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SECOND-YEAR TO THIRD-YEAR IN COLLEGE:
IDENTIFYING FACTORS IN THE DECISION 'NOT TO RETURN'

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Education
in the Higher Education & Policy Studies Program
in the College of Education and Human Performance
at the University of Central Florida
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Major Professor: Rosa Cintrón

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ABSTRACT

The purpose of this research was to determine if there are characteristics that can be identified as predictors in an undergraduate's second year of college that may forecast the possibility of students' attrition prior to their third year. This current research was based on the literature that identified the following variables as impacting issues of retention and attrition between the second and third years in college: Term of admission offer, type of admission offer (Roth-Francis, 2013), home mailing address (Tierney, 2000), gender and age (Schaller, 2010), college enrolled in and major (Graunke & Woosley, 2005; Pascarella & Terenzini, 2005), ethnicity (Miller & Herreid, 2009; Sciarra & Whitson, 2007), first generation status (Paulsen & St. John, 2002), hours completed (Pattengale, 2000), overall grade point average and university grade point average (Gohn, Swartz, & Donnelly, 2001; Pascarella & Terenzini, 2005), residency status (Paulsen & St. John, 2002), and ACT score and SAT score (Miller & Herreid, 2009). The cohorts examined consisted of students who began their freshman collegiate careers in the Summer or Fall terms from 2009 to 2013, and had completed two years at a university located in a southeastern state. When merged, there were 26,957 rows of data collected.

The results of the Multicollinearity and Path Analysis indicated, among other things, three attrition areas at the end of the second year. These variables included university GPA, hours completed, and major.

Regarding recommendations, it was suggested to build a second-year advising, mentoring, and faculty/professional staff outreach infrastructure to increase the retention rates of second-year students who may be at-risk of attrition.

I dedicate this work to my Dad and Mom.

Gone too soon, but you left me with an appetite for knowledge and a love of reading.

This is another one of those times I wish you were here.

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VIGNETTE

Frank had a good year as a freshman at Whattsamatta University. He lived on campus with his friends from high school. There was always something going on for first year students. He went to the Freshman Year Advising office to get advice from his academic advisor. Even though he had done well in science classes in high school, the Biology 1 and Chemistry 1 classes had really been challenging for him. Chemistry 1 was especially hard and he neglected his other spring classes to try and focus on it. He finished his first year with a 2.75 GPA.

Frank's second year was proving to be even more challenging. After receiving his grades, Frank decided that a career in science was not for him. This disappointed his parents. Students in their second year had to either take part in the housing lottery or find an apartment off-campus. Frank signed a lease at the first apartment he found. The second year was not very successful for Frank. His grades at the end of the spring did not meet the standard for financial aid renewal. He still could not decide on a plan of study to major in. His parents didn't understand and told him they would not be able to help him make up for any loss of his financial aid. Frank faced having to make decisions on renewing his lease, or finding a new place to live, choosing a major when he still did not know what he wanted to do for a career, trying to stay in touch with his first year friends, and finding a job that would allow him to take classes during the day. At the end of the semester, Frank did not enroll in any classes for the next year, moved out of his apartment, and went back to his parent's house. His father was able to get him a job as an apprentice mechanic.

CHAPTER ONE INTRODUCTION

Background of the Study

Following the introductory first year of college, and before the challenging work of the third and fourth years of a pursued major, lies the second year of a student's academic career. Often a transitory time between the spotlight of the first year experience and the dedicated and focused scholarship within their degree field, the second year for many students has the potential to produce a slump of uncertainty and diffusion (Gehman, 1955; Graunke & Woosley, 2005; Lemons & Richmond, 1987; Packard, 2004). Since the 1970s, many of the retention efforts put into place by American colleges and universities have focused on the initial year of enrollment by freshmen (Gardner, Tobolowsky, & Hunter, 2010; Nora, Barlow, & Crisp, 2005; Schaller, 2010).

It was in the 1990s and early 2000s that attrition became an issue to colleges and universities, as rates of retention became noticed and published (Kuh, Kinzie, Schuh, & Whitt, 2005). Rising public discontent with the financing of the contemporary higher education led state leaders to recognize the political advantages in giving education reform a prominent place in policy agendas, particularly by linking enhanced education systems with economic development and tax relief (Moller-Wong, Shelley, & Ebbers, 1999). The recession of the 1990s brought many higher education initiatives under scrutiny by legislators who raised questions about relevance and effectiveness while trying to balance budgets (Kuh et al., 2005). Along with state and national legislatures, other educational stakeholders, such as taxpayers and parents, have demanded more accountability from public institutions (Arrington, 1994; Moller-Wong et

al., 1999). In terms of retention, researchers have found it is more expensive to recruit new students than it is to retain current ones (Ferguson, Wisner, & Discenza, 1986). This left many higher education administrators stretching budget dollars, desperately working to make ends meet and achieve the mission of the institution (Polonio & Williams, 1991).

The question of how many students are retained after the first year gives rise to the question of what happens after the initial year, and will those students who remain enrolled after the second year complete their degrees? This study continued the work of Margolis (1976), Lemons and Richmond (1987), Gardner (2010), Schaller (2010), and other researchers in considering what happens to students as they transition from their second to their third year of college. These data are presented in Table 1.

Table 1

Trends Within Retention Efforts of Second-year Students

Trend	Researchers	Description of issue	Time Period
Sophomore slump	Gehman, Freedman	Poor academic preparation, “deviancy”	1955-1956
Sophomore slump	Margolis, Furr, & Gannaway, Lemons, Richmond	Student Development	1975; 1982-1987
Freshman retention	Astin, Gardner, Pascarella, Tinto	Persistence relative to student involvement	1987-present
Sophomore retention	Gardner, Schaller	Second-year experiences	1999 – present

Statement of the Problem

Frequently during the second year of college a sophomore slump will take hold

(Freedman, 1956; Furr & Gannaway, 1982; Gehman, 1955; Graunke & Woosley, 2005; Lemons & Richmond, 1987; Margolis, 1976; Packard, 2004), and this can potentially result in students not returning for their third year. The effects of the attrition of second-year students can be two-fold: one on the institution and the other on the student. The institution has the potential for loss in a multiplicity of ways. The researcher has identified seven factors based on the review of the literature in this area.

The first factor indicated in the literature was retention rates which will decrease with the loss of every non-continuing student; future tuition income and potential alumni support may also comprise losses (Gardner et al., 2010; Ferguson et al., 1986, Yorke & Longden, 2004). It is important in the planning process that colleges and universities know how many students are likely to return each year. Enrollment numbers translate into tuition dollars which, in turn, pays for salaries, supplies, and operating expenses (Moller-Wong et al., 1999).

The second factor indicated in the literature was that institutions with poor records of retention are likely to receive bad publicity (Yorke & Longden, 2004). When students do not persist, attrition can be construed in terms of the inefficiency of the higher education system as opposed to a failure on the part of the individual student (Astin, 1999; Tinto, 1987; Yorke & Longden, 2004).

A third factor indicated in the literature was that although some of these students may transfer to another college or university, researchers have shown that institutional continuity increases the likelihood that students will persist and complete a bachelor's degree (Pascarella & Terenzini, 2005). If students do not continue at their original institutions but transfer to another college or university, they run the risk of potentially losing credit hours when transferring, as the

new institution may not accept all of the credits earned at the original school (Yorke & Longden, 2004).

The fourth factor indicated in the literature was that students who do not persist in the completion of a degree will have the potential for hindered future educational attainment and thus lesser earning power throughout their lives than those who persist and earn a bachelor’s degree (Pascarella & Terenzini, 2005). These data are presented in Table 2.

Table 2

Median Annual Earnings of Full-time Year-round Workers Ages 25-34, by Educational Attainment and Gender: 2013

Education Attainment	Male	Female
Less than High School Completion	\$24,400	\$19,900
High School Completion ¹	\$31,700	\$25,000
Associate's Degree	\$41,700	\$32,400
Bachelor's Degree ²	\$51,900	\$44,600
Masters or Higher Degree	\$66,800	\$53,900

Note. ¹ Includes equivalency credentials, such as the General Educational Development (GED) credential.

² Represents median annual earnings of full-time year-round workers ages 25-34 with a bachelor's or higher degree. Full-time year-round workers are those who worked 35 or more hours per week for 50 or more weeks per year. Adapted from U.S. Department of Commerce, Census Bureau, Current Population Survey (CPS), "Annual Social and Economic Supplement," 2014. Retrieved from https://nces.ed.gov/programs/coe/indicator_cba.asp#info

The fifth factor indicated in the literature was that for students, the excitement and discoveries of the first year dissolve as they move into what they see as a year’s worth of “more of the same” (Cote & Levine, 1997; Gump, 2007; Schaller, 2010). Students find themselves taking additional core curriculum or general education courses (depending on the institution’s nomenclature). A realization that course work will not become any simpler also sets in (Cote & Levine, 1997; Gump, 2007; Schaller, 2010).

The sixth factor indicated in the literature showed that during this period, students often begin to question their goals, both for the short term (getting through yet another common/non-major course) or the long term (What do I really want my major to be?) (Cote & Levine, 1997; Graunke & Woosley, 2005; Gump, 2007; Schaller, 2010; Tinto, 1987).

The seventh factor indicated in the literature was that financial issues begin to come into play. With a sense of dissatisfaction beginning to settle in, students are more apt to question the return on their investment (Schaller, 2010). Second-year students who are most dissatisfied with the cost of attendance may be more disposed to choose not to further their education (Cabrera, Stampen, & Hansen, 1988; Juillerat, 2000).

Within the final factor, students may look at the institution and see the curriculum as vocational training to complete in order to be able to land a job (Cote & Levine, 1997). This perception may not encompass the institution's larger more liberal arts view of "the journey" rather than "the destination" (Moxley, Najor-Durack, & Dumbrigue, 2004).

Given the vetting that goes on with admission offices' decisions, and the number of retention and advising resources an institution supports, one wonders why second-year students who successfully completed the first year in college (known to be a difficult year) make the choice to not return for the third year. The seven factors presented here outline the issues involved in a student's decision not to return to the same institution for the third year. The majority of the factors presented do affect a student's short-term and long-term successes within and outside of the institution. It is also important to note that there are repercussions for institutions in terms of loss of tuition revenue, reputation within a state's higher education system, and potentially a greater demand on undergraduate admissions offices' recruitment

initiatives. Overall, the attrition of second-year students can be viewed as inefficiency on the part of public institutions.

Significance of the Study and Projected Outcomes

A primary goal of the study was to build a conceptual model for understanding the attrition of native second-year students in public universities. An additional goal was to help inform the retention research on what factors predict attrition between the second and third years (Benton, 2010).

Students during their second year of enrollment often question the academic direction in which they are going, especially if they have entered the institution without any predetermined major. Without a “roadmap,” students can become lost and bewildered, no longer confident in the direction that they wish to take (Gordon, 1985). This loss of direction takes with it a commitment to degree completion persistence (Tobolowsky, 2008). Not having a rationale for the courses in which they enroll, second-year students often register for classes that may meet core curriculum requirements but are not prerequisites for a particular degree (Gahagan & Hunter, 2006). They may also enroll in coursework that exceeds their intellectual or cognitive abilities simply because taking a mathematics class or a physics course looks good on paper (Cote & Levine, 1997). The resulting lack of success in grades or in degree completion stunts the student’s confidence and sense of achievement (Gordon, 1985; Lemons & Richmond, 1987; Margolis, 1976; Tierney, 2000).

Between 12% and 20% of second-year students do not return to their original institution for the third year (Schreiner, 2011). With a loss of a sense of purpose, the second-year student often questions the purpose of returning to school. To some students, the college or university

can take on the appearance of another commercial enterprise, and they begin to see themselves as customers whose satisfaction is not being met (Cabrera et al., 1988; Richmond & Lemons, 1987, Schaller, 2010). Without the sense of institutional commitment, students often drift away, looking for another post-secondary institution that may meet their immediate needs (Cote & Levine, 1997; Gardner et al., 2010; Tinto, 1987)

Another important issue may be the effect of students who matriculate fixed on one major, find the prerequisites too challenging during the first and second years, and decide to transfer to a different major, extending their time before graduation (Cote & Levine, 1997). This could be particularly problematic close to the end of the second year when students are finished with their “core” and not yet fully working on major-related coursework. So often, second-year students are the forgotten cohort and are assumed to have successfully navigated the characteristic transitions from high school to college. In fact, many of these students have, for one reason or another, not resolved important questions that affect their development and path to completion (Gump, 2007). In contemporary society, where post-secondary job placement is revered and where students transfer in or out of STEM (Science, Engineering, Technology, and Mathematics) majors, one questions whether this indecision about degree persistence at publicly funded colleges and universities could become a greater concern (Pascarella & Terenzini, 2005).

Research Question

This study was guided by the following research question:

What variables best predict students’ attrition or persistence between the second and the third year of their college career?

Definition of Terms

Attrition: failing to return to an institution in a subsequent year.

Drop out: failing to return to an institution in a subsequent year with no intention of returning.

First time in college: students who enter a post-secondary institution immediately after graduation from high school.

First-year experience: an intentional program at a post-secondary institution dedicated toward promoting student success and increasing the retention rates of First Time in College students.

Native student: First time in college students who remain at the same secondary institution they enrolled in after having graduated from high school.

Persistence: the desire and action of a student to stay within the system of higher education from the initial semester through to the completion of a degree, preferably at the same post-secondary institution as initial enrollment.

