor of Pell-eligibility.* Family income level plays a role in student retention (Stephens et al., 2012). Students from higher income levels typically have higher percentages who attend college than students from low-income families. Students from high-income families are also less likely to drop out of college and are more likely to have higher expectations for achievement (DesJardins et al., 2002; Manski & Wise, 1983). The level of family income “shapes the cultural models of self” that students bring to college (Stephens et al., 2012, p. 1180).

Cabrera et al. (1993) states family income influences financial perspectives because financial beliefs play a role in academic success and institutional commitments. Low family incomes are interdependent instead of independent to the amount of economic capital, geographic mobility, and opportunities for choice (Cabrera et al., 1993). Limited exposure outside of neighborhoods hinders the success of students from lower incomes excelling in college (Stephens et al., 2012). Low-income, full Pell-eligible students may have difficulty adjusting to college because of differences in college norms compared to norms at home (Stephens et al., 2012). To add to the challenge of adjusting to college, universities often promote the independence factor and may not focus on interdependence. Stephens et al. (2012) use student handbooks and college mission statements as examples, because they often reinforce the independence of students by

focusing on topics such as finding oneself, paving a career path, and developing individual interests and are written based on self-reliance as opposed to help from others. Low-income students are also frequently first-generation students (Swecker, 2011).

### *The Impact of Uncertainty of Career Path*

Cuseo (2005) reminds that the question, “What do you plan to major in college?” (p. 6) is a question commonly asked to high school seniors, which may pressure high school seniors to select a major. The lack of a major is the main reason college students drop out (Ornforff & Herr, 1996; Wilcoxson & Wynder, 2010). Students uncertain of their career paths often feel as though something is wrong since they do not know what they want to do in the future. Cuseo (2005) reveals that often higher education institutions view undeclared as “an aberrant condition that needs fixing, and by electing not to select a major, undecided students are ‘homeless,’ i.e. left without an academic department, organizational niche, or administrative division that they can call their own” (p. 1). Cuseo (2005) adds this view often discourages students to stay undeclared because they feel pressure from the institution and “make hasty decisions in order to meet institutional expectations that they should be ‘decided’ and housed in an academic department” (p. 6).

How administration and faculty view undeclared students influences success because if the university views undeclared as negative and seen as a deficiency, this view often increases the uneasiness and anxiety of a student (Cuseo, 2005). Universities that mandate the selection of major during the freshmen year often stifle undecided students’ career search, and the undecided students are less likely to ask for help choosing a major (Cuseo, 2005). Universities without assigned undeclared departments who randomly

assign undeclared students to an advisor with little or no similar interests with the student and do not focus on the individual needs of the students. Cuseo (2005) reveals, often these advisors do not have the time or experience to help students explore majors, and this type of advising for undeclared students “is not likely to provide undecided students with the support structure needed to reflectively investigate their academic and career options” (p. 12).

Cuseo (2005) reveals 75% of students entering college are undecided or at least half of students with majors have “prematurely decided majors” and will eventually change their major (p. 6). Unfortunately, the statistics remain consistent over the years. In 1982, less than half of freshmen entering college had clear career goals (Astin, Hemond, & Richardson, 1982). In 1996, more than 50% of students changed their major at least once, and 70% of college students felt pressured by parents to select a major (Ornforff & Herr, 1996). Today, more than 50% of students change their major three to four times (Swecker, 2011). Wilcoxson and Wynder (2010) explain, “Clear choice of major and clarity of career direction is associated with university student retention” (p. 175). Deciding on a career path is an important component to success in college. Undeclared students often do not have a vision of what they would like to do in life (Casison, 2008). Undeclared students may feel as though they are “lost souls” without a direction in life (Schaller, 2005, p. 17). Coll and Stewart (2008) explain, “Career decidedness directly relates to the ‘goal commitment’ component of Tinto’s model, which influences and is influenced by academic and social integration” (p. 45). Tinto (1993) links goal commitment to the level of certainty of the major a student wants to pursue.

DesJardins et al. (2002) contend students confident in their academic plan are more likely to be successful, are “less likely to ‘muddle’ while enrolled in college, and are therefore more likely to finish in a timely manner” (p. 558). Declaring a major increases a student’s chances of persistence to graduation by 22% (Almaraz et al., 2010; Kreysa, 2006). Because of these results, Kreysa (2006) concludes students who declare a major early in college life are more likely to stay in college and graduate. Earlier research conducted by Yorke (2000) finds the lack of a career path has the greatest impact on student retention. Cuseo (2005) adds,

Student commitment to educational and career goals is perhaps the strongest factor associated with persistence to degree completion. If students develop a viable plan for identifying a college major and related career that is compatible with their abilities, interests, and values, then their overall level of satisfaction with college should increase. (p. 27)

Some students select a major based on their experience and on recommendations from friends and family, so they may enter college with a major simply because of a recommendation or because they liked the subject in high school (Smart et al., 2006). For this reason, Wilcoxson and Wynder (2010) add that career guidance should be provided to all students, not only to students who are unclear of their major. Researchers recommend career coaching to students who have clear career paths outlined, because the future is uncertain, even with a declared, specific major (Cuseo, 2005).

### Summary

Colleges and universities examine and study retention to search for creative ways to retain students to graduation, yet retention issues continue to exist. Today’s college

student is different from college students in the past. Higher education institutions are unable to continue status quo due in part to the large number of millennial generation students enrolled in college today. Additional pressure for college funding formulas increases the significance of retention. Demographic factors play a role in retention, including gender, ethnicity, age, first-generation, and Pell-eligibility. Early selection of major increases the likelihood of success. However, despite years of study by well-known researchers including Tinto, Bean, Eaton, and Holland, retention is still a problem. Innovative strategies and approaches must be identified for significant changes to occur in increasing retention rates. To determine if demographic factors relate to the early selection of college major, Chapter III describes the methodology for this study, including the research design, research objectives, population of this study, validity of the research design, data collection plan, and data analysis.

### CHAPTER III

#### RESEARCH DESIGN AND METHODOLOGY

The retention of college students to graduation is essential, not only to the individual higher educational institutions, but to the viability of the overall economy in the United States (Lotkowski et al., 2004). Higher education institutions play a vital role in preparing tomorrow's workforce to ensure the nation's economic stability (Swecker, 2011). Higher education institutions also provide opportunities for a better quality of life through increased earning potential of college graduates (Swecker, 2011).

Demographic factors contribute to the successful retention of college students (Swecker, 2011). Gender influences success in college (Nguyen et al., 2005). Ethnicity affects the choices made in college (Mangan, 2014). Age and level of maturity influence success in college (Rasmus, 2007; Wendover, 2008). First-generation college students experience a higher risk of failure than second-generation college students (Horn & Nunez, 2000; Saenz et al., 2007; Stephens et al., 2012). Students from families with lower family income levels face additional challenges than those from higher family income levels (Stephens et al., 2012). Researchers have also determined that a defined career path has a positive influence on college student success (Almaraz et al., 2010).

Research indicates that students who declare a major during their first year are more likely to stay in college and graduate than those who delay selection past their first year (Almaraz et al., 2010). Furthermore, students confident in their choice of major are more likely to graduate from college (Wilcoxson & Wynder, 2010). However, 50% of students who declare a major when they enter college are uncertain if it is the right major (Cuseo, 2005).

As previously stated, both demographic factors and the early selection of major are important factors in college success. The purpose of the study is to examine if a relationship exists between various demographic factors and the early selection of college major. Specifically, the researcher examines if gender, ethnicity, age, socioeconomic factors of first-generation college students and Pell-eligibility play a role in the early selection of college major.

### Research Design

This study uses archival, descriptive data. Therefore, the study is a nonexperimental, descriptive research design. Secondary institutional archival data collected by the DSU Office of Institutional Research will serve as the data source. Archival data is data collected and utilized for reasons not originally anticipated when the data was originally collected (Lewis-Beck et al., 2004).

### Research Objectives

This study addresses the relationship between early selection of college major and the demographic factors of gender, ethnicity, age, first-generation college student, and Pell-eligibility. For this study, the early selection of college major is the selection of major within the first academic year of attendance (Cuseo, 2005). The research objectives describe the specific focus of this study. The research objectives follow:

*ROI:* Describe the demographic characteristics of the fall 2006, fall 2007, and fall 2008 cohorts of the DSU student population, including gender, ethnicity, age, first-generation college student, and Pell-eligibility.



- RO2:* Determine the relationship between the early selection of college major and (a) gender, (b) ethnicity, (c) age, (d) first-generation college student, and (e) Pell-eligibility.
- RO3:* Determine the influence of gender, ethnicity, age, first-generation college student, and Pell-eligibility on early selection of college major.

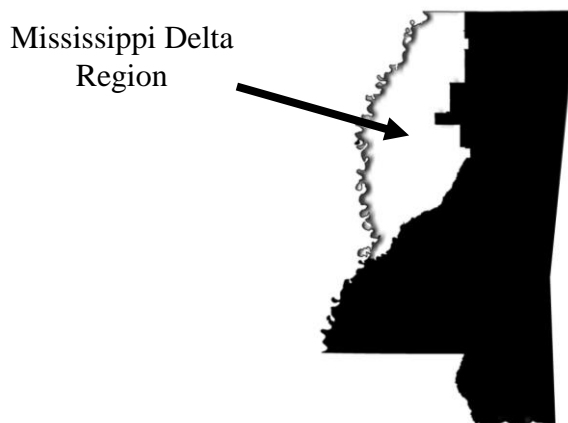
### Population and Sample

A population is a group with a common trait (Sprinthall, 2007). The Student Right-To-Know Act of 1990 defines six-year cohorts as the standard method of measure for college retention rates (National Center for Education Statistics, 2014). To streamline the data collection, this legislative action requires universities to report graduation rates at 150% of the normal time needed to complete a degree (National Center for Education Statistics, 2014). For example, bachelor degrees require four years to complete, estimating 15 credit hours per fall and spring semesters (National Center for Education Statistics, 2014). Six years is 150% of the time to complete a bachelor's degree. The six-year cohort is an important component because it determines the appropriate freshmen class to include in this study.

The fall 2006, fall 2007, and fall 2008, freshmen student cohorts at DSU are the population for this study, as the latest six-year student cohort to reach its six-year graduate date is the fall 2008 cohort. These cohorts represent the population and the sample for this study. Fall 2006 and 2007 data is included to reduce confounding factors that may occur from only using one cohort. Archival data is available through the DSU Office of Institutional Research for the fall 2006, fall 2007, and fall 2008 cohorts. The fall 2006, fall 2007, and fall 2008 DSU freshmen cohorts is the population for this study.

DSU, established in 1924 as a teachers' college, is a public, regional Carnegie Master's I university (Delta State University, 2014). DSU is located in Northwest Mississippi in the Mississippi Delta region with enrollment of approximately 4,000 students. DSU is one of eight publically funded four-year institutions under the leadership of the Mississippi Institutions of Higher Learning (Mississippi Institution of Higher Learning, 2014). DSU's student body is the second most ethnically diverse university among the eight institutions in Mississippi (Mississippi Institution of Higher Learning, 2014). In 2008, African Americans composed 40% of DSU's student population, Caucasians composed 58%, and other ethnicities composed 2% (Mississippi Institutions of Higher Learning, 2014). In 2013, the statistics changed slightly with 32% African American, 60% Caucasian, and 8% other (Mississippi Institutions of Higher Learning, 2014). Of DSU's total student population, 65% are residents of the 18-county Mississippi Delta region (Office of Institutional Research and Planning, 2014).

DSU requires a minimum ACT score of 16 (760 on SAT) on college entrance exams. Students with less than a 16 on the Reading, English, or Math subtest scores are required to enroll in developmental classes. Students scoring a 22 or higher on the ACT (1020 or higher on the SAT) and a 3.0 cumulative high school grade point average are eligible to receive academic scholarships (Delta State University, 2014). DSU is located in the Mississippi Delta, one of the poorest, most undereducated areas in the United States (Slack et al., 2009). The Mississippi Delta region is located in the northwest area of the state of Mississippi and includes 18 counties. Figure 5 shows the geographic location of the Mississippi Delta.



*Figure 5.* Location of Mississippi Delta Region. Adapted from Delta Council, 2014. Used with permission. (Appendix D)

Ross and Kena (2012) describe the Mississippi Delta as a region with high poverty levels, low socioeconomic status, underrepresented minorities, and a high number of first-generation college students. Many college students who attended high schools in the Mississippi Delta face difficulties in college because the low performing high schools in the Delta inadequately prepare students for academic success, (Ross & Kena, 2012). The Mississippi Labor Market Data Report documents the 18-Mississippi Delta counties averaged unemployment rates of 11.6% in 2014, 12.9% in 2013, and 12.06% in 2012, nearly double the national average of 6.1%. The statistics correlate to extreme poverty rates in the Delta (MS Department of Labor, 2014). High poverty and unemployment rates and low median household income exist throughout the region.

The Mississippi Department of Education's 2014 Report documents 27 high schools in the State of Mississippi as "failing" because they are not meeting minimum standards. Of the 27 high schools, 11 (41%) are located in the Mississippi Delta. Of DSU's total student population, 65% of students attended a low-performing high school in the Delta (U.S. Department of Education, 2014). Additionally, 63% of undergraduate

students at DSU receive financial aid with 55% receiving Pell grants, 20% higher than the 2014 average of 35.4% for four-year public institutions (Office of Institutional Research and Planning, 2014).

### Validity of Research Design

Huck (2008) defines validity as accurately measuring factors intended to measure. Four types of validity threats exist: internal, external, statistical conclusion, and construct (Shadish et al., 2002). For this study, two external validity threats exist.

External validity infers a cause-effect relationship is consistent between varied settings (Shadish et al., 2002). Two external threats exist for this study, interaction of causal relationships with outcomes, and interaction of causal relationships with settings. An external threat to validity that exists in this study is interaction of causal relationship with outcomes (Shadish et al., 2002). This threat raises the question, “Can a cause-effect relationship be generalized over different outcomes?” (Shadish et al., 2002, p. 89). The researcher may be unable to generalize if a cause-effect relationship exists between the timing of a student’s selection of major and the student’s graduation.

Another external threat to validity is the interaction of causal relationships with settings. This threat exists because the research may differ in one setting from another setting (Shadish et al., 2002). For example, since DSU is a rural university, the outcomes of this study may differ if the study examined an urban university.

### Data Collection

The study utilizes archival data available through the DSU Office of Institutional Research. Table 2 depicts the data collection plan for this study. The plan includes the

timeline to complete the data collection and data analysis and describes the specific tasks to be completed.

Table 2

*Data Collection Plan*

Week number	Item accomplished
Week 1	Requested letter of support from DSU to gain permission and access to DSU data.
Week 2	Submitted application to Institutional Review Board at The University of Southern Mississippi.
Week 6	Once IRB approval received from USM, submitted application to Institutional Review Board at DSU.
Week 9	Once IRB approval received from both The University of Southern Mississippi and DSU, contacted DSU's Office of Institutional Research to request fall 2006, fall 2007, and fall 2008 cohort data.
Week 10	Transferred data into SPSS for data review and analysis.
Week 11	Conducted analyses utilizing SPSS.
Week 16	Added tables and created written analysis.

The researcher sought permission from DSU to use student data (Appendix E). Once DSU approved, the researcher sought approval through The University of Southern Mississippi's Institutional Review Board (Appendix F). In addition, since the study involves another higher education institution in the State of Mississippi, the researcher also sought approval through the DSU Institutional Review Board after approval received from The University of Southern Mississippi (Appendix G). No anticipated risks of undue discomfort and inconveniences to the participants existed since the researcher used archival data, including physical, psychological, and social risks.

After approval from both institutions, the researcher contacted DSU's Office of Institutional Research to request fall 2006, fall 2007, and fall 2008 data. After receipt of the data in Microsoft Excel format, the researcher exported data to SPSS for data analysis. To ensure anonymity, names were not associated with the data. The primary researcher and the DSU Office of Institutional Research only reviewed raw data compiled for this study. The researcher maintained the data electronically in a password protected environment and will destroy after two years from researcher's graduation date. The researcher reviewed the data to ensure accuracy and then conducted the data analysis. Tables and written analysis of the study are included in Chapter IV.

#### Data Analysis

The statistical analysis used for this study is Statistical Package for the Social Sciences Version 22 (SPSS). Variables include, (a) gender, (b) ethnicity, (c) age, (d) first-generation college student, (e) Pell-eligibility, and the early selection of college major, defined as declaring a major within the first year of college (Cuseo, 2005). Table 3 identifies the coding of the variables used by the researcher in SPSS.

Table 3

#### *Variable Coding in SPSS*

Variable	Category	SPSS coding
Cohort	Fall 2006	1
	Fall 2007	2
	Fall 2008	3
Graduated	Yes	1
	No	2
Selection of Major	Late	1
	Early	2

Table 3 (continued).

Variable	Category	SPSS coding
Gender	Male	1
	Female	2
Ethnicity	Caucasian	1
	African American	2
	Hispanic	3
	Asian or Pacific Islander	4
	Alaska Native	5
Age	Less than 18	1
	18-19	2
	20-21	3
	22-24	4
	25-29	5
	30-34	6
	35-39	7
First-generation	Yes	1
	No Data Provided	2
Pell-eligibility	Yes	1
	No	2

This study utilizes nominal and ordinal data. Nominal data denotes the variables of gender, ethnicity, first-generation college student, and Pell-eligibility. Ordinal data denotes the age variable since the data is not in equal intervals. The variable in the research objectives is the early selection of college major. Table 4 describes the data analysis plan.