Retention: a student's ability and actions to become an involved actor in her/his institution (Tinto, 1987). For the purpose of this study, the action is defined as returning for the third year.

Second-year student: academic year designation dependent on the year that the first time in college student matriculated at the original institution.

Sophomore: an academic level designation dependent on the number of credit hours completed. Students can have the academic level designation of "sophomore" while in fact being students in their first year of college. Much of the literature uses the designation of

“sophomore”. To focus on the distinction, this research will favor the use of the term “second-year student” to the term “sophomore.”

Stop out: failing to return to an institution in a subsequent year, but returning at another point in time.

Undeclared student: a student who has not yet decided on a particular degree program to pursue as a college major.

University student records database: A comprehensive software suite designed for higher education. Created as an open, standards-based database system allowing faculty, staff and students access to the system anytime, anywhere, from any device. The database information delivery system enables students, faculty, staff, alumni, and visitors to access information based on their unique roles, while protecting sensitive data. The university student records database is comprised of several modules including, academic advisement, financial aid, recruiting and admissions, student financials, and student records (Oracle, 2011).

Summary

This chapter focused on introducing the issues surrounding second-year college students and their decision not to return for the third year. Although the culture of higher education and the need to respect the policies and procedures within must be appreciated, higher education must also appreciate the students it recruits and nurtures and stand for the affirmation of “the identities, homes, and communities in which individuals live and grow” (Tierney, 2000, p. 220). Chapter Two will review the literature regarding a student’s second year in college.

CHAPTER TWO LITERATURE REVIEW

Introduction

Almost all of the literature reviewed regarding the issue of second-year attrition, which often used the culturally popular term of “sophomore slump,” presented previous studies as scarce, paltry, sparse, and noticeable in their lack of depth (Bellani, 2007; Evans, 2012; Kennedy & Upcraft, 2010; Pattengale, 2000; Schaller, 2010; Smith, 2002). Writers and researchers also widely agreed that the attrition of second-year students warrants further and more in-depth study (Evans, 2012; Gardner et al., 2010; Graunke & Woosley, 2005; Lewis, 2009; Macrillo, 2008; Schaller, 2010; Schreiner, 2010). Many of the studies took place with small samples in localized settings. More in-depth and nationwide research is needed to reaffirm the factors that lead to persistence to the junior year and to develop programs that will support this retention effort for the “forgotten” students (Schaller, 2010). In reviewing the topics within the literature, there were recurring themes, each of which was explored in detail in this study.

Early Studies of Issue

The sophomore slump is generally and widely used as a term describing an anticlimactic period of time after an initial high point (Kennedy & Upcraft, 2010). In terms of higher education, it was first used to describe issues of melancholy during the second year of college. In much of the literature reviewed, it was identified as having first been used in reference to an undergraduate’s higher educational career, as chronicled in Freedman’s 1956 journal article, *The Passage Through College*. Freedman (1956) wrote about the “major events or adjustment characteristics of each important stage of a college career” (p. 13) at a predominately women’s

institution. However, Gehman, in the *Problems of College Sophomores with Serious Scholastic Difficulties* (1955) wrote of Pennsylvania State University developing a program for sophomore students who had grades “so low that they were in imminent danger of being dismissed from the University.” Many of these students were prevailed upon to take advantage of an experiment which made “educational, vocational, and personal adjustment counseling” (p. 137) available. Little was said in literature regarding the notion of sophomore year academic problems in the ensuing years until the mid-1970s (Bellani, 2007; Kennedy & Upcraft, 2010), at which point the phenomenon continued to be referred to as a developmental issue that occurs after the initial excitement of college has worn off (Furr & Gannaway, 1982). Margolis (1976) wrote about “unslumping our sophomores”, noting that the term, sophomore slump, while serving as a “wide diagnostic umbrella”, is “too stereotypical” (p. 133) and not descriptive enough to determine the factors of the personal crisis. Furr and Gannaway (1982) cited Erikson and Perry to support the theory that sophomores face special situational issues such as identity conflicts which make it difficult to cope with the vast choices presented in the second year of college. Richmond and Lemons (1985), often cited in the literature on second-year students, called for specific actions to be taken to confront and address the sophomore slump. In their two articles, they relied heavily on the college student development vectors of Chickering and were the first to call for specific programs for sophomores to target and address the “uncertainty and confusion that they feel” (p. 177). In 2010, the National Resource Center for The First Year Experience & Students in Transition published one of the few definitive works on retention of second-year students in higher education, discussing foundations of the second-year experience, approaches for engaging second-year students, and campus practice and implications (Hunter et al., 2010).

Elements of the Issue

Freedman's (1956) study on college transition was a qualitative one, taken from dialogues with students, faculty and administration, and "general observations of the College in action" (p. 13). It began with a profile of 400 first-time-in-college women. Many of his observations on a college's goals and procedures and its student culture still held true at the time of the present research, some 60 years later.

Freedman made the claim that the freshman year begins with entrance to the college and "an air of eager expectancy." The primary focus of concern with new students was being accepted by their peers into the student culture. After a time, according to Freedman, freshmen students settle into a "characteristic student role." Freedman saw the college's predominate role as "the development of liberally educated individuals" through a traditional curriculum (p. 14). The student culture, Freedman stated, is "distinguishable" by its "characteristic" qualities of personality, interacting socially, and values and beliefs, each passed on from one graduating class to the next incoming class. However, he noted that the "scholastic and academic aims and processes of the College" are interpreted to the incoming class by the student culture predominant at the time of entrance.

Freedman (1956) saw students as being interested and engaged in academics and scholarship, especially after having chosen a major in their second year; however, this interest and engagement were not the primary core of this student body's "central values and habits of life" (p. 15). It was the sophomore year, he postulated, when the student has overcome the initial "deficiency of secondary schooling" and their abilities have risen to become "a function of . . . intrinsic ability, interest, and motivation" (p. 21). Freedman used the term, sophomore slump,

calling the phenomena “academic disengagement and a generalized dissatisfaction with one’s college experience” (p. 22). College sophomores often suffer from this type of melancholy which forces them to reevaluate their priorities and goals and manifests itself as a period of developmental confusion, uncertainty, and academic recession (Gump, 2007; Richmond & Lemons, 1985). The junior and senior years are years of “maximum solidarity in the College community both educationally and socially” (Freedman, 1956, p. 24), leading to a final year “highlighted by the imminence of the ‘after-life’” (Freedman, 1956, p. 24). However, to Freedman, the sophomore slump implied “inertia or disorganization” (p. 22). As early as the 1950s, Pennsylvania State University developed a program for sophomore students who had grades “so low that they were in imminent danger of being dismissed from the University” and who were prevailed to take advantage of an experimental program that made “educational, vocational, and personal adjustment counseling” (Gehman, 1955, p.137) available.

In the ensuing years, college enrollment was seen as less of a privilege and more of an entitlement of post-secondary aged students. Little research was conducted on the attrition of students. Margolis (1976) examined once again the phenomena of the sophomore slump. His view was that the “slump” can be confronted by the student’s asking “larger philosophical questions about him or herself vis-à-vis the world” (p. 133). Richmond and Lemons (1985) believed that for these students the “novelty of college” had worn off, and they were in a “no man’s land” where they were not far enough into their degree programs to feel ownership with their major, and academic achievements were “no longer satisfying” (p. 176) for their own sake. Adding to all of this, the student’s prefabricated freshman social society had dispersed, leaving the student “isolated from the former support group” (Margolis, 1976, p. 134). This leads to an

“exploration of their own psychological selves” (Margolis, 1976, p. 135) given that the second-year student has learned the academic system and “how much they have to do in order to achieve specific results” (p. 135).

In the mid-1980s, practitioners Richmond and Lemons (1985) began to focus on specific college-related reasons for a sophomore slump: doubts about a future career, unhappiness with personal relationships, and growing concerns about the costs of a college education. The sophomore slump continued to be perceived as a developmental event. The theory was that sophomores face special situational issues such as identity conflicts which make it difficult to cope with the vast choices presented in the second year of college (Furr & Gannaway, 1982). Much of the reporting of the factors affecting the persistence of college sophomores to their junior year has revolved around college sophomores reevaluating their priorities and goals and the second year manifesting itself as a period of developmental confusion and academic recession (Gump, 2007). Richmond and Lemons (1985) outlined the behaviors that manifest themselves as the result of the slump: a “general sense of apathy”, talking about changing majors, projecting the need to leave the current institution to transfer to another or to enter the work force, and problems in relationships such as “jealousy and criticism of another’s behavior or values” (p. 176). Using the developmental theories of Chickering, Richmond and Lemons proposed that sophomores in college are working through their vectors of achieving competence: intellectual competence, physical and manual skills capability, and social/interpersonal competence (Lemons & Richmond, 1987). The authors postulated that students fall into a slump during their sophomore year due to not achieving “competence or the recognition of competence” in “superior academic performance, athletic prowess, or involvement in

cocurricular organizations” (Lemons & Richmond, 1987, p. 16). The authors also put forward the claim that if students feel they are lacking in their development of autonomy, this can impede their development during the second year at an institution. Often this lack of autonomy revolves around financial independence, and the issue of the “financial burdens they place on their parents” (Lemons & Richmond, 1987, p. 16). If not resolved, this conflict could result in the second-year student “dropping out, stopping out, or transferring to less expensive institutions” (Lemons & Richmond, 1987, p. 16).

Sophomore Retention Issues

The greatest retention issues occur during the first year at an institution (Kuh et al., 2005). This crucial time in a student’s career gave rise to the First Year Experience and freshman year programs at colleges and universities based on the retention theories of Tinto, Pasacrelli, and Astin, and the work of Gardner. Researchers have been concerned with finding the “right fit” (Astin, 1999; Freedman, 1956; Richmond & Lemons, 1985). The level of involvement in “any of the components of an institution’s academic and social systems can be a critical factor in students’ persistence decisions” (Pascarella & Terenzini, 2005, p. 426).

With increasing attention on first year retention, the focus on attrition issues during the second year of a student’s interaction with the institution begins to lessen. However, special consideration should be given to second-year students “who don’t talk, who sit in the back row, who take no notes, who resist advising, who show signs of hostility, withdrawal, and anxiety” (Beal & Noel, 1980, p. 13.). Beal and Noel noted that target groups should be those students who are undecided about their major and subsequent careers; “For students undecided about majors and careers, the action programs recommended by the WWISR [What Works in Student

Retention survey] would include advising, career assistance, and orientation programs” (Beal & Noel, 1980, p. 98). An uninvolved student does not spend time on campus, does not become involved in college clubs and organizations, and is not known to faculty, administrators, or students. Involvement, Astin (1999) purported, “implies a behavioral component” that incorporates “what the individual does, how he or she behaves” (p. 519).

Being in only their second year, and as one of the thousands of newly initiated undergraduates, a second-year student may or may not have made connections with a particular faculty member. The first year is over and their assigned freshman advisor may or may not have passed the advising baton to a college or departmental advisor. Researchers have shown that with neither a strong academic guru (i.e., at least one strong adult figure to serve as a mentor or advocate), nor a strong sense of commitment to the institution, students will more than likely falter in their persistence to degree completion (Astin 1999; Cote & Levine, 1997; Gardner et al., 2010; Gordon, 1985; Schreiner, 2010; Sciarra & Whitson, 2007).

Graunke & Woosley (2005) noted that students’ involvement in co-curricular activities could be more of a retention issue than an academic success issue. Students’ commitment to the institution, and how that changes from the freshman year to the junior and senior years, may not be as important to second-year students as a commitment to their major field of study. (Astin, 1999; Cote & Levine, 1997; Tierney, 2000). The end of the second year can be the next point in time where students will interrupt their persistence to graduation. Behaviors that manifest themselves during this year include “prolonged indecisiveness, poor academic course selection, low levels of academic and cocurricular engagement and integration, behavioral problems and

increased time to degree completion” (Schaller, 2010, p. 13). Schaller (2010) outlines the following issues that students confront during their second year at an institution:

1. Major and academic self-efficacy are defined as the self-examination of one’s ability or chance of success in the academic environment. Although major and academic self-efficacy beliefs are poor predictors of academic success in the first semester of college, they are a good predictor at the end of the first year. In the second year of enrollment, it may be of concern to those students who have faced difficult academic challenges during the first year, have not been selected into the major of their choice, or for those who have changed their academic focus areas from their college entrance plans.
2. Career development for second-year students can be problematic, especially if they still have not decided on a major, or are non-committal to the major they have chosen. They may choose to either leave the institution or choose a major that allows for career decisions at a later point in time.
3. Faculty contact is one of the strongest predictors of persistence and academic success at an institution. Second-year students may find it hard to build relationships with instructors if they are undecided about a major, do not rely on an instructor as a second-year advisor, or continue to be enrolled in large class sections. Faculty contact with second-year students must be proactive, nurtured, and have the support of the institution.
4. Students’ motivation to remain at an institution can be influenced by their socioeconomic status. First generation students may not persist at an institution

- because their parents do not have an understanding of specific educational expectations. Although students may have the motivation to complete a particular degree, they may have to stretch the costs of their education by enrolling irregularly.
5. Students' values may be intrinsic, social, extrinsic, and prestige related. Students who have committed to a major that most closely matches their values may be more likely to persist at their institution until degree completion.
 6. Financial issues, in regard to second-year students, are a part of a complex relationship between race, socioeconomic status, type of financial aid, and costs that contribute to the role of return on the education investment. If the student is relying on academic success, loss of grants and scholarships due to poor academic performance will factor into the decision to persist beyond the second year.
 7. Social integration and involvement, so vital to first-year retention, is also related positively to academic success in the second year. Both involvement in formal organizations and informal friendships on campus can reduce the possibility of leaving an institution. If in the second year of an academic career, students lose some of those informal contacts due to changed living arrangements or continuing enrollment in large non-major classes, they may also lose some of the commitment to that particular institution.
 8. Student satisfaction with an institution during the second year is dependent on how students value the institution's systems and if they perceive them as working well, easy to negotiate, and responsive to students. Higher levels of college satisfaction reduce the possibility of leaving the institution.

9. Academic engagement has been shown to be critical in the retention of second-year students. In this second year, there may not be as many challenges in their roles as students. Unless students are engrossed in writing more papers, reading more books, meeting with faculty and peers, problem-solving, and generally being responsible citizens, boredom may occur. Disengaged students tend to have higher levels of absenteeism and lower GPAs.

Foremost are students' choices of majors and their feelings of self-efficacy. "As students begin to narrow options for their majors or enroll in more challenging courses, the connection between course selection, major selection, on one's sense of success becomes clearer" (Schaller, 2010, p. 18). This clarity can either lead to definitive choices or confusion. "Declaring a major requires sophomores have an attachment and commitment to ideas, interests and a group of faculty members at a time when they may well be continuing to separate from their original plans" (Schaller, 2010, p. 18). Schaller (2010) suggested that second-year students who are certain on a major fare better academically than those students who are still undecided.

Social integration and involvement can also change in the second year. This can result from a loss of "informal contacts from the first year of college because of changes in living arrangements, discontinued learning communities and enrollment in larger classes outside the major" (Schaller, 2010, p. 23).

Other literature on second-year retention focuses on various factors that can affect a student's persistence from sophomore year to junior year: a strong self-image, the commitment to a major field of study, interaction of mentor figure, finances, weak family support, and being a first generation student (Davidson, Beck, & Milligan, 2009; Graunke & Woosley, 2005; Lemons

& Richmond, 1987; Packard, 2004; Strage & Brandt, 1999). Students who do not persist in the completion of a degree have the potential for constraining educational attainment and possibly earning less throughout their lifetime than those who do persevere and earn at least a bachelor's degree (Pascarella & Terenzini, 2005). Institutional continuity increases the likelihood that a student will persist and complete a bachelor's degree (Pascarella & Terenzini, 2005). Another potential effect is the loss of important support systems such as friends, academic advisors, and faculty members (Tinto, 1987), and the sense of community that comes with remaining at one institution (Schreiner, 2010). Experiences at a specific college or university play a larger role in student persistence as time passes, so a deeper understanding of the nature of these experiences and how institutions can influence them must be drawn from many types of institutions so that the persistence process can be captured over time (Nora et al., 2005).

In the research on sophomore persistence, the College Persistence Questionnaire (CPQ) was developed as a tool to measure the areas identified as institutional commitment, degree commitment, academic integration, social integration, support services satisfaction, and academic conscientiousness (Davidson et al., 2009). This survey was developed to serve as an early warning that could be used across different post-secondary institutions and with differing sets of students. Not meant to be a "one size fits all" approach to persistence, the intent of the questionnaire was to give instructors and academic advisors the opportunity to research the many factors that contribute to a particular cohort of students' dissatisfaction with their education (Davidson et al., 2009, p. 388). While serving as a predictor of future retention, the CPQ was also found to be (a) a tool for identifying potentially at-risk students and (b) a guide toward retention programs development and evaluation (Davidson et al., 2009).

Researchers have also shown the importance of second-year students solidifying their career goals as a predictor of academic success and persistence (Gore & Hunter, 2010; Lemons & Richmond, 1987). Students change from freshman year to junior and senior years. Commitment to the institution may not be as important to sophomores as their commitment to a major field of study (Graunke & Woosley, 2005). The initial excitement of the freshman year gives way to the reality of challenges of the second semester and the sophomore year. Gump (2007) noted that first year initiatives (the special programs, the dedicated housing, the individual academic advisor), while succeeding in retaining students, may in fact only serve to postpone problems that could lead to student attrition after the institution relaxes its attention and support in the second year. The sophomore year has been identified as a period when many colleges and universities request that students make a commitment to a college major. This decision-making time period coincides with a natural developmental period when young adults are striving to develop a more concrete sense of their career identity, as seen in Erikson's eight developmental stages (Packard, 2004). Chickering's vector of developing purpose told of students searching for direction and commitment, including the pursuit of a vocation. In this vector, choosing a career is a central task in developing purpose in college (Lemons & Richmond, 1987). Commitment to a major has also been shown to be a positive predictor for a successful sophomore spring GPA (Graunke & Woosley, 2005).

The importance of a strong adult figure in the contribution of persistence was supported in the findings of two different studies, one researching the important factors in Latinos' postsecondary educational attainment (Sciarra & Whitson, 2007), and the other the role of authoritative parenting in college students' academic adjustment and success (Strage & Brandt,

1999). In both studies, the closeness of the family and parental support were shown to reinforce the persistence of students who graduate from high school, move on to postsecondary education, and complete a college degree. This reaffirmed the assertion that an important factor in helping students overcome the sophomore slump is personal attention from a concerned individual (Richmond & Lemons, 1985). Studies on academic achievement and strong adult figures have yielded a profile of mastery-oriented students defined as those who prefer challenging tasks, are confident in their academic abilities, are less likely to be affected by stress and critical feedback, and see their instructors as resources and consultants to be used (Strage & Brandt, 1999).

Faculty interaction has been determined to be an important factor in academic success and thus retention (Anderson & Schreiner, 2000; Astin, 1999; Sanchez-Leguelinel, 2008; Schaller, 2010; Schreiner, 2010). Commitment to a major and satisfaction with faculty have been shown to be significant predictors of sophomore students' success (Gordon, 2010; Graunke & Woosley, 2005), and student contact with faculty members outside the classroom appears to consistently promote student persistence, educational aspirations, and completion of a bachelor's degree (Pascarella & Terenzini, 2005; Schaller, 2010). However, during the second year, the built-in support provided by most schools' first-year experiences are not available (French, 2009; Graunke & Woosley, 2005; Gump, 2007; Margolis, 1976; Sanchez-Leguelinel, 2008, Schaller, 2010). Many colleges and departments do not offer intentional academic advising until the third year or when students have earned enough credits to have completed their general education and prerequisite requirements (Evenbeck, Boston, DuVivier, & Hallberg, 2000; Gordon, 2010; Pattengale, 2000).

The second year of college is a crucial time in the life of an undergraduate student. This can be a time when, because of the increasing expectations of instructors, the decreasing excitement over the college experience, confusion over the academic path to take, and potential financial and familial demands, second-year students begin to become disengaged from their work as students (Allen, Robbins, Casillas, & Oh, 2008; Anderson & Schreiner, 2000; Boivin, Fountain, & Baylis, 2000, Pattengale, 2000). Not every second-year student falls into this rut; thus, institutions do not have to maintain the same level of commitment to these students as they have for incoming freshmen (Miller & Herreid, 2009). Literature has shown that students who are facing the slump of the second year tend to be those who are less engaged in in-class experiences, have not endeavored to become part of the campus community, and may be living off-campus and working to support themselves (Astin, 1999; Boivin et al., 2000; Foubert & Grainger, 2006; Graunke & Woosley, 2005; Gump, 2007).

Student Development Perspective

Freedman (1956) noted that the freshman and sophomore years were the times when “the more deviant kinds of students have withdrawn” and left the college before graduation (p. 23). However, findings from the Pennsylvania State University (PSU) reading tests “suggested that slow reading was one of the major problems” of sophomore students (Gehman, 1955, p. 140). The researchers found that problems with these students “were not purely intellectual in nature”, and that sophomore students in danger of attrition may have entered PSU with “deficient study habits” and could benefit from a “remedial program in this area” (Gehman, 1955, p. 141). Margolis (1976) advocated for counseling these students during the first semester of their second year, even though it is a very busy time of an academic year, with a calendar “filled with

scholastic, athletic, and cultural events” (p. 133). Failure to recognize and address students’ issues could “lead to more serious clinical problems such as depression” (Margolis, 1976, p. 133). Two stages of intervention were outlined: the presenting problem and counseling strategies. The sophomore can initially present the issue as “depression overlapping into despair” (Margolis, 1976, p. 133). Thus, an “overwhelming sense of meaninglessness” occurs leading to “confusion, lethargy, loneliness, and self-doubt”, “compounded when the student naturally compares how he is feeling now to. . . the freshman year of college” (Margolis, 1976, p. 133). The author outlined three interrelated areas, academic, social, and self, which “accumulate and precipitate sophomore identity crisis” (Margolis, 1976, p. 134). The years of freshman achievements and hyperbole have given way to fewer “obvious built-in barometers of success” (Margolis, 1976, p. 134).

Furr and Gannaway (1982) cited Erikson and Perry to support the theory that sophomores are facing special situational issues such as identity conflicts which make it difficult to cope with the vast choices presented in the second year of college. Lemons and Richmond (1985, 1987) have often been cited in literature that calls for specific actions to be taken to confront and address the sophomore slump. In their two articles, they relied heavily on the college student development vectors of Chickering, and they were the first to call for specific programs for sophomores to target and address the “uncertainty and confusion that they feel” (Richmond & Lemons, 1985, p. 177).

Margolis suggested that individual counseling with the slumping second-year student will open up “four unique factors” (1976, p. 135). The first is to take the student’s feelings seriously, second, to attend to the students’ needs to be philosophical as they cope with heightened self-

consciousness. Next, the author suggested that the counselor take what the student is experiencing at the moment and place it in reference to any prior confusion or depression that the student has experienced. Margolis (1976) then suggested that students be made aware that they are not alone in these feelings of anxiety and depression and to suggest that an informal support group be created with friends from the students' freshman cohorts.

Lemons and Richmond (1987) proposed various strategies to speak to students' issues and behaviors. To address indecisiveness regarding majors and careers, they suggested career interest surveys and "personal attention" from a residence hall staff member or other appropriate adult. The authors stressed that it is important to be sure "students feel good about themselves." This includes "bolstering students' self-esteem and offering positive reinforcement" (Lemons & Richmond, 1987, p. 176).

Second-year students struggle with what Chickering referred to as the vector of establishing identity (Lemons & Richmond, 1987). Given their place in the culture of an institution, second-year students often experience difficulties with "developmental tasks in other vectors" which can "hinder their identity formation" (Lemons & Richmond, 1987, p. 16).

The last vector that Lemons and Richmond (1987) focused on was developing purpose. Second-year students developing their own purpose are often vexed by expectations from "parents, advisors, and peers" and by having to make choices for careers (p. 17). The authors noted that second-year students are "expected to have the foresight to declare a major area of study and a future vocation" (Lemons & Richmond, 1987, p. 17). Developing purpose is important as it relates to motivation, goal setting, commitment, personal investment and

institutional fit, and thus retention (DeWitz, Woolsey, & Walsh, 2009, p. 31; Gardner et al., 2010, p. 251).

Foubert and Grainger (2006) discussed the effects that involvement in clubs and organizations had on college students. The authors noted studies conducted by Astin (1996), Pacarella and Terenzini (1996) and other researchers which highlight the statistically significant contribution that student involvement has had on the student experience. Students in these studies reported “greater development in moving towards autonomy, towards interdependence, and establishing and clarifying purpose” (Foubert & Grainger, 2006, p. 1). Less is known, the authors reported, on how joining or being a leader in a student organization (as opposed to simply joining or attending a meeting) affects psychosocial development.

Foubert and Grainger (2006) observed that there was a strong connection between involvement in clubs and organizations and the strong development of several psychosocial indicators such as establishing and clarifying purpose, educational involvement, career planning, life management, and cultural participation. In particular, the authors found that “more involved students tested at the beginning of their sophomore year also reported statistically significant greater development in their academic autonomy and their lifestyle planning than less involved students” (2006, p. 6). For the student affairs practitioner, the authors stressed working toward creating “meaningful involvement opportunities for students” and encouraging students to “join student organizations as a way to promote modest gains in development” (2006, p. 8).

In subsequent years, studies conducted on student experiences, most notably by Tinto (1987), Pascarella and Terenzini (2005), and Astin (1999), acknowledged that much of the research on student success centered around the first year experience (Graunke & Woosley,

2005). The developmental issue began to be looked at as an attrition issue, initially studied by Tinto, and broadened to examine how it may have institutional ramifications (Gump, 2004; Tinto, 1987).

Factors that have been found to impact student retention among first-year students, if not resolved, may carry over in the subsequent year resulting in a decision to abandon an institution (Nora et al., 2005; Hunter, 2010; Tinto, 1987). Other researchers, such as Graunke and Woosley (2005), have viewed the second year of a student's college career specifically as a time when students disengage from academic life.

Second-year students who drop out have significantly lower college satisfaction scores than those students who persist to the third year, and lower than even first-year students who drop out (Juillerat, 2000). Lowered expectations of the importance of college plays a role in the slump that occurs during the second year (Juillerat, 2000). Beal and Noel (1980) reported on the state of retention in higher education in the 1970s, concluding that "only in the last five years has the literature reported seriously on what institutions do to 'discourage' completion" (p. v). "We have discovered millions of men and women who do a lot of stopping out and transferring as they seek more satisfying college and noncollegiate environments" (Beal & Noel, 1980, p. v).