Table 4

*Data Analysis Plan*

Objective	Item	Data type	Statistical test
RO1	Gender, Ethnicity, Age, first-generation, Pell-eligibility level	Nominal/Ordinal	Descriptive Statistics
RO2	Early Selection of Major	Nominal	Inferential: Chi-Square Test of Independence
	a. Gender	Nominal	
	b. Ethnicity	Nominal	
	c. Age	Ordinal	
	d. First-Generation	Nominal	
	e. Pell-Eligible	Ordinal	
RO3	Gender, Ethnicity, Age, First-Generation and Pell-Eligibility	Nominal and Ordinal	Inferential: Binary Logistic Regression
	Early Selection of Major	Nominal	

This study utilizes two types of statistics, descriptive and inferential. Trochin (2006) explains that descriptive statistics describe the data, while inferential statistics make inferences about the data. Descriptive statistics present quantitative data in a manageable form by taking large amounts of data and categorizing it into nominal and ordinal data. Descriptive statistics describe “the basic features of the data in a study. With descriptive statistics you are simply describing what is or what the data shows” (Trochin, 2006, para. 1-2). Inferential statistics draw conclusions that go beyond the basic data, using the sample to generalize about the entire population. Inferential statistics identify the level of probability to determine if what occurs between groups is either related or simply a matter of chance (Trochin, 2006). Included in the study are nominal and ordinal



data. Nominal data, also known as categorical data, is an unranked scale of measurement used to substitute for a label (Sprinthall, 2007).

Research Objective 1 uses descriptive statistics to illustrate the demographic characteristics of the fall 2006, fall 2007, and fall 2008 DSU freshmen student population; including gender, ethnicity, age, first-generation college student, and Pell-eligibility; and the percentage of the students with early selection of major. Descriptive statistics are important to include in the study because descriptive statistics describe and quantify large amounts of data (Sprinthall, 2007).

Research Objective 2 uses inferential statistics with the Chi Square Test of Independence that addresses two factors: the degree that quantitative variables are linearly related and whether they occur by chance (Green & Salkind, 2008). Chi Square analyzes if the “observed frequency of occurrence differs significantly from the frequency expected on the basis of chance” (Sprinthall, 2007, p. 387). Chi Square is a very popular nonparametric test because the test makes no assumptions about the mean of the population or the basic distribution (Sprinthall, 2007). Chi Square is “safe and extremely versatile, but demands independent cell entries” (Sprinthall, 2007, p. 381). Using the Bonferroni approach to control for Type I error across the two correlations, a  $p < .05$  will be required for statistical significance.

Research Objective 2 determines the relationship between early selection of college major and (a) gender, (b) ethnicity, (c) age, (d) first-generation college student, and (e) Pell-eligibility. Early selection of major is either yes or no. Gender has two categories, male and female. Research Objective 2a determines the relationship between gender and early selection of college major.

Research Objective 2b determines the relationship between ethnicity and early selection of college major. To standardize ethnic categories, this study utilizes the Integrated Postsecondary Education Data System (IPEDS) developed in 1997 by the Office of Management and Budget (National Center for Education Statistics, 2014). The categories are nonscientific of anthropological origins and used to categorize citizens, resident aliens, and other legally authorized individuals (National Center for Education Statistics, 2014). The ethnic categories in 2006 differed from that of 2015 ethnic categories, so the categories used in this study are: African American/non-Hispanic, American Indian/Alaska Native, Asian/Pacific Islander, Hispanic of any race, and Caucasian/Non-Hispanic (National Center for Education Statistics, 2014). Early selection of major is either yes or no.

Research Objective 2c determines the relationship between age and early selection of college major. To standardize the data, this study includes the IPEDS 10 age categories (National Center for Education Statistics, 2014). The researcher converted interval data from birth date to the corresponding ordinal category. Early selection of major is either yes or no.

Research Objective 2d determines the relationship between the socioeconomic factor of first-generation college student and early selection of college major. First-generation college student has two categories, yes or no. Early selection of major is either yes or no.

Research Objective 2e determines the relationship between the socioeconomic factor of Pell-eligibility and early selection of college major. The U.S. Department of Education's Office of Federal Aid (2015) defines the gross income level for Pell-

eligibility as less than \$49,999. Pell-eligibility has two categories, yes or no. Early selection of major is either yes or no.

Research Objective 3 utilizes binary logistic regression to determine the likelihood of students with demographic characteristics of gender, ethnicity, age, first-generation college student, and Pell-eligibility on the early selection of college major. Wagner (2011) explains logistic regression as a method to predict the value of a variable based upon the information of a dichotomous variable. Logistic regression predicts or explains relationships among one dependent variable and one or more continuous or categorical independent variables and allows both individual analysis of each independent variable or the combination of independent variables (Huck, 2008).

Logistic regression allows analysis of dichotomous dependent and independent variables with the dependent variable measuring the existence of occurrence (Wagner, 2011). Logistic regression reduces the variables to a “single propensity score, thus making it feasible to match or stratify on what are essentially multiple variables simultaneously (Shadish et al., 2002, p. 162).

### Summary

As discussed in the literature review of this study, retention affects individual students, educational institutions, and society as a whole. Despite decades of research, retention remains a constant challenge across the nation. The retention of college students is essential for workforce development, so researchers must continue to study retention to identify effective programs and strategies to combat low retention rates. Demographic factors influence retention (Chen, 2005; Stephens et al., 2012; Swecker, 2011). Once a student selects a major, grade point average increases and leads to higher retention rates

(Cuseo, 2005; Wilcoxson & Wynder, 2010). This study examines if demographic factors play a role in the timing of students declaring a major.

This study examines the relationship between demographic factors of gender, ethnicity, age, socioeconomic factors (first-generation college student and Pell-eligibility), and the early selection of major within the first year of attending college to determine if a relationship exists between these factors. Utilizing a nonexperimental, descriptive research design, this study analyzes three freshmen cohorts at DSU, fall 2006, fall 2007, and fall 2008 to determine if the early selection of major is independent of demographic factors. The chi-square test of independence is used to determine if the variable are dependent or independent of the early selection of major. For statistically significant demographic factors, binary logistic regression is utilized to determine the strength of the dependence among the variables.

## CHAPTER IV

### RESULTS

College student retention, although studied for decades, is still a hurdle that higher education institutions face today (Braxton et al., 2007; Stephens et al., 2012; Swecker, 2011; Tinto, 2006). Despite years of retention-related research, the average fall-to-fall retention rates across the United States is 45-55% (Swecker, 2011). In addition to lost revenue through tuition, institutions also face decreases in state funding as state legislatures continue to move to success-based funding allocation models as opposed to per-student funding allocation models (Jones, 2013). Higher education institutions must develop targeted strategies to increase retention rates (Swecker, 2011).

Research states that demographics play a role in college student retention (Stephens et al., 2012). Wilcoxson and Wynder (2010) contend that the lack of a major is the number one reason students drop out of college. Ample research exists regarding demographics and early selection of major as separate retention-related factors. However, little research exists examining if there is a link between demographics and the early selection of major. Therefore, this study seeks to determine if there is a relationship between the early selection of major and gender, ethnicity, age, first-generation college student, and Pell-eligibility.

This chapter describes the results of this study, including an in-depth examination of each research objective. This nonexperimental, descriptive research study examined if there is a relationship between the early selection of college majors and gender, ethnicity, age, first generation, and Pell-eligibility. Early selection of college major is the selection of major within the first year of college (Cuseo, 2005). The population and sample of this

study is the fall 2006, fall 2007, and fall 2008 freshmen cohorts at DSU. This study tracks the students to spring 2015, the latest semester that data was available.

Upon IRB approval from The University of Southern Mississippi (Appendix F) and DSU (Appendix G), DSU's Office of Institutional Research provided the researcher with individual data sets for each semester beginning in fall 2006 and ending in spring 2015. The researcher maintained the data in a password protected document. Student information remained confidential as indicated in the IRB application to both the University of Southern Mississippi and DSU's IRB. All information included in the datasets were stored in Banner, DSU's online student information system, and only accessible by Institutional Research.

The researcher merged the data to create one dataset per student. Banner indicators and variables included (a) term admitted, (b) student ID number, (c) gender, (d) ethnicity, (e) age, (f) first-time freshman, (g) initial classification, (h) first-generation, (i) Pell eligible, (j) received Pell, (k) initial college enrolled, (l) initial degree sought, (m) change of major after year 1, (n) classification at time of major change, (o) if graduated, (p) graduation term, (q) degree earned, (r) college graduated from, (s) if graduated in major declared during year 1, (t) if graduated in major declared after year 1. The dataset includes a total student population of 1,177. After receipt of the Excel data spreadsheet, the researcher reviewed the data for missing or inaccurate data. From review of the data, the researcher discovered 80 students did not complete the first year of college, so the researcher removed these students from the study, resulting in a new size of 1,097. The researcher coded the spreadsheet and added a field to denote if a student selected a major within the first year of college. The researcher then transferred the data to SPSS for

statistical analysis and added variable names, type, labels, values, and measures. Finally, the researcher ran the statistical analysis for the three research objectives of the study, and the next section discusses the results in detail.