Gardner, Pattengale, and Schreiner (2000) found that dropping out at the end of the second year stems from students who have not been able to either develop or attain satisfactory progress towards completing their goals for education (p. 90). This occurs before second-year students can become developmentally and intellectually engaged to ensure persistence to degree completion (Gardner et al., 2000). In order to achieve completion, the key developmental goal

of personal purpose must be achieved through “positive, successful, and intellectually engaging academic experiences” (Gardner et al., 2000; p. 91).

Astin (1999) wrote of students being involved and engaged as it pertains to retention and success in higher education. He posited that although student development theory can explain most of the body of knowledge regarding the influences college environments have had on the research of student development over the years, it can also encompass the principles from other sources such as psychoanalysis and classical learning philosophies, and that it is practical enough to be used both by researchers and by practitioners (Astin, 1999). The chief difference between the theory of collegial involvement and other student development theories is that involvement focuses on behavioral processes that encourage student development, or as Astin (1999) refers to it, the *how* of student development as opposed to the *what*. Five hypotheses of the theory are:

1. Involvement refers to the investment of physical and psychological energy in various objects
2. Involvement occurs along a continuum, and different students manifest different degrees of involvement in a given object
3. Involvement has both qualitative and quantitative features
4. The amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program
5. The effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement. (Astin, 1999)

Schaller (2010) stated that social integration is important for persistence and also a

positive contributor to the development of the second-year student. During the second year, students are more likely to be challenged by issues relating to gender, sexual orientation, socioeconomic status, racial and ethnic diversity, and academic ability (Schaller, 2010). The author commented that there is “little research about specific populations in the sophomore year” but believed Astin’s five characteristics affected second-year students “in important ways” (Schaller, 2010, p. 14).

Gender issues during the sophomore year often revolve around trying to fit into a major not traditionally open to certain sexes. Women have had a more difficult time being accepted into the hard sciences. Efforts to increase female participation into majors such as engineering, though increasing, have not yet resolved their underrepresentation (Levine & Wycokoff, 1991; Schaller, 2010). Schaller (2010) reported that men are more likely to graduate if they choose majors such as the sciences or business and less likely to persist if they choose education, even if it is a major in which they perform well academically (Schaller, 2010). French (2009) noted that research has shown women have greater encouragement to persist than men, and thus are more integrated socially than their male counterparts. This confirms research conducted by Bellani’s (2007) findings that men were under more pressure to succeed academically and that, in their second year, they sought balance between their social lives and academic responsibilities.

Very little literature has been written specifically about the issues of a second-year student’s sexual orientation. Chickering (1972), in writing about identification, stated “for some students problems of sexual identification are not easily resolved” (p. 84). Along with other challenges during the second year of college, grappling with one’s sexual orientation can make for a “particularly difficult time” (Schaller, 2010, p. 28). Lewis (2009) commented that students

must be able to exert some sense of control over their collegiate environment to avoid feelings of hopelessness.

Socioeconomic status has been a concern during the college experience for many years. Freedman alluded to it in 1956 when he stated that class or caste differences are not completely eradicated within college. He distinguished between two different groups of students. Group A were abler to adjust to academics and demanding academic work as they had graduated from preparatory schools. Group B were graduates of public schools and thus did not have “the basic knowledge or habits of work [which] permit a relatively easy transition to the academic life of the College” (Freedman, 1956, p. 18). The graduates of public schools generally believed they were intellectually and academically incompetent as opposed to their prep school counterparts. (Freedman, 1956). Schaller (2010) echoed this theme and related that “students from lower socioeconomic backgrounds” may have their educational ambitions most impacted in the transition to higher education. A study of retention to the third year of college found that “students of higher socioeconomic status had higher first-year GPA and were more likely to stay rather than drop out” (Allen et al., 2008). Also, students who have enrolled in a private college may alter their academic and career plans when confronted with a greater student loan debt than expected. They may choose to change their major from one with a “middle class earning” future, to one that promises “higher earnings” (St. John, Cabrera, Nore, & Asker, 2000, p. 43).

Another area where research is not “explored specifically for sophomores” (Schaller, 2010, p. 26) is racial and ethnic diversity. The second year of college can be a time where students of underrepresented groups may seek out institutional contacts for support if they have not already done so (Schaller, 2010). Within institutions that are predominately white, the issue

for students of underrepresented groups is often the lack of diverse staff and faculty who could potentially provide support and guidance (Beazley, 2013; Lewis 2009). In lieu of support from staff and faculty, some institutions have initiated peer help organizations to work with underrepresented groups (Beazley, 2013; Braxton, Hirschy, & McClendon, 2004; Evans, 2012; Finning-Kwoka, 2009; Sanchez-Leguinel, 2008).

Educational institutions often expect students to use the second year to choose a major if they have not already done so (Anderson & Schreiner, 2000; Boivin et al., 2000; Schaller, 2010). Yet many students are accepted into an institution with “deficits” in their academic ability being “commonplace” (Schaller, 2010, p. 28). Gehman made note of this in 1955 when he reported that certain sophomore students at Pennsylvania State University were in danger of being academically dismissed due to “slow reading. . . deficient study habits” (Gehman, 1955, p. 137). Remedial courses to improve academic ability can have financial, academic level, and personal repercussions. Remedial classes may not be counted towards academic level. A second-year student may have less than the number of credits required for sophomore standing and adequate financial aid awards (Schaller, 2010, p. 28). This may also affect a student’s self-image, leaving them “feeling inadequate” for not being able to “progress at the pace of their peers” (Schaller, 2010, p. 28). However, students who have expressed greater certainty about their majors have been shown to earn higher grades and become more academically successful (Graunke & Woosley, 2005; Stage & Hossler, 2000).

Institutional Perspective

In all of the literature reviewed thus far, little was said about the slump actually leading to second-year students’ leaving the institution. The Freedman article addressed the “deviant

student” leaving the college but implied that it was a result of women not fitting into the college’s student culture (1956). The Pennsylvania State University Division of Intermediate Registration (DIR) project noted that second-year students were in danger of having grades “so low that they were in imminent danger of being dismissed from the University”, but attributed this mainly to “slow reading” and “deficient study habits” (Gehman, 1955, p. 137). It was Lemons and Richmond’s (1985, 1987) works which first addressed the issues second-year students face as being potential retention concerns. Tinto (1987, 1993), in his discussions of students’ leaving institutions, examined the issues of students’ early withdrawal from an institution. He examined the scope and patterns of student departures and the roots of individual departure. Tinto (1987) was reluctant to use the term “dropout” to describe students who leave college: “Usage of the label *dropout* leads one to believe that all student departures are the result of the failure of the individual to meet the social and academic demands of college life and therefore reflect individual rather than institutional failure” (p. 131). He wrote of the timing of student withdrawals as “most frequent in the first year and during the second when numbers of students decide to leave higher education” (Tinto, 1987, p. 154). Harkening back to the reluctance of the label dropout, he believed that students may leave because they find “the institution ill-suited to meet their needs and interests. . . higher education of any form is not in their best interest,” (p. 154) or that their academic coursework is either too difficult and thus they are “unable to keep up” (p. 154). Tinto stressed that the interactions between faculty and student were paramount and, “the more frequent those interactions are, and the warmer and more rewarding they are seen to be by the student, the more likely is persistence” (Tinto, 1987, p. 156).

Pascarella and Terenzini (2005) wrote an exhaustive study of higher education focused on the effects of college on students. In the second edition of the book, the authors wrote on their studies of college outcomes in the 1990s, theories and models of student change, development of specific modes of subject matter competence, cognitive skills and the growth of intellect, psychosocial changes, attitudes and values, moral development, the impacts college has on careers and economics, and the quality of life after higher education (Pascarella & Terenzini, 2005). Although the authors did not study change or phenomena occurring specifically during the second year of a student's college career, they did report generally on persistence to educational attainment. Their findings confirmed that of other researchers in the area of student involvement and integration into the college community, namely, that one form of involvement that supports retention may be different than another depending on "the student and the type of institution under consideration" (Pascarella & Terenzini, 2005, p. 431).

The findings of Pascarella and Terenzini regarding choice of major relied on the assumption that students always choose a major, and did not presuppose that students may neither declare a major initially nor be committed to the major they have chosen. Noting that there were exceptions in the research, the nature of which the authors did not reveal, the largest cluster of studies finds that, net of other factors, students majoring in the sciences, mathematics, and engineering (SME) and/or business and health-related professions are more likely to persist and earn bachelor's degrees than their peers with majors in the social sciences, humanities, or education (Pascarella & Terenzini, 2005, p. 424).

This became important when retention became an issue in the 1970s and early 1980s. The University of North Dakota compared attrition rates for its freshman classes over four academic

years (Nelson & Poremba, 1980). They also reported for the years 1976-1977 and 1977-1978 “an additional 13% leaving by the end of their sophomore year” (Nelson & Poremba, 1980, p. 5).

Beal and Noel (1980) described the state of retention in higher education in the 1970s. The authors reported,

Only in the last five years has the literature reported seriously on what institutions do to ‘discourage’ completion. . . . We have discovered millions of men and women who do a lot of stopping out and transferring as they seek more satisfying college and noncollegiate environments (Beal & Noel, 1980, p. v).

The study, conducted primarily at the University of Miami, prescribed many of the efforts that were adopted by the first-year retention movement: special courses, group counseling and orientation, individual counseling, learning skills and tutoring, attention to policies and procedures, and faculty development and training (Beal & Noel, 1980). Among the sets of students that Beal and Noel believed should be target groups were those students who were undecided about their majors and subsequent careers; “For students undecided about majors and careers, the action programs recommended by the WWISR [the What Works in Student Retention Survey] would include advising, career assistance, and orientation programs” (Beal & Noel, 1980, p. 98).

Tierney (2000) wrote about the student departure from college and how retention efforts could be viewed through the lens of culture. His model would not have students forced into the mold of the institution to which they were accepted, but rather have the institution recognize the diversity of culture that students bring with them. “The interactions that students, teachers, parents and families have and how we approach the definition of these interactions are key to

students' success" (Tierney, 2000, p. 219). Thus, the model would not only help students succeed but would also put responsibility on the institution to recognize the need to adapt to the culture(s) of the students.

Astin (1999), in his student involvement theory, advocated faculty and administrators devote attention to learning more about the "passive, reticent, or unprepared student. . . how motivated they are and how much time and energy they are devoting to the learning process" (p. 526). This focus also applied to the array of student development professionals who should be encouraging their students to get "more involved in the college experience" (p. 529) by taking elective courses when appropriate, becoming not only members but leaders in student organizations, and participating in experiences outside of the classroom. Astin (1999) defined student involvement as "the amount of physical and psychological energy that the student devotes to the academic experience" (p. 518). However, he believed that certain resources are finite. The focus on the mere acquisition of resources, with little attention to how those resources will be used or deployed, can be problematic (Astin, 1999).

Astin's (1999) individualized (or eclectic) theory warranted the use of the best match of curricular content, instructional methods, and individual student. Rather than a prescribed set of courses that each student must successfully complete for a particular major, Astin suggested the use of set courses for academic discipline knowledge requirements as well as elective courses. Going beyond curriculum, Astin (1999) emphasized the "importance of advising and counseling and of independent study" (p. 521).

Astin (1999) stressed that involvement theory "provides a conceptual substitute" for the empty vassal or "black box that is implicit in the three traditional pedagogical theories" (p. 522).

He referenced Rosenshine's (1982) research which implied that "learning will be greatest when the learning environment is structured to encourage active participation by the student" (Astin, 1999, p. 522).

As with most natural resources, students' time is finite and institutional educators compete with other demands that students have for their time and energy. Administrators and faculty must be cognizant that even the simplest demands they make on students (i.e. class schedules, participation in and completion of mandatory advising or on-line workshops, faculty office hours, class attendance) "affect the way students spend their time and the amount of effort they devote to academic pursuits" (Astin, 1999). The length and depth of involvement in these efforts will differ between students and could potentially alter their persistence to degree completion.

Astin also outlined the research relevant to the theory of student involvement. He reported that the roots come from a longitudinal study of non-completers that he conducted in 1975 that worked to "identify factors in the college environment that significantly affect the student's persistence in college" (Astin, 1999). Relevant to the theory of involvement, elements that contributed to students' persistence to graduation suggested involvement in college life was positive, and that those students who were not involved in the college culture ultimately dropped out. The individual elements that contributed to positive factors included living on campus, joining campus organizations, sport participation, enrollment in honor organizations, undergraduate research with faculty, and holding a part-time job on campus (Astin, 1999). Astin (1999) distinguished between being involved with a part-time job on campus, which gives the student emotional and developmental ties to the institution, and a full-time job off campus.

According to him, retention suffers when the student is “spending considerable time and energy on nonacademic activities what are usually unrelated to student life” (Astin, 1999, p.524).

Finding the right fit between student and institution was also viewed as an important factor in student persistence.

Cote and Levine (1997) investigated the differences in the environments of the institutionalized setting and its nurturance. Many institutions have become more technological, giving students the opportunity to become prepared for “induction into mainstream technological society and its occupational settings” (Cote & Levine, 1997, p. 233). Other students have sought institutions with a more humanism-based fit “structured to encourage intellectual and values development and place less emphasis on preparation for occupational attainment” (Cote & Levine, 1997, p. 233).

Cote and Levine (1997) examined skills output and the acquisition of human capital and academic achievement with higher education. They stated that the “acquisition of human capital skills should be a product of both appropriate learning environments and suitable student readiness” (p. 234). They believed that grades alone tended to reflect only the measurement of skills acquisition. A combination of grades and human capital skills are important to “gain a fuller picture of learning outcomes” (Cote & Levine, 1997, p. 234).