### Discussion of Results

The researcher sought to determine if gender, ethnicity, age, first-generation college student, and Pell-eligibility were associated with the early selection of college major. The first research objective describes the overall student population of the study. The second objective determines if the factors are independent from the early selection of major. The final objective identifies the degree of likelihood that the demographic factors predict a relationship with the early selection of college major.

*ROI: Describe the demographic characteristics of the fall 2006, fall 2007, and fall 2008 cohorts of the DSU student population, including gender, ethnicity, age, first-generation college student, and Pell-eligibility.*

Research objective 1 utilizes descriptive statistics to establish a general overview of the fall 2006, fall 2007, and fall 2008 student cohorts. As Trochin (2006) explains, descriptive statistics depict quantitative data in an easily identifiable way. The following tables depict the results of the descriptive statistics on student cohort, graduation, gender, ethnicity, age, first-generation, Pell-eligibility, and early selection of major.

*Student Cohort Population Size.* The population size of this study is 1,097 students and includes first-time, full-time, degree-seeking freshmen from fall 2006, fall 2007, and fall 2008. The researcher tracked the students from their initial enrollment term at DSU through spring 2015 to determine when students selected a major. From the total population of 1,097 students, 389 (35.46%) enrolled in fall 2006, 350 (31.91%) enrolled

in fall 2007, and 358 (32.63%) enrolled in fall 2008. As shown in Table 5, total freshmen fall 2006, fall 2007, and fall 2008 cohorts are within 3% of each other and comprise one third of the total population, therefore equally distributed over the cohorts.

Table 5

*Descriptive Statistics of Student Cohort Size*

Student cohort	<i>n</i>	%	Valid %	Cumulative %
Fall 2006	389	35.46	35.46	35.46
Fall 2007	350	31.91	31.91	67.37
Fall 2008	358	32.63	32.63	100.00
Total	1,097	100.00	100.00	

*Graduation Rate.* Higher education institutions are required to utilize a standard, six-year timeframe to measure college student graduation rates (National Center for Education Statistics, 2014). The researcher identified if students in the population graduated within the six-year timeframe. As shown in Table 6, 454 (41.39%) graduated from DSU and 643 (58.61%) did not graduate from DSU. Table 6 provides descriptive statistics for graduation rate within the six-year timeframe.

Table 6

*ROI: Descriptive Statistics of Graduation Rate*

Graduated	<i>n</i>	%	Valid %	Cumulative %
Yes	454	41.39	41.39	41.39
No	643	58.61	58.61	100.00
Total	1,097	100.00	100.00	



*Early Selection of Major.* Research states that the early selection of college major leads to graduation (Wilcoxson & Wynder, 2010). As suggested by Cuseo (2005), the researcher coded students as early selection of college major if students selected a major within the first year of attending college. As shown in Table 7, approximately one third of the students in the fall 2006, fall 2007, and fall 2008 freshmen cohorts did not select a major within the first year of attending college. Results show 723 (65.91%) selected a major within the first year of college, and 374 (34.09%) did not select a major within the first year.

Table 7

*ROI: Descriptive Statistics of Early Selection of Major*

Selection of major	<i>n</i>	%	Valid %	Cumulative %
Early	723	65.91	65.91	61.34
Late	374	34.09	34.09	100.00
Total	1,097	100.00	100.00	

*Gender.* Male and female are the two categories used for gender in this study. From the total population, all 1,097 students indicated gender. Of the total sample size, less students were male than female. As shown in Table 8, 432 (39.38%) of the students were male and most of the students were female, 665 (60.62%).

Table 8

*ROI: Descriptive Statistics of Gender*

Gender	<i>n</i>	%	Valid %	Cumulative %
Male	432	39.38	39.38	39.38
Female	665	60.62	60.62	100.0
Total	1,097	100.00	100.00	

*Ethnicity.* The researcher used ethnic definitions from IPEDS (National Center for Education Statistics, 2014). Higher education institutions use IPEDS to classify ethnic categories. In 2006, ethnic classification differed slightly from current classifications, so the researcher adjusted the ethnic classifications to match IPEDS ethnic categories. As shown in Table 9, from the total population, all 1,097 students indicated ethnicity, and included 652 (59.43%) Caucasian, 422 (38.47%) African American, 9 (.82%) Hispanic, 12 (1.04%) Asian, and 2 (.18%) Alaska Native.

Table 9

*ROI: Descriptive Statistics of Ethnicity*

Ethnicity	<i>n</i>	%	Valid %	Cumulative %
Caucasian	652	59.43	59.43	59.43
African American	422	38.47	38.47	97.90
Hispanic	9	.82	.82	98.72
Asian or Pacific Islander	12	1.09	1.09	99.81
Alaska Native	2	.18	.18	100.00
Total	1,097	100.00	100.00	

*Age.* The researcher used definitions from IPEDS to organize age categories (National Center for Education Statistics, 2014). DSU Institutional Research reported student date of birth so the researcher converted the dates to actual age at the time of entering college and then placed each student into the appropriate ordinal category. From the total population, all 1,097 students indicated age. As shown in Table 10, 81 (7.38%) are under 18, 913 (83.23%) are 18-19, 92 (8.39%) are 20-21, 4 (.36%) are 22-24, 4 (.36%) are 25-29, 1 (.09%) is 30-34, and 2 (.18%) are 35-39.

Table 10

*ROI: Descriptive Statistics of Age*

Age	<i>n</i>	%	Valid %	Cumulative %
Less than 18	81	7.38	7.38	7.38
18-19	913	83.23	83.23	
20-21	92	8.39	8.39	
22-24	4	.36	.36	
25-29	4	.36	.36	
30-34	1	.09	.09	
35-39	2	.18	.18	
Total	1,097	100.00	100.00	

*First-Generation.* For the purposes of this study, a first-generation college student is a student whose parent or guardian did not graduate from college with a four-year degree (Swecker, 2011). As mentioned earlier as a limitation, in fall 2006, fall 2007, and fall 2008, DSU did not require students to supply information regarding first-generation college student. The information was only included as an optional question on the

FAFSA. As shown in Table 11, from the total population of 1,097, only 26 students (2.37%) indicated first-generation and 1,071 (97.63%) did not provide the information.

Table 11

*ROI: Descriptive Statistics of First-Generation*

First Generation	<i>n</i>	%	Valid %	Cumulative %
Yes	26	2.37	2.37	2.37
No Data	1,071	97.63	97.63	100.00
Total	1,097	100.00	100.00	

*Pell-eligibility.* To standardize Pell-eligibility, the researcher used the U.S. Department of Education's Office of Federal Student Aid (2015) definition of Pell-eligibility. As shown in Table 12, from the total population, all 1,097 students indicated Pell-eligibility. Of the total population size, 855 (72.94%) students were Pell-eligible and 241 (22.06%) students were not Pell-eligible. The national average of U.S. students attending four-year institutions eligible for Pell grants is 38% (National Center for Education Statistics, 2015). However, the percentage of Pell-eligible students at DSU is almost double the national average

Table 12

*ROI: Descriptive Statistics of Pell-Eligibility*

Pell eligible	<i>n</i>	%	Valid %	Cumulative %
Yes	855	72.94	72.94	72.94
No	241	22.06	22.06	100.0
Total	1,097	100.00	100.00	

*RO2: Determine the relationship between the early selection of college major and (a) gender, (b) ethnicity, (c) age, (d) first-generation college student, and (e) Pell-eligibility.*

The focus of this research question was to examine if a relationship exists between the early selection of college major and (a) gender, (b) ethnicity, (c) age, (d) first-generation college student, and (e) Pell-eligibility. Based upon the results of the descriptive statistics in RO1, the researcher identified four areas of concern. First, this study focuses on the early selection of major and defined as the selection of major within the first year of attending college (Cuseo, 2005). As stated, the initial data revealed that 80 students did not complete the first year of college, therefore, these students were removed from the study, yielding a revised study population of 1,097. Second, analysis of student ethnicity data reveal that only 23 out of 1,097 students indicated an ethnic category other than African American or Caucasian. Third, the age range of the students in the population indicates that only 11 out of 1,097 students were 22 years or older when entered DSU. Fourth, only 26 of the 1,097 students indicated first-generation. The researcher removed outlying students who in ethnic categories other than African American or Caucasian, and students age 22 or above. These students represent a different population than the rest of the data and do not reflect the overall population of the demographic factors (Osborne & Overbay, 2004). The data did not contain enough information to reveal valuable information outside of the study, so the researcher removed them from the study (Osborne & Overbay, 2004). The researcher also was unable to run the chi-square test for RO2d because of the low number that answered the first-generation question. The final sample size for this study is 1,063 students.

The chi-square test of independence analyzed the data in this objective and examines the degree to which quantitative variables are linearly related and if they occur by chance (Green & Salkind, 2008). The chi-square test of independence is a non-parametric statistical tool and reveals if the variables are associated with each other and does not make assumptions about the distribution of the data (Green & Salkind, 2008). This analysis used the Bonferroni approach to control for Type 1 error; utilizing a  $p < .05$  required for significance.