The greatest retention issue has occurred at the end of the first year at an institution. This crucial time in a student’s career gave rise to the First Year Experience and freshman year programs at colleges and universities based on the theories of Tinto, Pasacrelli, and Astin, and the work of Gardner. Researchers have sought the “right fit” (Astin, 1999; Freedman, 1956; Richmond & Lemons, 1985). Graunke & Woosley (2005) noted students’ involvement in co-

curricular activities could be more of a retention issue than an academic success issue. Other researchers have expressed the belief that students' commitment to the institution, and how that changes from the freshman year to the junior and senior years, may not be as important to second-year students as a commitment to their major field of study. (Astin, 1999; Cote & Levine, 1997; Tierney, 2000).

Schaller (2010) addressed the scarcity of development of sophomore programs, due to sparse research focusing solely on the second year. "Research strategies have focused on the magnitude of change seen in college students over the entire four years of the college experience", with these studies often focusing on the "measurements in the first and senior years of college" (p.14). First year programs set the stage for the study of student attrition at checkpoints in their academic careers. Second-year programs grew out of concern for student attrition at the bridge between underclassmen and upperclassmen. Schaller (2010) indicated that this may be occurring in part from a sense that second-year students were feeling abandoned by the institution when first year retention initiatives were not extended to the next year. Schaller (2010) reinforced the need for more research to understand lack of persistence after the first year.

Career decision is another issue facing the second-year student. Schaller (2010) stated that in the second year, students may not have reached a developmental stage to be able to make decisions that affect their choice of career. According to Schaller (2010), "Sophomore students who remain undecided at the end of the academic year face particular challenges" (p.19). This could manifest as either a conclusion not to persist to graduation or to make a choice of program of study that would delay the selection of a career.

Faculty contact and student motivation are two other issues that second-year students face (Anderson & Schreiner, 2000; Astin, 1999; Sanchez-Leguelinel, 2008; Schaller, 2010; Schreiner, 2010). Faculty contact in the second year “will need to be expected, nurtured, and supported” (Schaller, 2010, p. 20). Motivation to attend an institution may wane within the second year, affecting the desire to persist (Anderson & Schreiner, 2000). Faculty contact during the second year is critical to bolster students’ motivation to persist. Schreiner (2010) stated that institutions focusing on faculty who can have a significant impact on the learning process and opportunities to know more about the challenges of a student’s second year better the chances to create a more positive second-year experience. Faculty who are supportive or highly supportive are associated with student success by both successful and unsuccessful students (McAfee, 2008). As such, institutions should focus on increasing the level of “intellectual engagement” within the classroom and greater prospects for faculty and student mentoring outside of the classroom to endorse its commitment to the success of second-year students. (Gardner et al., 2000).

Many students look to higher education to “develop oneself personally and intellectually” and want to be able to “understand the complexities of the world.” These attributes have been identified as strong motivators in the personal-intellectual and careerist-materialist areas (Cote & Levine, 1997). Cote and Levine postulated that the career motivator was second most important because “the average student in this sample lowers his or her sights, rather than raising them” (p. 240) as a function of the “cooling-out influences associated with the weeding and sorting function of some university faculties and programs” (p. 240). Cote and Levine (1997) concluded that the “cooling-out influences” may “discourage some students from more actively developing

their human capital skills” and that these institutions should review those particular programs (p. 240).

Noting that there was no research directly studying second-year college students’ values, Schaller (2010) posited that Duffy and Sedlacek’s (2007) research on values could apply to this class of students. Second-year students may be encountering these types of values:

1. intrinsic - an importance placed on autonomy and interest
2. social - an importance placed on working with people and making contributions to society
3. extrinsic - an importance placed on making money and having job security
4. prestige-related - an importance placed on having a prestigious and respected occupation (Duffy & Sedlacek, 2007, p. 359)

Interests and academic persistence could be connected, Schaller (2010) implied, as students “who were in majors similar to their interest profile had higher grade point averages than those with lower interest-major match” (p. 22).

Financial issues can come into play when a second-year student begins to question the return on their, or their parents’, investments (Lemons & Richmond, 1987, Pattengale, 2000; Schaller, 2010). Researchers have shown that financial aid offers made for each subsequent academic year have the ability to strongly influence retention (Allen et al., 2008). This may be especially true for students of low-income families who depend on aid (Lemons & Richmond, 1987). In a study conducted in 2008 of students from low-income families, 56% returned for their second year of college, but only 41% of the same group returned for their third year (Clery & Topper, 2008). If second-year students fall below the requirements for financial aid renewal,

while maintaining a grade point average that is above the standard for academic probation, they are in jeopardy of losing grants and scholarships that may be critical for continued enrollment. In a study researching the reasons that second-year students did not return to their native institution, many respondents cited low satisfaction with financial aid issues (Juillerat, 2000). More research is needed to directly correlate the effect that financial aid has on retention and attrition beyond the first year of college (Schaller, 2010).

Schaller (2000) wrote that indecision regarding major and career had the potential to affect a student's sense of self-efficacy, potentially leading to a lower grade point average and thus a "loss of one time grants and scholarships in the second year" (p. 22). Academic engagement, the author stated, "is an important factor for sophomore students." Students who are more academically engaged, writing more papers, reading more books, and who are interacting more regularly with instructors and friends show greater academically related gains. "Sophomore students may be less likely to engage in these behaviors" (Schaller, 2010, p. 24).

Schreiner (2010) reported on the "Sophomore Experiences Survey" that was sent to 26 four-year public and private institutions. The survey was part of a quantitative study from which 2,856 second-year students responded. Students' satisfaction with their second-year experience was the "strongest predictor" of retention to the third year (Schreiner, 2010, p. 49). These data are presented in Table 3.

Table 3

Sophomore Satisfaction Survey Levels (5-point scale with 5 = very satisfied)

Survey Statement	Mean	SD
Your experiences with your peers on this campus this year	4.05	.95
Your overall experiences on this campus so far	4.02	.92
The amount of learning in college so far	4.01	.82
The contact you have had with faculty this year	3.88	.91
The academic advising you have experienced this year	3.66	1.17

The survey was administered to 26 institutions, 16 private and 10 public. The sample did not represent a total second-year population. The sample was predominantly 71% female, and 84% Caucasian with public institutions representing 31% of the population and remaining 69% from private institutions. Although many institutions administered the survey to all second-year students on their campuses, a small number sent the survey to their second-year student leaders or participants in their sophomore success programs (Schreiner, 2010, p. 45). Schreiner (2010) conceded that this resulted in an “inability to generalize the findings” (p. 45), but that the effort did provide a portrait of the largest cohort of second-year students at that time.

Peer satisfaction was noted to be the largest contributor to sophomores’ overall satisfaction (Schreiner, 2010). One important finding was that though 64% of the survey population were very sure of their majors, 12% were undecided or unsure about their choice of major (Schreiner, 2010). Many of these students conveyed a sense of anxiety over the uncertainty. One of the greater areas of dissatisfaction was with the institution’s inability to help students easily navigate the school’s systems, resulting in the “campus run around” (Schreiner, 2010, p. 62).

Schreiner (2010) suggested that institutions use what was learned from the Sophomore Experience Survey and invest long-term in the success of second-year students. As observed by Schreiner (2010), by attempting to implement the five recommendations, an institution “signals its commitment to sophomores, their learning, and their growth as whole persons who are an important part of the academic community” (p. 65). Intervention strategies could also include developing special programs for sophomores, developing mentoring relationships, and providing individual counseling to sophomores (Lemons & Richmond, 1987). These researchers believed institutions should examine the attrition rates of second-year students combined with the number of contacts made by second-year students to counseling centers, career service offices, and placement services. Rather than be a cliché, Lemons and Richmond (1987) stressed that the slump is a “trying developmental period” (p. 18) that student affairs professionals should be helping “students learn to cope with” (p. 18).

Astin (1999) also stressed the involvement of students at the institution. This calls for engaging students outside of the classroom, developing authentic initiatives to connect student with faculty, and building purpose through peer relationships. For the effort to be successful, students must sense that they have ownership in the movement to build a second-year experience. It is equally important to recognize their achievements (e.g., returning for the second-year, declaration of a major) through new and old traditions (Gardner et al., 2010).

Lessons learned from first-year and senior-year experiences must be extended to the second year of a student’s career. These lessons include focusing not only on “marginal students,” but on all second-year returnees. This might be accomplished by extending first-year

support service programs and administrative units to the second year as well (Gardner et al., 2010).

There is also a concern that first-year retention initiatives, while succeeding in their attempts to retain students, may in fact only serve to postpone problems that could lead to student attrition after the institution relaxes its attention and support in the second year (Gump, 2007). Gump (2007) used his general education class of 298 students to research the sophomore slump, defining it as a period when students increase their absenteeism and decrease their academic performance.

Gardner et al. (2010) reviewed recommendations made to improve sophomore student success. They stressed that the “key lesson from the first-year movement” is to be intentional and far-reaching in the measures taken to improve the second-year experience. “The most effective approaches have had a holistic, comprehensive, and integrated focus” (Gardner et al., 2010, p. 248). They recommended that institutions develop a second-year experience around five central themes including (a) understanding the importance of the second year; (b) building a case for the importance of second-year student success; (c) developing partners; (d) engaging, empowering, and recognizing students; and (e) extending lessons from other institutions

In understanding the importance of the second year, the authors recommended the creation of institution-wide task forces on the second-year experience to examine both student outcomes and institutional policies and practices. Based on their study, Gardner et al. (2010) suggested that institutions should be able to “affirm what is working well and make recommendation to change what is not working well” (p. 249). As part of the self-study, it was suggested that schools survey academic support programs currently offered on their campuses,

and with that knowledge they should be intentional about providing what sophomores need. Assessment was stressed as a proactive measure to undertake before moving forward to build support and make the case for second-year programs (Gardner et al., 2010).

Once an institution begins to build a case, the authors stressed that a compelling intellectual rationale should be developed and not just a business model. This entails developing an argument that goes beyond simply helping students develop a sense of purpose, and asking what the institution wants its second-year students to learn and experience, and how can these outcomes can best be delivered (Gardner et al., 2010). This may involve linking the need for a second-year experience initiative to the institution's mission, and mechanisms provided by regional accreditors, as well as to integrate the improvement of the second year of college into the institution's strategic plan (Gardner et al., 2010).

Macrillo (2008) suggested that both pre-existing and college experiences can play an important role in the prediction of academic success for college sophomores. Lewis (2009) addressed the importance of engaging second-year students formally and informally. These engagements play an important role in the type of college experiences that will bolster the self-efficacy of second-year students and provide the framework for the types of supportive and welcoming environments that lead to the success of these students (Lewis, 2009; Macrillo, 2008). Other researchers have related the connections (e.g., having a mentor) made by second-year students with individual faculty and staff that bolster retention. Students with a heightened sense of institutional acceptance, conceptualized as students' perceptions of their relationship with faculty and the frequency of their interaction, feel connected with and identify with the

institution, and have greater intentions to graduation from the institution. (French, 2009; Schreiner, 2010).

Finances and college costs come into play as an attrition factor for the second-year student, especially when coupled with other issues (Schaller, 2010). Tinto (1987) posited that financial issues were “more likely to arise in the early stages of the college career” (p. 80) when the prospect of graduation was still years away as opposed to in the last year when costs have already been endured and “the likelihood of obtaining the degree considerably greater” (p. 80). According to Braxton et al. (2004), students who are undecided, not making connections at the institution, and who do not have strong family support may not return. The cost of continuing their education, along with weak financial aid support, becomes prohibitive. However, support and encouragement to persist to graduation increase from significant others if the financial costs of college are minimized. As such, lowering the costs of college attendance for students increases their likelihood of persisting to college graduation (Braxton et al., 2004).

In the majority of the literature reviewed on retention, there was very little evidence that directly supported the arguments that finances are significant as determinants of student attrition, and even less research had been conducted on how finances affect students beyond their first year at an institution (Gohn, Swartz, & Donnelly, 2001; Pascarella & Terenzini, 2005; Tinto, 1987). However, in research on the role choosing a major plays on retention, St. John et al. (2000) argued that “Finances exert both direct and indirect effects on persistence” (p. 38). Financial needs and college costs can become a stressor on students, diverting their attention from their academics (Gohn et al., 2001; Graunke & Woosley, 2005; Kue, 2010; St. John et al., 2000). Actual dollar amounts of costs, (e.g., tuition and fees, grants, loans, versus housing, food,

books), can have a direct influence on persistence, based on socioeconomic class (Clery & Topper, 2008; Paulsen & St. John, 2002). Tuition costs can have a “high negative influence on persistence” for poor and working-class students, but a lesser negative influence for middle and upper class students (Cabrera et al., 1988; Kue, 2010; Lemons & Richmond, 1987; Paulsen & St. John, 2002, p. 223).

Costs of attendance in college can have an effect on students’ satisfaction with their institutional experience. In research on second year satisfaction, students were least satisfied with career counseling and placement services, academic advising, and financial aid (Pullins, 2011). In research on student attrition, financial aid and costs were cited as being major reasons for leaving the institution (Kelly, Kendrick, Newgent, & Lucas, 2007; Pizzo, 2011). Some students indicated that they did not receive adequate financial aid; however, others admitted that they did not budget their money appropriately or lost their scholarships/financial aid, presumably because of poor grades (Kelly et al., 2007; Pizzo, 2011).

Many students lack knowledge in financial aid processes, and as such have not applied for financial assistance. Reasons for this reluctance have been cited as not believing they qualified for funds, and not comprehending how to complete the necessary forms (Gohn et al., 2001, Pizzo, 2011). Many students (a notable exception being low-income students) have been reluctant to use loans as a financial aid instrument, fearing further financial debt (Morano, 2006; Pizzo, 2011). In response, the financial aid and billing departments of some institutions have become active participants in their institutions’ retention efforts, and have developed “creative problem solving strategies” (Karp & Logue, 2002, p. 159) for students experiencing problems with financial processes. Students’ financial status, especially after the initial year of enrollment,

has been noted as a factor worthy of further review (Ishitani, 2006; Pizzo, 2011; Schaller, 2010).

Miller and Herreid (2009) wrote of using logistic regression analysis to predict sophomore retention, based on an earlier model that “distinguished between dropouts and persisters in the first year of college” (p. 3). They found that students who scored in the lowest SAT combined quartile were 7.7% more likely to be enrolled in their third-year fall term than those students who scored in the highest quartile. Students who were in the lowest cumulative GPA quartile at the beginning of their second-year fall term were 30% less likely to be enrolled their third-year fall term than students who scored in the highest quartile. Students who were in the lowest cumulative credit hour quartile at the beginning of their second-year fall term were 18% less likely to be retained to their third-year fall term than students in the highest quartile. When analyzing major choice, students who had not chosen a major at the beginning of their second-year fall term were 26% less likely to be enrolled their third-year fall term than students who were enrolled as majors in the college of business. Though the model did have some predictive value, Miller and Herreid concluded that cumulative GPA was not important in predicting retention unless second-year students were in the lowest quartile of performance.

Miller and Herreid (2009) commented that though the services and the programs outlined by the National Resource Center of the First-Year Experience and Students in Transition are of “sound educational practices” (p. 4), they may be too broad and general for the second-year student. They found that, “Not all students are at risk of attrition and the programs described seem to be targeted to all sophomore students” (p. 4). The model described in the article, according to Miller and Herreid, “identifies students who are at the greatest risk of attrition, based upon a broad data set” (p. 4). The author noted that the results may also indicate that a

mentoring program has a positive effect in retention. However, he qualified that observation, noting that though the mentoring program is useful for first-year retention efforts, academic advising is better suited for second-year retention. Academic advisors in the second year have “established reasons for interacting with the students in question” (Miller & Herreid, 2009, p. 8), whereas mentors may not.

Summary

This chapter highlighted the lack of research focusing on the second year of a student’s career in higher education (Bellani, 2007; Evans, 2012; Gardner et al., 2010; Kennedy & Upcraft, 2010; Pattengale 2000; Schaller, 2010a, 2010b; Smith, 2002). Students may still have unresolved issues and concerns, and nowhere or no one specific to take them to (Gordon, 2010). If those unresolved issues include not having chosen a major, or being not very convinced their major is the right one, it may lead to confusion and lack of commitment to the institution (Schaller, 2010; Tinto, 1987).

Second-year students who no longer have a first-year cohort, or who may be commuting a distance to classes and do not pursue leadership roles in student organizations, may not build a sense of community with their fellow students and the institution (Astin, 1999; Tinto, 1987). This may correlate with less motivation to persist and succeed to graduation, manifesting itself as a lower grade point average that could affect financial aid status (Juillerat, 2000; Schaller, 2010; Tinto, 1987). Although not every second-year student is at risk of attrition, there is a need to identify those second-year students with attributes that put them most at risk of attrition and to offer guidance and advising for their particular needs (Miller & Herreid, 2009). Chapter Three contains an overview of the methods and procedures used in conducting the research.

CHAPTER THREE METHODOLOGY

Overview

This study focused on examining factors that may predict college persistence from the conclusion of the second year of enrollment to the beginning of the third year for students who initially enrolled at a large state university. The researcher examined the impact of important decisions regarding appropriate course work, career direction, and staying in college, coupled with commuting concerns, choice of major, and completing the required number of credit hours that may over time increase the possibility of attrition in the academic career of a second-year student. Chapter Three contains a description of the research procedures that were used to address the research question.

Research Question

What variables best predict students' attrition or persistence between the second and third year of their college career?

Research Design

Logistic regression was used to assess student differences among second-year public university students who returned for their third year of college and those who did not return. The data were collected from the records of students who began their first two years as native, first-time-in-college students who did not return for the third year, and were not academically dismissed. A primary goal of the study was to build a conceptual model for understanding attrition of native second-year students in public universities, and to help supplement the

retention research on what factors predict attrition between the second and third years (Benton, 2010).

Data Collection

The public university maintains a database driven by a third-party software application. Information is maintained on each student, (i.e. major, grade point average, ethnicity, first-generation student status, contact information such as current home address, local school address, and email address). At three points in the calendar year, students' grades are posted online. It is after each semester's grades are posted that students' academic standing is calculated and students learn if they are in good standing, on academic probation, or if they are academically suspended. A student with an overall university grade point average below a 2.00 is placed on academic probation, but is allowed to enroll for a subsequent semester. A student with an overall university grade point average below a 2.00, who does not earn a 2.00 grade point average for any subsequent term, is academically suspended and unable to enroll for a period of one year.

A query of the university student records database was run to identify second-year university students who were admitted as first-time-in-college students (FTIC), who were academically eligible to return for their third year. The cohorts included FTIC students admitted for the Summer and Fall 2009 semesters, Summer and Fall 2010 semesters, Summer and Fall 2011 semesters, Summer and Fall 2012 semesters, and Summer and Fall 2013 semesters. Students from these cohorts who involuntarily separated the institution because of academic suspension were not included in the dataset of non-returners. The non-returners included

students who did not enroll for Fall 2011, Fall 2012, Fall 2013, Fall 2014, and Fall 2015 respectively.

Once profiles were completed, personal identifiers such as names and date of birth were removed, and new unique identifiers and age were assigned to each student by use of Excel spreadsheet formulas.

The query included such student attributes as semester admitted (Roth-Francis, 2013), current home zip code, local school zip code (Pascarella & Terenzini, 2005), major (Graunke & Woosley, 2005), grade point average (Gohn et al., 2001), gender and age (Schaller, 2010), ethnicity (Miller & Herreid, 2009; Sciarra & Whitson, 2007), and those who self-identified as first-generation status (Paulsen & St. John, 2002).

For some students, starting a semester other than the fall might be perfect, worthwhile, and beneficial. For other students, the initial semester may be dismal, depressing, and disappointing. From social life to involvement to housing to academic performance, students starting in a semester they would not be in may face struggles in many of their collegiate endeavors (Roth-Francis, 2013, p. 152).

In regards to zip codes identifying the residences of second-year students, Pascarella and Terenzini (2005) have found that living on-campus in a residence hall increases the likelihood of persistence and degree completion.

Graunke and Woosley (2005) found in their research that certainty in the choice of major was a significant predictor of second-year academic success, and that second-year students who expressed higher levels of confidence regarding their majors achieved higher grades (p. 374).

Gohn, Swartz, and Donnelly (2001) found from their research that there is a direct relationship between college GPA after one year and graduation rates. Once a student is in college, previous GPAs are the best predictors of future persistence to degree completion.

Schaller (2010) noted that institutions designing interventions for second-year students should study the experiences of the men and women on their campuses relative to majors and gender influences. Women are more likely to persist to degree completion if their majors are education, health, and the liberal arts. Men have been found to continue if their major is business. Both genders may initially hope to step into nontraditional roles, such as sciences, math, and engineering for women; education for men. Eventually they may find the climate too uncomfortable and resort back to a more acceptable major.

Age may play into the attrition challenge for the nontraditional/adult learner. These students have been cited in research as having concerns with family responsibilities, job responsibilities, and reserving time for college (Schaller, 2010).

In terms of ethnicity, institutions should pay closer attention to the priorities, values, challenges, and issues faced by second-year students and to examine these issues using race and ethnicity as one lens (Schaller, 2010). Miller and Herreid (2009) found that Asian Pacific students were 6.3 percent more likely to be enrolled than White students, and that Black students had a 11.4 percent higher retention rate than White students. Sciarra and Whitson (2007) found that only 35 percent of Latino students were enrolled in college as compared to 46 percent of White students. Academic advisors are in an excellent position to be proactive with Latino students and their parents. This is important as parental support and an internal locus of control

were the strongest factor for those Latino students persisting to the completion of a bachelor's degree.

Paulsen and St. John (2002) conducted research on college students from different social classes. They found that differences across social classes influence students' perceptions and expectations of costs, and thus choice and persistence decisions. Low income students whose mothers had persisted to college graduation were more likely to complete a degree themselves, as opposed to those students whose mother only had completed a high-school education. First generation status did not ensure the motivational value for persistence to degree completion.

Regression Models

To predict an outcome variable that was categorical from one or more categorical or continuous predictor variables, the researcher used logistic regression analysis to build the retention prediction model. The goal was to build a model capable of predicting probability of attrition in second-year students based on certain personal and academic attributes. Logistic regression "estimates how various factors will influence the probability that a particular outcome might happen" (Ronco & Cahill, 2004, p. 9). This form of analysis was used in the case of a dichotomous outcome variable where students were enrolled or not enrolled for their third year. Logistic regression can accommodate the categorical or continuous independent variables that were used in this study (Miller & Herreid, 2009). It was also used because having a categorical outcome variable violates the assumption of linearity in normal regression.

Data Analysis

The goal for the study was to develop a model of second- to third-year attrition. Because the dependent variable was dichotomous (enrolled vs. not enrolled) and the independent variables were categorical and continuous variables, logistic regression procedures were utilized to determine overall fit for this set of independent variables. A series of regressions were run to determine which set of variables best explained attrition. The formula for several predictors to be run was

$$P(Y) = \frac{1}{1 + e^{-(b_0 + b_1X_{1i} + b_2X_{2i} + \dots + b_nX_{ni})}}$$

where P is the probability of the (Y) dependent variable (attrition), X are the independent variables, e is the exponential function (with the constant value of roughly 2.72) (Newsom, 2015), and b is the coefficient. This formula was used to predict the probability of the outcome occurring. In this formula the multiple regression equation forms part of the logistic regression equation, and this part of the equation expands to accommodate the additional predictors.

Dependent Variable

The dependent variable for this study was attrition, measured as a dichotomous variable. Students from the database were academically eligible to return, at time of the data mining, for their third year at the same public university in which they completed their first and second years of higher education. For this dichotomous dependent variable, the responses were coded as 0 (returners) and 1 (non-returners).

Independent Variables

The independent variables for this study were gender, ethnicity, college, major, local addresses, university grade point average, overall grade point average, hours completed, residency, first generation status, and age. These variables are defined as follows.

Addresses. In the personal information section of the university student self-service database portal, the student is provided with the opportunity to provide three physical mail contact options: (a) home; (b) mailing; and (c) permanent. For this study, home address zip codes were used, and the categorical variable was coded as (a) zip codes within 10 miles of campus; (b) zip codes between 11 and 25 miles of campus; and (c) zip codes beyond 25 miles.

Age. Adult students face issues balancing time for college course work, family responsibilities, and job responsibilities. Access to classes, student success, and institutional accommodations are “corners of friction” for adult students that may affect their retention and persistence, (Schaller, 2010, p. 27). Maintaining balance and avoiding friction may be challenging for older students with various life demands. Age was coded as a continuous variable.

College. Undergraduate students are assigned to a college based on the major that they choose. There were 11 categorical variables (the 11 degree-granting colleges) coded as: Arts (1), Business (2), Education (3), Engineering (4), Health (5), Tourism (6), Medicine (7), Applied Health Science (8), Electromagnetic Radiation (9), Sciences (10), and Undergraduate Studies (11).

Ethnicity. In the personal information section of the university application, students are provided with eight race/ethnicity options, for which they check which one they identify as. The

eight categorical variables were coded as: American Indian/Alaska Native (1), Asian (2), Black/African-American (3), Hispanic/Latino (4), Non-Hispanic (5), Not Specified (6), Native Hawaiian/Other Pacific Islander (7), and White (8).

First generation student. In the personal information section of the Federal Application for Student Financial Assistance, students are provided with answer options regarding their status as applicants who are the first in their family to attend an institution of higher education.

Gender. This was a categorical variable coded from the personal information section of the university application. The student provided two answer options, female=1 and male = 2.

Hours completed. Hours completed are the cumulative number of credit hours earned in coursework completed at the home institution in addition to the number of credit hours earned from coursework completed at other institutions. The number of credit hours completed is updated at the end of each semester (fall, spring, and summer. Hours completed were coded as a continuous variable.

Major. Students have an option to declare a major within the 11 degree-granting colleges of the university. For those students who do not declare a major, they are listed in the database system as undeclared. Majors were coded as a categorical variable of either undeclared (0) or declared (1).

Overall GPA. The overall grade point average is updated at the end of each semester (fall, spring, and summer) and is the cumulative average of all grades earned in coursework completed at the home institution and grades earned from coursework completed at other institutions. The overall grade point average was coded as a categorical variable.

Residency. Residency refers to the student's status as either an in-state resident for tuition purposes or an out-of-state resident for tuition purposes. Tuition costs for an out-of-state resident can be approximately slightly over three times the cost of tuition for an in-state resident. Residency was coded as a dichotomous categorical variable.