*Research Objective 2a: Gender.* Tables 13 and 14 reveal there is not a significant relationship between the early selection of college major and gender  $X^2(1) = 2.041, p = .153$ . The results are statistically not significant between early selection of major and gender. The demographic factor of gender is not associated with the early selection of major and the criteria are independent of each other.

Table 13

*RO2a: Chi Square Test for Independence-Crosstabulation of Gender*

Gender		Changed major		Total
		Late	Early	
Male	Count	132.0	285.0	417.0
	Expected Count	142.8	274.2	417.0
	Residual	-10.8	10.8	
	Std. Residual	-.9	.7	
Female	Count	232.0	414.0	646.0
	Expected Count	221.0	424.8	646.0
	Residual	10.8	-10.8	
	Std. Residual	.7	-.5	
Total	Count	364.0	699.0	1063.0
	Expected Count	364.0	699.0	1063.0

Table 14

*RO2a: Pearson Chi Square -Gender*

Test	Value	df	Sig.
Pearson Chi-Square	2.041 <sup>a</sup>	1	.153
N of Valid Cases	1063		

<sup>a</sup>0 cells (.0%) have expected count less than 5. The minimum expected count is 142.79.

*Research Objective 2b: Ethnicity.* Tables 15 and 16 reveal there is a significant relationship between the early selection of college major and ethnicity  $X^2(1) = 16.987, p < .000$ . The results are statistically significant between early selection of major and ethnicity. The demographic factor of ethnicity is associated with the early selection of major and is not independent of each other. This study only included Caucasian and African American students.

Table 15

*RO2b: Chi Square Test for Independence-Crosstabulation of Ethnicity*

Ethnicity		Changed major		Total
		Late	Early	
African American	Count	111.0	304.0	415.0
	Expected Count	142.1	272.9	415.0
	Residual	-31.1	31.1	
	Std. Residual	-2.6	1.9	
Caucasian	Count	253.0	395.0	648.0
	Expected Count	221.9	426.1	648.0
	Residual	31.1	-31.1	
	Std. Residual	2.1	-1.5	
Total	Count	364.0	699.0	1063.0
	Expected Count	364.0	699.0	1063.0

Table 16

*RO2b: Chi Square Test -Ethnicity*

Test	Value	df	Sig.
Pearson Chi-Square	16.987 <sup>a</sup>	1	.000
N of Valid Cases	1063		

<sup>a</sup> 0 cells (.0%) have expected count less than 5. The minimum expected count is 142.11.

*Research Objective 2c: Age.* Tables 17 and 18 reveal a significant relationship between the early selection of major and age  $X^2(2) = 11.303, p = .004$ . The results are statistically significant between early selection of major and age. The demographic factor of age is associated with the early selection of major and is not independent of each other. This study only includes the age categories of less than 18, 18-19, and 20-21.

Table 17

*RO2c: Chi Square Test for Independence-Crosstabulation of Age*

Age		Changed major		Total
		Late	Early	
Less than 18	Count	38.0	42.0	80.0
	Expected Count	27.4	52.6	80.0
	Residual	10.6	-10.6	
	Std. Residual	2.0	-1.5	
18-19	Count	287.0	606.0	893.0
	Expected Count	305.8	587.2	893.0
	Residual	-18.8	18.8	
	Std. Residual	-1.1	.8	
20-21	Count	39.0	51.0	90.0
	Expected Count	30.8	59.2	90.0
	Residual	8.2	-8.2	
	Std. Residual	1.5	-1.1	



Table 17 (continued).

Age		Changed major		Total
		Late	Early	
Total	Count	364.0	699.0	1063.0
	Expected Count	364.0	699.0	1063.0

Table 18

*RO2c: Chi Square Test -Age*

Test	Value	df	Sig.
Pearson Chi-Square	11.303	2	.004
N of Valid Cases	1063		

<sup>a</sup> 0 cells (.0%) have expected count less than 5. The minimum expected count is 27.39.

*Research Objective 2d: First-Generation.* The DSU Office of Institutional Research was unable to provide data to the researcher as to the number of first-generation students in the fall 2006, fall 2007, and fall 2008 freshmen population. Of the total population of 1,177 students, only 26 students indicated if first-generation or non-first-generation. This data is not representative of the population of first-generation and would reveal inaccurate results (Osborne & Overbay, 2004). Therefore, the chi-square test of independence was not run for first-generation.

*Research Objective 2e: Pell-eligibility.* Tables 19 and 20 reveal a significant relationship between the early selection of major and Pell-eligibility  $X^2(1) = 7.139$   $p = .008$ . The results are statistically significant between early selection of major and Pell-

eligibility. The factor of Pell-eligibility is associated with the early selection of major and is not independent of each other.

Table 19

*Chi Square Test for Independence-Crosstabulation of Pell-eligibility*

Pell-eligible		Changed major		Total
		Late	Early	
Yes	Count	301.0	528.0	829.0
	Expected Count	283.9	545.1	829.0
	Residual	17.1	-17.1	
	Std. Residual	1.0	-.7	
No	Count	63.0	171.0	234.0
	Expected Count	80.1	153.9	234.0
	Residual	-17.0	17.1	
	Std. Residual	-1.9	1.4	
Total	Count	364.0	699.0	1063.0
	Expected Count	364.0	699.0	1063.0

Table 20

*RO2e: Chi Square Test – Pell-Eligible*

Test	Value	df	Sig.
Pearson Chi-Square	7.139 <sup>a</sup>	1	.008
N of Valid Cases	1063		

<sup>a</sup>0 cells (.0%) have expected count less than 5. The minimum expected count is 80.13.

*RO3: Determine the influence of gender, ethnicity, age, first-generation college student, and Pell-eligibility on early selection of college major.*

The focus of this research question was to determine the influence of gender, ethnicity, age, first-generation college student, and Pell-eligibility on the early selection

of college major. Since the researcher lacked data related to first-generation, the researcher omitted this factor from the analysis. In addition, since RO2 revealed a statistically non-significance between gender and the early selection of major, the researcher also removed gender from RO3 since gender is independent of the early selection of major. The researcher used binary logistic regression to determine the likelihood of students to select their major within the first year of college based upon these factors. Logistic regression predicts the relationships between one dependent variable and multiple categorical independent variables (Huck, 2008). Whereas RO2 examined the association between the individual variables and the early selection of major, RO3 determined the relative strength of each predictor when combined. The predictor variables were ethnicity, age, and Pell-eligibility.

The researcher selected the binary logistic regression coefficient, Wald test, and odds ratio for each predictor. Utilizing a .05 criterion of statistical significance, ethnicity, age, and Pell eligible had significant partial effects. The odds ratio for ethnicity indicates that when holding other variables constant, a Caucasian student is 2.210 times more likely for early selection of major than an African American student. The odds ratio for age indicates that when holding other variables constant, a student aged 20-21 is 1.703 times more likely for early selection of college major than a student less than 18. The odds ratio for Pell-eligibility reveals that when holding other variables constant, a Pell-eligible student is 2.023 times more likely for early selection of college major than a non-eligible student. Table 21 describes the binary logistic regression coefficient, Wald test, significance, and odds ratio for each predictor.

Table 21

*RO3: Binary Logistic Regression*

Predictor	$\beta$	Wald	Sig.	Exp( $\beta$ )
Ethnicity	.793	29.331	.000	2.210
Age 18-19	-.145	.212	.645	.865
Age 20-21	.532	5.935	.020	1.703
Pell-eligibility	.704	16.299	.000	2.023

## Summary

This chapter provides the results of the study to determine if demographics play a role in the early selection of college major. RO1 analyzes the descriptive statistics and reveals the student population included in this study of the fall 2006, fall 2007, and fall 2008 cohorts totals 1,097 first-time, full-time, degree-seeking students with 41.39% graduating from DSU, and 58.61% not graduating. Of the total population, the fall 2006 cohort comprises 35.46% of the population, the fall 2007 cohort comprises 31.91%, and the fall 2008 cohort comprises 32.63% of the population. The gender distribution of the population is 39.38% male and 60.62% female. The ethnicity of the population is 59.43% Caucasian, 38.47% African American, and 2.10% other. Regarding age, 7.38% are under the age of 18, 83.23% are between the ages of 18-19, and 9.39% are age 22 and above. The researcher is unable to run descriptive statistics on first-generation college students because DSU did not require students to disclose this information in 2006, 2007, and 2008. Of the total population, 72.94% are Pell-eligible, and 22.06% are not Pell-eligible.

The chi-square analyses for Research Objective 2 indicate the relationships between early selection of major and ethnicity, age, and Pell-eligibility are statistically significant. However, the chi-square analyses indicates the relationship between early selection of major and gender and first-generation are statistically not significant. The binary logistic regression reveals a significant influence of ethnicity, age, and Pell-eligibility on the early selection of major. Building upon these results, Chapter V discusses the findings, conclusions, and recommendations for future research.