SAT/ACT Scores. All incoming first-time-in-college students are required to submit official SAT or ACT scores. SAT and ACT scores were coded as categorical variables.

University grade point average (GPA). The university GPA is updated at the end of each semester (fall, spring, and summer) and is the cumulative average of all grades earned in coursework completed at the home institution. This does not include grades earned from coursework completed at other institutions. The university grade point average was coded as a categorical variable.

Missing Data

Once all the current data were entered into SPSS, an analysis was conducted to determine the level and nature of data missing in the data set for this study (Benton, 2010).

Authorization to Conduct the Study

Prior to conducting any research involving human subjects, authorization must be approved by the university's Institutional Review Board (IRB). The letter of approval appears in

APPENDIX B

Originality Score

To ensure the originality of this work, this manuscript was submitted to iThenticate by my dissertation chair. The results were discussed with the dissertation committee members on the date of the defense.

Summary

This chapter has focused on reporting the results related to the variables that predict the retention of students between the second and the third year of their college career. The methods of data collection, including the regression model that was used, were discussed. Per the rules of logistic regression, the dependent variable was dichotomous. The independent variables were categorical and continuous. Chapter Four contains a summary of the results of the data analyzed.

CHAPTER FOUR RESULTS

Introduction

A primary goal of the study was to build a conceptual model for understanding attrition of native second-year students in public universities. An additional goal was to help inform the retention research on what factors could predict attrition between the second and third years. All statistical analyses were performed using IBM SPSS Statistics, version 23, and SmartPLS version 3.

Overview of the Data

A request to utilize data to complete this research was submitted to the university's Institutional Review Board (IRB). The IRB determined that the research did not constitute human research and the request was approved May 24, 2016. The IRB approval letter is included in APPENDIX A.

Data for the study were accessed from the participating university's third-party student records database system. As shown in APPENDIX B, permission to use the data was given by the University Registrar. A data query was written to collect specific identified attributes of freshman cohorts between the years of 2009 and 2013. These data were collected during the months of May and June 2016.

Descriptive Statistics

The cohorts consisted of students who began their freshman collegiate careers in the Summer or Fall terms of 2009, 2010, 2011, 2012, and 2013 and had completed two years of study at the state university. When merged, there were 26,957 rows of data collected.

Table 4 describes each cohort year, consisting of students who were admitted during the summer term or the fall term of that year and who were enrolled for two continuous years. For the 2009 cohort, there were 2,184 students who began in the summer of 2009 and 3,327 students who began in the fall of 2009. For the 2010 cohort, there were 2,154 students who began in the summer of 2010 and 3,209 students who began in the fall of 2010. For the 2011 cohort, there were 2,206 students who began in the summer of 2011 and 3,290 students who began in the fall of 2011. For the 2012 cohort, there were 2,134 students who began in the summer of 2012 and 3,152 students who began in the fall of 2011. For the last cohort, there were 2,380 students who began in the summer of 2013 and 2,921 students who began in the fall of 2013.

Table 4

Admit Terms

Term	Frequency	Percentage
Summer 2009	2,184	8.10
Fall 2009	3,327	12.34
Summer 2010	2,154	7.99
Fall 2010	3,209	11.90
Summer 2011	2,206	8.18
Fall 2011	3,290	12.20
Summer 2012	2,134	7.92
Fall 2012	3,152	11.69
Summer 2013	2,380	8.83
Fall 2013	2,921	10.84
Total	26,957	100.00

The ages of the population at the end of the second year ranged from 16 years of age to 54 years of age. The 16-year-old student represented .004% of the 26,957 students in the sample, as did one 17-year-old student. There were three 18-year-old students (.011%) and 213

19-year-old students (.790%). The largest number of ages were in the 20-year-old student category, with 13,802 students (51.200%) and the 21-year-old student category with 12, 684 individuals (47.053%). Ages in the 22 to 28-year-old range included 215 students aged 22 (.798%), eighteen 23-year-old-students (.067%), six 24-year-old students (.022%), five 25-year-old individuals (.019%), four 26 year-olds (.015%), and two each of the 27-year-old and 28-year-old populations (.007%). The oldest student in the sample was 54 years old (.004%). These data are presented in Table 5.

Table 5

Ages of Students

Age at End of Second Year	Frequency	Percentage
16	1	0.004
17	1	0.004
18	3	0.011
19	213	0.790
20	13,802	51.200
21	12,684	47.050
22	215	0.798
23	18	0.067
24	6	0.022
25	5	0.019
26	4	0.015
27	2	0.007
28	2	0.007
54	1	0.004
Total	26,957	100.000

Table 6 shows the student population by admission type. Of the students admitted, there were 21,632 (80.25%) students in the sample who were admitted as first-time-in-college students; 4,315 (16.01%) who were admitted from the waitlist; 611 (2.27%) who took part in the Summer Bridge Program during a summer; 266 (.99%) admitted as members of the SOAR program, 92 (.034) admitted as part of the STEP program, and 41 (.015%) admitted as part of the Early Admit program.

Table 6

Admit Type

Admit Program	Frequency	Percentage
First-time-in-college	21,632	80.25
Early admit	41	0.15
Waitlisted students	4,315	16.01
Summer Bridge program	611	2.27
SOAR program	266	.99
STEP program	92	0.34
Total	26,957	100.00

The gender table will report on the population sample consisting of 14,596 women (54.1%) and 12,361 men (45.9%). These data are presented in Table 7.

Table 7

Gender

Gender	Frequency	Percentage
Female	14,596	54.15
Male	12,361	45.85
Total	26,957	100.00

Student self-disclosed ethnicity was reported as 281 (1.4%) American Indian/Alaskan natives, 2,219 (8.23%) Asian, 2,833 (10.51%) Black/African-Americans, 4,855 (18.01%) Hispanic, 58 (.22%) Pacific Islander/Hawaiian, and 16,572 (61.48%) White. A total of 139 students (.52%) did not specify their ethnicity on their university application. These data are reported in Table 8.

Table 8

Ethnicity

Ethnicity	Frequency	Percentage
American Indian/Alaskan native	281	1.04
Asian	2,219	8.23
Black	2,833	10.51
Hispanic	4,855	18.01
Not Specified	139	0.52
Pacific Islander/Hawaiian	58	0.22
White	16,572	61.48
Total	26,957	100.00

There were 5,015 (18.60%) students in the merged cohorts who self-identified as First Generation students, and 21,942 (81.40) who did not self-identify as First Generation. These data are described in Table 9.

Table 9

First Generation Status

Self-Identification	Frequency	Percent
Non-First Generation	21942	81.40
First Generation	5015	18.60
Total	26957	100.00

Table 10 reports the number of in-state resident students at the end of two years as 25,720 (95.41%). This was in contrast to 1,237 (4.59%) out-of-state students.

Table 10

Residency

Residency Status	Frequency	Percentage
In-state	25,720	95.41
Out-of-state	1,237	4.59
Total	26,957	100.00

When comparing home mailing addresses, 7,060 students (26.19%) had a mailing address within 10 miles of campus, 2,371 (8.80%) had a mailing address between 11 and 25 miles from campus, and 17,526 (65.01%) had a mailing address 25 miles beyond campus. These data are presented in Table 11.

Table 11

Distance from Campus to Home

Postal Code	Frequency	Percentage
Within 10 miles of campus	7,060	26.19
Between 11 and 25 miles	2,371	8.80
Greater than 25 miles	17,526	65.01
Total	26,957	100.00

Table 12 presents data reporting on declared and undeclared majors. There were 26,852 (99.61%) students with declared majors and 105 (0.39%) students who had not declared a major within one of the 11 colleges at the end of their cohort's second year.

Table 12

Declared and Undeclared Majors

Category	Frequency	Percent
Undeclared	105	0.39
Declared	26852	99.61
Total	26957	100.00

Of the declared majors, 5,351 (19.85%) students were majors within the College of Sciences, 4,281 (15.88%) within the College of Business, 4,091 (15.18%) within the College of Health, and 3,956 (14.68) within the College of Engineering. A total of 2,704 students (10.03%) within the College of Arts had declared a major, 1,877 (6.96%) within the College of Medicine, 1,524 (5.65%) within the College of Tourism, 1,488 (5.52%) within the College of Education, 1,099 (4.08%) within the College of Applied Health Science, and 467 (1.73%) within the College of Undergraduate Studies. As reported earlier, 105 (.39%) students had not declared a major. The College of Electromagnetic Radiation began to accept students for its undergraduate degree program beginning in the Fall of 2012. For this reason, it was not reported in the data analysis. Table 13 presents declared major data by college enrollment

Table 13

Declared Majors by College

College	Frequency	Percentage
Arts	2,704	10.03
Sciences	5,351	19.85
Undergraduate Studies	467	1.73
Undecided	105	0.39
Business	4,282	15.88
Education	1,488	5.52
Engineering	3,956	14.68
Health	4,091	15.18
Tourism	1,524	5.65
Medicine	1,877	6.96
Applied Health Science	1,099	4.08
Electromagnetic Radiation (Not reported in data analysis)	13	0.05
Total	26,957	100.00

ACT and SAT scores were not included individually as part of the descriptive statistics. Out of 26,957 students in the sample, 17,112 had both an ACT score and a SAT score, but all students did have one or the other. The range of potential scores differs significantly between those two instruments, with ACT scores ranging from 14 to 35, and SAT scores ranging from 510 to 1540. To provide for a consistent comparison on all pre-college test scores for all students, the scores were converted to Z-scores. This involved determining the mean and standard deviation for each test (ACT & SAT), subtracting the mean from the student's score, then dividing by the standard deviation. If a student had two scores (ACT & SAT), the higher of the two was selected. This allowed for correlation analysis of these two pre-college test scores. When analyzing using logistic regression, the columns for these scores cannot have missing data.

Correlation analysis would not run if there were missing data. These data are presented in Table 14.

Table 14

ACT-SAT Z-Scores

Z-Scores	Frequency	Percentage
-4.00	7	0.03
-3.00	51	0.19
-2.00	489	1.81
-1.00	5,866	21.76
.00	10,820	40.14
1.00	6,994	25.95
2.00	2,257	8.37
3.00	470	1.74
4.00	3	0.01
Total	26,957	100.00

Correlation Analysis

The explanation of the responses to continuous variables in this study was achieved by mean values, standard deviations, and correlation analysis obtained from factor analysis. The results of descriptive analysis are presented in Table 15. Included are the mean value and standard deviation scores on continuous independent variables such as age, hours completed, overall GPA, university GPA, and the better score of the ACT/SAT tests.

Table 15

Means and Standard Deviations of Continuous Independent Variables

Variables	Valid N	Mean	Std Deviation	Maximum	Minimum
Age	26,957	20.49	.589	16	54
Hours Completed	26,957	78.12	19.641	6	238
Grade Point Average (GPA)					
Overall GPA	26,957	3.16	.516	0	4
University GPA	26,957	3.13	.542	0	4
Best ACT/SAT	26,957	.2229	.95794	-3.94	3.72

As shown in Table 15, the mean values of the continuous independent variables ranged from .2229 to 78.12, with the standard deviations ranging from .516 to 19.641. The table shows that the most important factor among these variables were hours completed, (mean=78.12, standard deviation=19.64).

Table 16 presents inter-correlations among certain variables. These inter-correlations give a general picture of relationships among the retention variables. The Pearson correlation coefficient values can vary from -1.00 to +1.00. A correlation value of +1.00 indicates a perfect positive correlation, while a value of -1.00 represents a perfect negative correlation, and a value of 0.00 indicates no linear relationship between the X and Y variable or between two variables. The results of the correlation analysis proved the existence of the relationships between retention to the third year of college and the independent variables. Certain variables showed significance at the .01 levels. Hours Completed (-.134), Best of ACT/SAT scores (-.018), being a student majoring in the College of Health (-.032), majoring in the College of Tourism (-.029), students identifying as Asian ethnicity (-.016), and female students all showed a negative significant relationship. Students majoring in the College of Applied Health Science (.067), and those majoring in the College of Sciences (.024), showed a positive significant relationship at the .01

level. The variables Postal and Admit Type did not show significance. These data are presented in Table 16.

Table 16

Correlations Significant at the .01 Level With Retention

Variable	Test	Retained
Hours Completed	Pearson Correlation	-.134**
	Sig. (2-tailed)	.000
	N	26957
BestActSat	Pearson Correlation	-.018**
	Sig. (2-tailed)	.004
	N	26957
Health	Pearson Correlation	-.032**
	Sig. (2-tailed)	.000
	N	26957
Tourism	Pearson Correlation	-.029**
	Sig. (2-tailed)	.000
	N	26957
Applied Health Science	Pearson Correlation	.067**
	Sig. (2-tailed)	.000
	N	26957
Sciences	Pearson Correlation	.024**
	Sig. (2-tailed)	.000
	N	26957
Asian	Pearson Correlation	-.016**
	Sig. (2-tailed)	.007
	N	26957
Female	Pearson Correlation	-.025**
	Sig. (2-tailed)	.000
	N	26957

** Correlation is significant at the .01 level (2-tailed).

Two scores did not meet assumption of Pearson Correlation significance and were removed. These were the scores for University GPA and for Overall GPA. The results of the correlation analysis did prove a strong relationship between Overall GPA and University GPA. These two variable had a correlation score of .978 ($p < .01$). Given that students' academic standing is dependent on the University GPA, the Overall GPA variable was removed from further analysis. Table 17 will describe these data.