## CHAPTER V

### SUMMARY, DISCUSSION, AND RECOMMENDATIONS

College student retention, although studied for years, continues to be an issue faced by many colleges today (Swecker, 2011). A one-size-fits-all approach does not work (Berger & Lyon, 2005; Swecker, 2011; Tinto, 1993). Universities must create initiatives that target their specific students. In addition to costs directly associated with the loss of student tuition, colleges face increased financial difficulty compared to previous years due to state legislatures linking state funding formulas to student success and retention (Hessler et al., 2008). Colleges must identify indicators to retain students to graduation. The early selection of college major is an indicator of success (Wilcoxson & Wynder, 2010). In addition, demographics play a role in college success (Stephens et al., 2012). For the purpose of this study, the researcher examined if a relationship exists between the early selection of major and demographic factors of gender, ethnicity, age, and the socioeconomic factors of first-generation and Pell-eligible students.

#### Findings, Conclusions, and Recommendations

##### *Finding One*

Descriptive statistics identified the basic characteristics of the fall 2006, fall 2007, and fall 2008 freshmen student cohorts. The distribution for these student cohorts are each approximately one-third of the total population of this study with approximately 40% male and 60% female. Approximately 98% of the ethnic distribution is composed of African American and Caucasian students, with only 2% in other ethnic categories. Approximately 99% of the ages of the entering freshmen students ranges from less than 18 and up to 21 years of age. First-generation data was unavailable, and approximately

73% of the students are Pell-eligible. The overall six-year graduation rate for these freshmen cohorts is 41%, and 61% of the students selected a major early within the first year of college.

### *Conclusion One*

The fall 2006, fall 2007, and fall 2008 freshmen cohorts at DSU reflect the overall DSU student population and can be utilized as a foundation to adequately study the future retention of students (Office of Institutional Research and Planning, 2014). The overall six-year graduation rate for these freshmen cohorts is 41% and is 4% below the national lowest average six-year graduation rate of 45-55% (Swecker, 2011). The percentages of gender, ethnicity, age, and Pell-eligibility remain consistent throughout the years (Office of Institutional Research and Planning, 2014).

It would have been helpful if DSU had collected first-generation information in the past. This information would be beneficial for both the first-generation students who attend DSU and to the University. If DSU knew who the first-generation students were, the University could provide targeted assistance to them. For DSU, knowing the percentage of DSU students who are first-generation would be helpful to include in proposals for funding for at-risk students.

### *Recommendation 1.1*

The researcher recommends that DSU collect first-generation information in the future by adding it to the initial application for admission. First-generation college students approach college differently than non-first-generation students and are 1.3 times more likely to drop out of college (Swecker, 2011). If the University can identify these students, interventions could be provided to help ensure the successful matriculation

through college. Collecting this data is also beneficial to the University for funding-related reasons. Research identifies first-generation students as at-risk (Stephens et al., 2012; Harding, 2008). The State of Mississippi utilizes a success-based funding allocation model that includes funding for the percentage of at-risk students (Mississippi Institutions of Higher Learning, 2013). Identifying the number of first-generation students will also help when the institution is seeking federal and private grants. For example, the *First in the World* and *TRIO* programs, both funded through the U.S. Department of Education, focus on low-income and first-generation college students (U.S. Department of Education, 2015). DSU can collect this data by adding the question to the initial admissions' application. This would identify new students who meet these criteria, but the University should also investigate ways to gather the information from its current students.

### *Recommendation 1.2*

The University should continue to examine demographic factors related to freshmen cohorts from fall 2009 to present to determine if results remain consistent. Future analysis could reveal stronger associations to demographics on areas other than early selection of college major, such as pre-registration, length of time to graduate, and types of majors based upon demographics.

### *Finding Two*

This study examined three cohorts of first-time, full-time, degree-seeking students from fall 2006, fall 2007, and fall 2008. Of the total student population of the three cohorts, one third of the students did not select a major within the first year. This study



did not focus on whether those who lacked a major continued enrollment and graduated, but only focused on the selection of major within the first year.

### *Conclusion Two*

It is a concern that one third of the students did not select a major within the first year of attending college. Wilcoxson and Wynder (2010) explain that students without a clear choice of major are at a higher risk of dropping out of college because they lack focus. A student's chance of graduating improves by 22% once a major is selected (Almaraz et al., 2010).

### *Recommendation 2.1*

The researcher recommends that the University strengthen its efforts to help students declare a major within the first year of attending the university. Early selection will increase the likelihood of a student progressing from one year to the next (Cuseo, 2005). Targeted programs focusing on the entire student life cycle, from freshmen through senior year, are important steps to help students identify a major (University of Oregon, 2015). DSU should consider expanding its Okra Scholars program, funded through the U.S. Department of Education's Fund for the Improvement of Postsecondary Education, to allow all incoming freshmen interested in joining the program to participate (Okra Scholars, 2015).

### *Recommendation 2.2*

The researcher recommends that the University examine students who changed majors to determine if students graduate in the same degree field or if students change to a different field. For example, it would be beneficial to identify if students change from one business field to another, such as from management to marketing, or if students

change to completely different fields, such as management to biology. This information would be helpful so academic advisors could offer additional career-guidance to students (McMahan, 2015).

### *Recommendation 2.3*

The researcher recommends the University run additional analysis combining gender, ethnicity, age, and Pell-eligibility to attempt to predict what type of student has a low percentage of early selection of major. For example, future results may reveal that a 18-19 year old, Pell-eligible Caucasian female selects a major within the first year of college. Pinpointing the specific student could lead to more targeted programs and resources devoted to improving graduation rates.

### *Finding Three*

As discussed in Chapter IV, since this study focuses on the selection of major during the first year, the researcher removed 80 students from the sample because they did not complete their first year at DSU. Data does not exist as to why the students did not return to DSU. The University does not officially evaluate why students leave within the first year of attending college.

### *Conclusion Three*

It would be beneficial to know why the 80 students dropped out before the end of the first year of college (Taylor & McAleese, 2012). Understanding why students leave DSU would be helpful when the University creates new programs to identify strategies to retain students. If a specific reason emerges from the data, financial hardship for example, the University could target strategies to assist students with financial resources.

It would also be beneficial to the University to know the demographic characteristics of students who are retained and not retained to graduation. Using predictive analytics to determine the characteristics of graduates and non-graduates could provide additional evidence and support as new programs are developed (Taylor & McAleese, 2012). For example, the University could determine if African American Pell-eligible females entering college at 18 or 19 years old have a higher graduation rate than other demographic groupings. This data could provide the University with information that would be helpful when recruiting new students to DSU.

### *Recommendation 3.1*

The researcher recommends that the University maintain appropriate dropout records of DSU students. This information would be beneficial as new retention strategies are developed. Currently the University utilizes a paper withdrawal from school form, but the information is not uploaded to Banner, the University's data management system (Delta State Universities Policies, 2015). If information were collected, analysis of data could identify common reasons for students leaving DSU.

### *Recommendation 3.2*

In addition, the University could examine the student records of the 80 students who did not complete the first year to determine if they selected a major in the first year and if they registered for classes in their major or only general education classes. This information would be helpful to the University as it investigates the creation of meta-majors (Delta State University, 2015). Meta-majors are a grouping of majors for freshmen and sophomores, such as business, that require the same general education courses directly related to specific majors (O'Connor, 2013). Meta-majors include

multiple majors in related fields that utilize similar general education requirements (O'Connor, 2013). Establishing meta-majors at DSU could help students establish a clearer path to earning a degree. While they would not decide the specific major, meta-majors would put students on a path towards a specific major (O'Connor, 2013).

#### *Finding Four*

The researcher analyzed gender to determine if a relationship existed between gender and the early selection of major. Results reveal that gender is independent of the early selection of major. Since the results were independent, gender was not included in RO3 as a factor in the binary logistic regression analysis.

#### *Conclusion Four*

Chi square results reveal gender and the early selection of college are independent. This finding is compelling because research states that males are more likely to drop out of college than females (Mangan, 2014). Males are less likely to go to college because of lack of interest, limited finances, lack of skills, and less likely to adapt than females (College Stats, 2015).

#### *Recommendation Four*

Since gender is independent of early selection of major, the researcher recommends that DSU create an initiative to promote the early selection of major for all students. As stated in Finding Two, one-third of the freshmen population did not select a major early, so all students could benefit from events and activities designed to assist in the selection of major. DSU currently has a career exploration fair designed to expose students to degrees and majors available at DSU (Delta State University, 2015). This event could be expanded with additional services offered, such as encouraging students to

take the Strong Interest Inventory to help identify areas of interest. The Strong Interest Inventory is a popular career-planning tool based upon the Holland Codes that links potential career paths to interests (McCay, 2015) Academic advisor training focusing on career coaching could be established to increase the academic advisors' understanding and knowledge of strategies to provide targeted assistance to help students identify appropriate majors that utilize their talents and skills.

#### *Finding Five*

The researcher analyzed ethnicity to determine if a relationship and/or an influence existed between ethnicity and the early selection of major. The study focused only on Caucasian and African American students because of the very low number of other ethnicities represented in the population. Chi square results show ethnicity and the early selection of college are dependent. The binary logistic regression reveals that a Caucasian student is 2.210 times more likely to select a major within the first year as opposed to an African American student at DSU.

#### *Conclusion Five*

This study revealed Caucasians are more likely to declare a major early as compared to African Americans. This finding is consistent with research related to graduation rates, as Caucasians are more likely to graduate from college than minorities (Mangan, 2014).

#### *Recommendation Five*

Results reveal Caucasians are more likely than African Americans to select a major early, so the researcher recommends the University pursue approaches to improve the early selection of majors for minorities. The University could identify the percentage

of minorities who graduate from low-performing high schools in the Mississippi Delta to determine if there is a correlation between low performing high schools and major selection. Mangan (2014) notes that minority groups often graduate from low performing high schools with less opportunities and options. This lag could hinder African American students from declaring a major early because of the lack of knowledge of available majors offered outside of the limited classes and programs available at their high schools (Ross & Kena, 2012). Since 65% of DSU's student population is composed of students who attended high school in the Mississippi Delta, these students face additional challenges (Ross & Kena, 2012). DSU could develop a program to help African Americans investigate available majors during their first year of college.

#### *Finding Six*

The researcher analyzed age to determine if a relationship and/or an influence existed between age and the early selection of major. The study focused only on students less than 22 years old because of the very low number of other ages represented in the population. Chi square results show age and the early selection of college are dependent. The binary logistic regression reveals a freshman student between the ages of 20-21 is 1.703 times more likely to select a major early than students less than 18 years of age.

#### *Conclusion Six*

Approximately 99% of the study's sample are millennials. The researcher anticipated making a comparison with other generations. However, a comparison cannot be made since such a high percentage of the population are 21 years of age or younger.

*Recommendation Six*

The researcher recommends that the university investigate to see if this population is consistent with the overall population of the undergraduate student body. If so, the researcher recommends the University providing training to faculty and staff on how to work with millennials. Also, programs could be developed to specifically target students 19 years of age and younger to increase their likelihood of early selection of major.

*Finding Seven*

The researcher analyzed Pell-eligibility to determine if a relationship and/or an influence existed between Pell-eligibility and the early selection of major. Chi square results show Pell-eligibility and the early selection of college are dependent. The binary logistic regression reveals that the Pell-eligible students are 2.023 times more likely to select a major in the first year than non-Pell-eligible students.

*Conclusion Seven*

Research states that higher income students are more likely to stay in college (Stephens et al., 2012). However, the results of this study reveal that Pell-eligible students are more likely to declare early, which could lead to a higher likelihood of graduation. Since the population of this study has such a high percentage of Pell-eligibility, results may not be consistent across the entire student population.

*Recommendation 7.1*

The researcher recommends the University investigate to determine the percentage of total number of students who graduate that are Pell-eligible. If it is a large percentage, this finding could be very revealing and the University could develop a program for non-Pell-eligible students. Students who are not Pell-eligible could be

slightly over the income threshold that prohibits them from receiving financial aid and creates financial hardships that hinder graduation.

### *Recommendation 7.2*

The researcher recommends the University collect family income level to track income levels of students who succeed and dropout. Fifty-five percent of DSU students receive Pell grants as compared to 35% of college students receiving Pell grants nationally (Office of Institutional Research and Planning, 2014). In addition to DSU documenting Pell-grant eligibility of its students, DSU should consider asking students for family income levels. This information could help the University identify segments of the population who may struggle due to finances. For example, the University could examine if students with family income levels slightly higher than the maximum Pell-grant eligibility are retained to graduation. If results reveal this statistic to be true, the University should consider investigating avenues to assist non-Pell-eligible students.

### Recommendations for Future Research

Based upon the results of this study, the researcher recommends three options for additional analysis to strengthen the understanding of demographics and the early selection of major. The first recommendation is to analyze the number of times a student changes his/her major to determine the influence on graduation rates. The second recommendation is to examine freshmen cohorts to determine if geographic location plays a role in early selection of college major. Research states that students who are residents of the Mississippi Delta face additional academic challenges than typical college students (Ross & Kena, 2012). Since 65% of DSU students are residents of the Mississippi Delta, this could be a revealing finding (U.S. Department of Education,



2013). Third, this study can be expanded to examine differences in higher education institutions, such as rural vs. urban, research-based vs. regional, private vs. public, and two-year vs. four-year, to see if similar outcomes result regarding demographics.

### Summary

Tinto (2006) states the goal of attending college is to graduate. College student retention is essential because higher education institutions prepare tomorrow's workforce (U.S. Department of Education, 2013). In addition, student retention is imperative for the operating efficiency of higher education institutions because states are moving towards success-based funding allocation models as opposed to providing funding based on the number of students attending a university (Jones, 2013). In 2013, 14 states began researching success-based formulas (Doubleday, 2013). Within one year, in 2014, 25 states implemented a success-based funding allocation (National Conference of State Legislatures, 2014). In 2015, 32 states report funding allocation formulas based on performance indicators and five more states are in the process of transitioning to this model (National Conference of State Legislatures, 2015). The Mississippi Institutions of Higher Learning, the governing body for Mississippi's eight public, four-year universities, has implemented a success-based funding model. DSU's retention rate is one of the lowest in the state, so the University must work diligently to create effective ways to increase the retention of its students. As the amount of funding from the Mississippi State Legislature continues to decline, it is more important than ever to increase student retention to graduation (Mississippi Institutions of Higher Learning, 2013).

This study examined demographics and the early selection of college major. The conceptual framework for this study identified demographics as a potential factor in the

early selection of college major. The researcher examined the demographic factors of gender, ethnicity, age, first-generation, and Pell-eligibility. This study supports that the demographic factors of ethnicity, age, and Pell-eligibility are associated with the early selection of college major. However, the study determined that the demographic factor of gender is not directly associated with the early selection of major.

The results of this study increase the body of research associated with demographics and the early selection of major. This study builds upon the existing retention-related research and provides an initial link between demographics and the early selection major. Demographics play a vital role in human capital development (Stephens et al., 2012). This study expands the body of knowledge in human capital development and strengthens the importance of studying human capital development. Expanding this research will help strengthen higher education institutions to increase retention and graduation of college students. A large percentage of tomorrow's jobs requires a bachelor's degree (U.S. Department of Education, 2013). Lotkowski et al. (2004) state it is not only important to recruit students, it is also vital to retain them for the "economic and social health of the nation" (p. 2). Retaining students to graduation increases and strengthens the number of college-educated individuals prepared for tomorrow's workforce (U.S. Department of Education, 2013).

This study may serve as a guide for future retention-related research at DSU because it creates a foundation for conducting further analysis of the relationship between demographics and the early selection of major. The findings have the potential to help DSU administrators, faculty, and staff proactively plan, develop, and implement targeted programs based on the demographic characteristics of its students.

## APPENDIX A

## PERMISSION TO USE TINTO MODEL

On Sep 24, 2014, at 1:28 PM, Vincent Tinto <[vtinto@syr.edu](mailto:vtinto@syr.edu)> wrote:

Christy:  
Thank you. Stay well and do well.

vincent tinto

On Sep 24, 2014, at 6:31 AM, Christy Riddle <[criddle@deltastate.edu](mailto:criddle@deltastate.edu)> wrote:

Dr. Tinto,  
Thank you for clarifying that separation is more of a transition as opposed to a theory, and I apologize for my misunderstanding of separation. After additional review of your research, your Student Integration Model would be beneficial to include in the historical review of retention section to strengthen the theoretical framework. With your approval, I would like to include your Student Integration Model in this section.

Thank you for taking time to follow-up with me. I have studied your work while pursuing my Ph.D., and I utilize your research at my university in our Student Success Center. I am honored that you have taken the time to talk with me.

Christy

On Sep 15, 2014, at 11:29 AM, Vincent Tinto <[vtinto@syr.edu](mailto:vtinto@syr.edu)> wrote:

Dear Christy:  
Please feel free to utilize y so-called theory of separation. Let me caution you, however, that it was intended less as a theory than a way of thinking about the transition to college. But as subsequent research has demonstrated, while it may apply to students who live away from home while attending college, it is less suited to those who commute to college, many of whom work or have family obligations. At the same time, some researchers have pointed out that for some racial/ethnic groups, total separation from one's past may be counterproductive (e.g. Hispanic students). My point is simple; do not use my framework without testing when it applies to the students you study.

Sincerely  
vincent tinto

On Sep 14, 2014, at 9:02 AM, Christy Riddle <[criddle@deltastate.edu](mailto:criddle@deltastate.edu)> wrote:

Good morning.  
I am currently pursuing a PhD in Human Capital Development at the University of Southern Mississippi, and I am employed at Delta State University, located in Cleveland, Mississippi, as the Executive Director of the Student Success Center. I am writing to request to use your Theory of Separation model in my dissertation as a part of the theoretical framework for my study.

My dissertation is titled, "How Did the Students Cross the Road? The Relationship of Demographics Factors on Early Selection of Major." As research reveals, demographics and when a student selects a major are individual reasons for student success. My study examines if demographics (gender, ethnicity, age, 1st generation or family income level) play a role in when a student selects a major.

Please let me know if I need to provide additional information. Thank you in advance for your consideration of this request.

Christy Riddle

## APPENDIX B

PERMISSION TO USE BEAN MODEL

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On Oct 15, 2014, at 5:28 PM, Christy Riddle <[criddle@deltastate.edu](mailto:criddle@deltastate.edu)> wrote:

Thank you so much.

I appreciate you taking the time to reply to my email. It is an honor to communicate with you. And thank you for the recommendation for the Nine themes.

-Christy

---

On Oct 15, 2014, at 12:49 PM, Bean, John P. <[bean@indiana.edu](mailto:bean@indiana.edu)> wrote:

Christy Riddle,

You have my permission to use, with proper attribution, in your dissertation and any publications based on that research, my Psychological Model of College Student Retention. Best of luck with your study.

John P Bean,  
Associate Professor Emeritus

PS see Google Scholar Bean, J P for other references. The "Nine Themes..." Chapter might be useful. -j

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On Oct 14, 2014, at 6:55 PM, Christy Riddle <[criddle@deltastate.edu](mailto:criddle@deltastate.edu)> wrote:

Good evening, Dr. Bean.

I am currently pursuing a PhD in Human Capital Development at the University of Southern Mississippi. I am also employed at Delta State University, located in Cleveland, Mississippi, as the Executive Director of the Student Success Center. I am writing to request to use your Psychological Model of College Student Retention in my dissertation as a part of the theoretical framework for my study.

My dissertation is titled, "How Did the Students Cross the Road? The Relationship of Demographics Factors on Early Selection of College Major." As research reveals, demographics and the early selection of major are individual reasons for student success. My study examines if demographics (gender, ethnicity, age, 1st generation or family income level) play a role in the early selection of major.

Please let me know if I need to provide additional information. Thank you in advance for your consideration of this request.

Christy Riddle

## APPENDIX C

## PERMISSION TO USE HOLLAND MODEL

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**From:** Christy Riddle  
**Sent:** Tuesday, November 04, 2014 7:33 PM  
**To:** Corinna A Ethington (cethngtn)  
**Subject:** RE: Request to Use Holland Model

Thank you so much for your reply. I appreciate you taking the time to follow-up with me.

-Christy

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**From:** Corinna A Ethington (cethngtn) [cethngtn@memphis.edu]  
**Sent:** Tuesday, November 04, 2014 3:56 PM  
**To:** Christy Riddle  
**Subject:** Re: Request to Use Holland Model

Christy, as far as I know and I checked with Dr. Smart, there is no approval needed. Just use the proper citations to indicate that you are basing your work, in part, on that model. Good luck with your research!

---

**From:** Christy Riddle <criddle@deltastate.edu>  
**Sent:** Saturday, November 1, 2014 12:50 PM  
**To:** Corinna A Ethington (cethngtn)  
**Subject:** Request to Use Holland Model

Dr. Ethington,

I am currently pursuing a PhD in Human Capital Development at the University of Southern Mississippi. I am also employed at Delta State University, located in Cleveland, Mississippi, as the Executive Director of the Student Success Center. My dissertation is titled, "How Did the Students Cross the Road? The Relationship of Demographics Factors on Early Selection of College Major." As research reveals, demographics and the early selection of major are individual reasons for student success. My study examines if demographics (gender, ethnicity, age, 1st generation or family income level) play a role in the early selection of major.

I am writing to request your guidance on how to obtain approval to use the Holland Person-Environment Fit Model in my dissertation. I have received approval to use two other models in my dissertation, but since Dr. Holland passed away a few years ago, I am uncertain who to ask to request to use his model.

In my dissertation, I am citing your 2006 report for the National Symposium on Postsecondary Student Success, "Holland's Theory and Patterns of College Student Success," that you co-wrote with Dr. Smart and Dr. Feldman. On page 12 of your report, the model is included. Is it possible to get permission from you to use this model, or is there another option that you recommend?

Please let me know if I need to provide additional information. Thank you in advance for your assistance.

-Christy Riddle

## APPENDIX D

## PERMISSION TO USE MISSISSIPPI DELTA FIGURE

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**From:** Christy Riddle  
**Sent:** Monday, October 20, 2014 8:29 PM  
**To:** Howell, Frank  
**Subject:** RE: jpeg of Delta Region?

Ok, great! Thank you so much.

---

**From:** Howell, Frank [fhowell@deltacouncil.org]  
**Sent:** Monday, October 20, 2014 8:10 PM  
**To:** Christy Riddle  
**Subject:** Re: jpeg of Delta Region?

Congrats Christy. Yes, we have that and will give you some options!

Thanks.

Sent from my iPhone

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On Oct 20, 2014, at 8:02 PM, "Christy Riddle" <criddle@deltastate.edu> wrote:

Hi, Frank.

I'm currently pursuing a Ph.D. in Human Capital Development at the University of Southern Mississippi, and I am working on my dissertation. It focuses on student retention at Delta State and the various demographic factors that play a role in retention.

In the population section, I would like to include a map of the 18-county Delta region to give readers an idea of where the Delta is located within Mississippi. Do you have a high-resolution jpeg with the Delta region highlighted within the State of Mississippi that you could email me that I could use?

Thanks in advance for your assistance.

-Christy

APPENDIX E  
DELTA STATE UNIVERSITY  
PERMISSION TO CONDUCT STUDY



PROVOST AND VICE PRESIDENT FOR ACADEMIC AFFAIRS

December 15, 2014

Institutional Review Board  
University of Southern Mississippi  
118 College Drive #5147  
Hattiesburg, MS 39406-0001

Dear Colleagues:

On behalf of Delta State University, I am pleased to offer our support of the research that Christy Riddle is conducting for her dissertation at the University of Southern Mississippi. Christy serves as the Executive Director of the Student Success Center and chairs DSU's Student Success Task Force, and her research findings will be beneficial as DSU continues to strengthen our retention efforts.

Christy and I have discussed her research plans to examine DSU's Fall 2006-2008 freshmen cohorts through May 2012-2014 to determine if demographic factors play a role in the early selection of college major. She will work closely with the Office of Institutional Research to ensure the security and confidentiality of the data.

Please contact me if you have any questions, concerns, or need additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "Charles McAdams", written over a horizontal line.

Charles McAdams, Ph.D.  
Provost/Vice President of Academic Affairs

## APPENDIX F

## UNIVERSITY OF SOUTHERN MISSISSIPPI

## INSTITUTIONAL REVIEW BOARD NOTICE OF COMMITTEE ACTION



THE UNIVERSITY OF  
SOUTHERN MISSISSIPPI

**INSTITUTIONAL REVIEW BOARD**

118 College Drive #5147 | Hattiesburg, MS 39406-0001

Phone: 601.266.5997 | Fax: 601.266.4377 | [www.usm.edu/research/institutional.review.board](http://www.usm.edu/research/institutional.review.board)

**NOTICE OF COMMITTEE ACTION**

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.  
Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 15012905

PROJECT TITLE: How did the Students Cross the Stage? The Relationship of Demographic Factors on Early Selection of College Major

PROJECT TYPE: New Project

RESEARCHER(S): Christy Riddle

COLLEGE/DIVISION: College of Science and Technology

DEPARTMENT: Human Capital Development

FUNDING AGENCY/SPONSOR: N/A

IRB COMMITTEE ACTION: Expedited Review Approval

PERIOD OF APPROVAL: 01/30/2015 to 01/29/2016

**Lawrence A. Hosman, Ph.D.**

**Institutional Review Board**



APPENDIX G  
DELTA STATE UNIVERSITY  
INSTITUTIONAL REVIEW BOARD APPROVAL



GRADUATE & CONTINUING STUDIES

February 27, 2015

Ms. Christy Riddle  
DSU Box 3232  
Cleveland, MS 38733

Study: "**How Did the Students Cross the Stage?**": **The Relationship of Demographic Factors on Early Selection of College Major**  
IRB Protocol number: **15-011**  
Approval Date: **March 6, 2015**  
Project Start date: **April 1, 2015**

Dear Ms. Riddle,

On behalf of the Institutional Review Board (IRB) at Delta State University, I am pleased to inform you that your request for IRB clearance for the project identified above appears to be in order, including your approval from the University of Southern Mississippi. I see no deception, coercion, or harmful effects in your use of archived data.

This project is classified as EXEMPT under the following categories of exemption:

- (4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects

The project does not require further review by Delta State IRB unless you make changes to the protocol that could affect research subject welfare. If so, please file a request for a change to the original protocol.

Sincerely,

A handwritten signature in cursive script, appearing to read "B. Moon".

Beverly M. Moon, Ph.D.  
Institutional Review Board, Chair  
DSU ID Number: **IRB00001545**

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