Table 17

Correlations Between Grade Point Averages (GPA)

Type of GPA	Test	Overall GPA	University GPA
Overall GPA	Pearson Correlation	1	.978**
	Sig. (2-tailed)		.000
	N	26,957	26,957
University GPA	Pearson Correlation	.978**	1
	Sig. (2-tailed)	.000	
	N	26,957	26,957

** Correlation is significant at the .01 level (2-tailed).

Logistic Regression Analysis for Research Question

For the study of the problem of attrition after the second year at the public university, retention was used as a predictor variable for the research question: What variables best predict between students' attrition or persistence between the second and third year of their college career?

Whether students returned to their native university for a third consecutive year was used as the dependent variable. Coding for the dependent variable was: 0 = returned for a third year and 1 = did not return for a third year.

This study used a logistic regression design to assess student difference among second-year public university students who returned for their third year of college and those who did not return. Logistic regression was an appropriate form of analysis to use in this research, as the research used the dichotomous outcome variable, whether a student returned or not after two years of continuous enrollment (Miller & Herreid, 2009). Logistic regression allows the researcher to test models to predict categorical outcomes with two or more categories.

APPENDIX C contains a list of all variables used in the full sample test for the study.

Prior to running the final logistic regression tests, the data were reviewed to ensure that assumptions of the logistic regression test were met. These included testing for (a) noncollinearity, (b) linearity of continuous variables with the log odds of the dependent variable, and an (c) absence of outliers. After an initial logistic regression test was run, predictor variables were reviewed for high multicollinearity which cause large standard errors of the log odds (Garson, 2013).

Multicollinearity

Cut-off points for determining the presence of multicollinearity (tolerance value of less than .10, or a VIF value of above 10) were run. These values, however, allow for quite high correlations between independent variables (above .9); thus, they should be taken as only a warning sign when checking the correlation matrix. As shown in Table 18, the tolerance value for each independent variable was above 0.1 except for the variable “Postal” which was 0.00.

Therefore, it was removed from the equation without having violated the multicollinearity assumption.

Table 18

Collinearity Statistics: Variance Inflation Factor (VIF)

Independent Variable	Retained
Admit Term	1.02
Admit Type	1.31
Age	1.01
Best of ACT-SAT	1.53
College	1.05
Ethnicity	1.06
First Generation	1.01
Gender	1.14
Hours Completed	1.17
Major	1.03
Postal	0.00
Residency	1.02
University GPA	1.13

Table 19 describes the results of the analysis without any of the independent variables used in the model. This serves as a baseline for later comparisons of the model with the predictor variables included. In the classification table, the overall percentage of correctly classified cases is 90.5%. In this case, SPSS classified that all cases would not have a problem with retention. The researcher hoped that later, when the set of predictor variables was entered, the data would be able to improve the accuracy of these predictions.

Table 19

Beginning Classification Table

Observed	xx	Predicted		Percentage Correct
		Retained	Not Retained	
		0	1	
Retained	0	24,409	0	100.0
Not Retained	1	2,548	0	0
Overall Percentage				90.5

Note. Constant is included in the model. The cut value is .500.

Table 20 contains the results of the analysis with the independent variables used in the model. The overall percentage of classified cases was 92.1%. In this case, SPSS was able to improve the accuracy of these predictions.

Table 20

Classification Table

Observed		Predicted		Percentage Correct
		Retained	Not Retained	
		0	1	
Retained	0	24307	102	99.6
	1	2041	507	19.9
Overall Percentage				92.1

Note. The cut value is .500

The Omnibus Tests of Model Coefficients provides an overall indication of how well the model performs, over and above the results obtained for the Beginning Classification Table, with none of the predictors entered into the model. This is referred to as a goodness of fit test. For this set of results, the data should have a highly significant value (the Sig. value should be less than .05). In this case, as shown in Table 21, the value is .000.

Table 21

Omnibus Tests of Model Coefficients

Step 1	Chi-square	Df	Sig.
Step	3005.621	27	.000
Block	3005.621	27	.000
Model	3005.621	27	.000

Therefore, the model (with our set of variables used as predictors) was better than the data reported in Beginning Classification Table. The Beginning Classification Table assumed that all students would return with no problem for their third year of college.

For the Hosmer-Lemeshow Goodness of Fit Test, poor fit is indicated by a significance value less than .05; thus, to support the model, a value greater than .05 is preferred. In this example shown in Table 22, the chi-square value for the Hosmer-Lemeshow Test was 481.463 with a significance level of .00, a value of less than .05. The finding of non-significance indicated this was not a strong model for predicting retention.

Table 22

Hosmer and Lemeshow Test

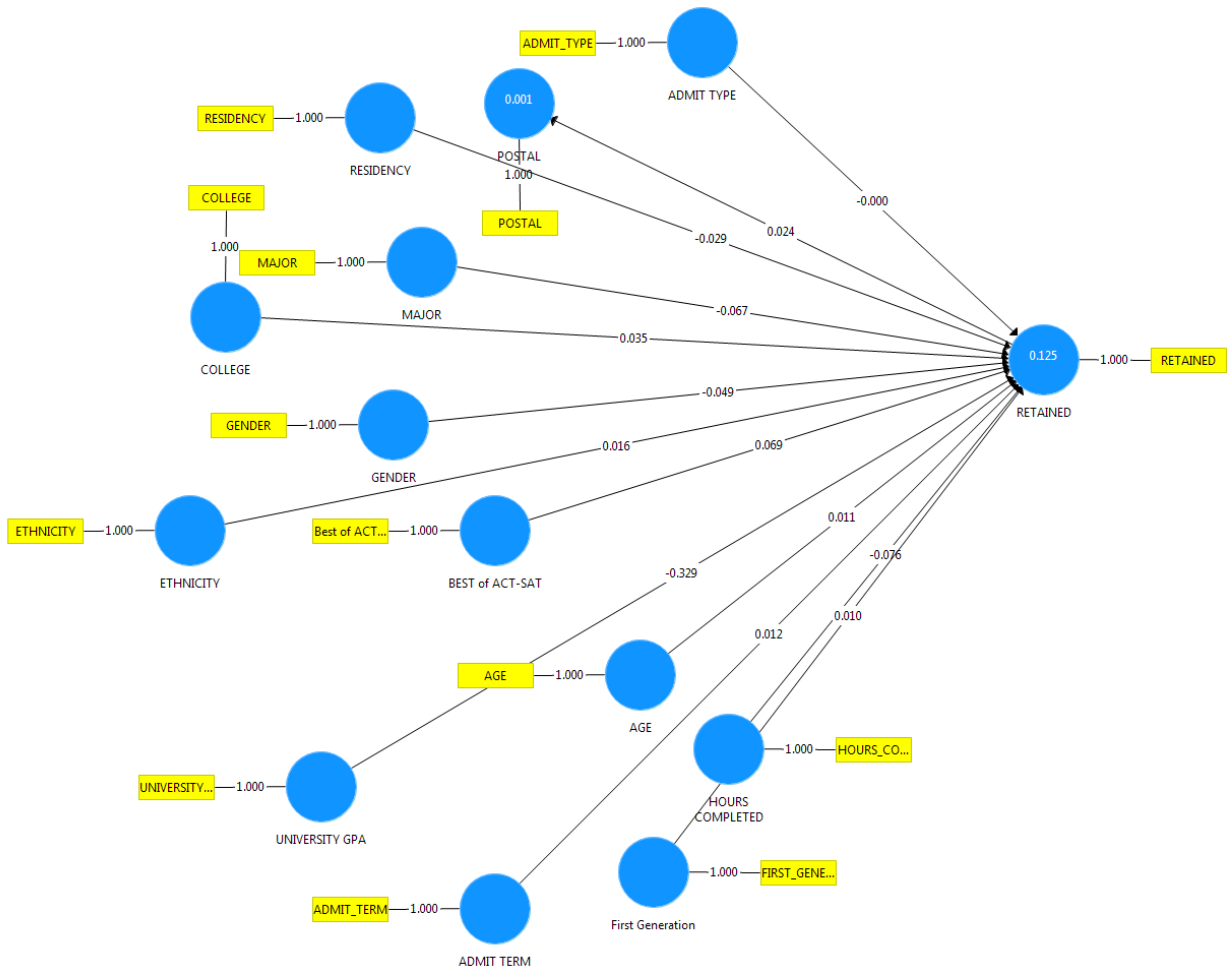
Step	Chi-square	Df	Sig.
1	481.463	8	.000

Path Analysis

Although the model did not prove to be strong, the decision was made to explore relationships using Path Analysis. Path Analysis was developed as a method of separating correlations into different pieces for interpretation of effects (e.g., how does choosing a college major influence a student's retention two years later?). Path Analysis was chosen to explore relationships in the data, as variance based structural equation modeling (i.e. the PLS-SEM algorithm) is primarily used for exploratory research and the development of theories (Hair, Hult, Ringle, & Sarstedt, 2016). Path Analysis can be conducted as hierarchical (sequential) multiple regression analysis. For each endogenous variable, a multiple regression analysis can be conducted predicting that variable (Y) from all other variables which are hypothesized to have direct effects on Y. Any variables which are hypothesized to affect Y only indirectly (through one or more intervening variables) are not included (Wuensch, 2015).

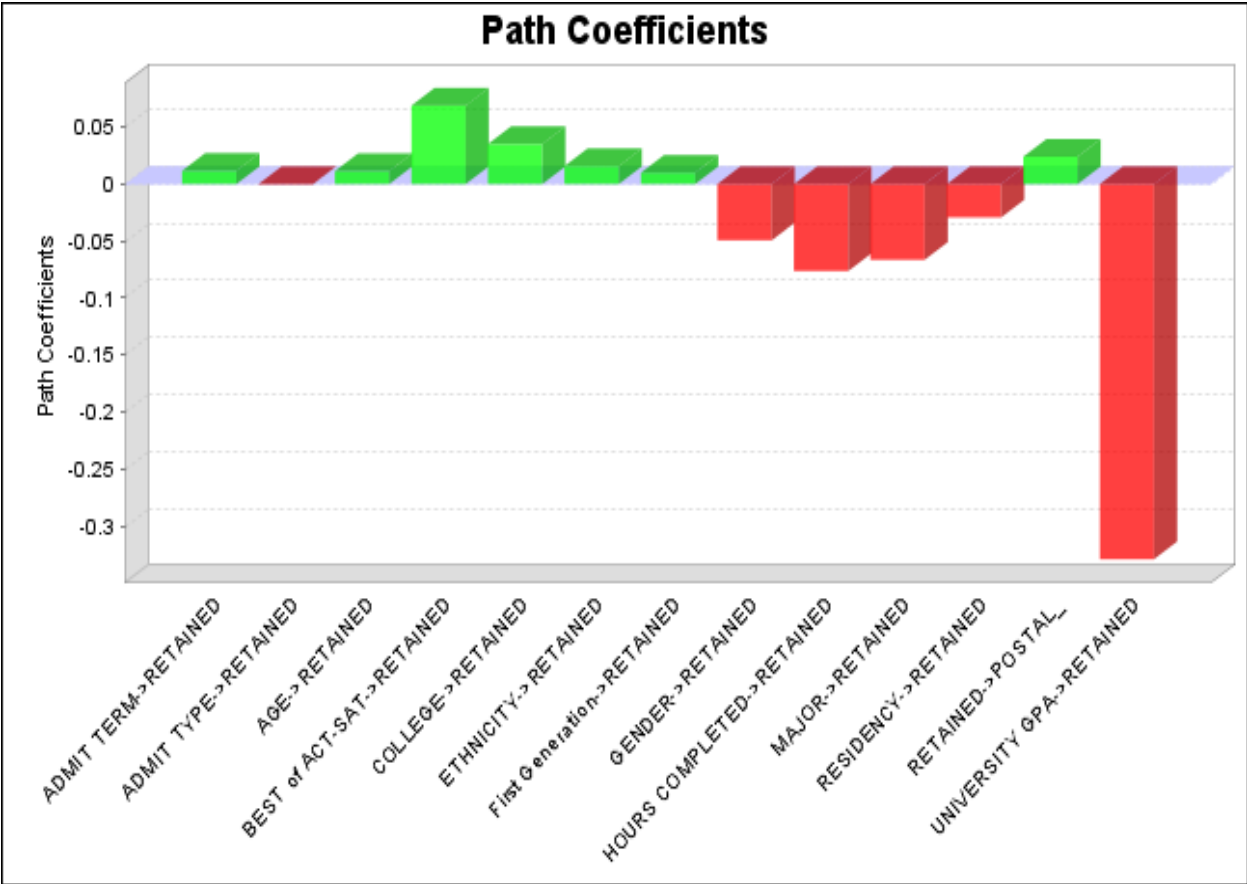
Using SmartPLS 3, a path coefficient test was run on the following independent variables to test propositions regarding third-year retention and attrition: admit term; admit type, age, best of ACT/SAT scores, college of major, ethnicity, first generation status, gender, hours completed, major, postal code address, residency, and university GPA. After running the PLS-SEM algorithm, estimated areas were obtained for the structural model relationships, also known as the path coefficients. This represents the hypothesized relationships among the constructs. The path coefficients have standardized values approximately between -1 and +1. Estimated path coefficients close to +1 represent strong positive relationships. Estimated path coefficients close to -1 represent strong negative relationships.

Figure 1 contains a Path Analysis diagram for independent variables. Figure 2 contains a Path Analysis graph representation of the independent variables. The path coefficients are also represented in Table 23.



Note. Adapted from *SmartPLS* by C. M. Ringle, S. Wende, & J. M. Becker. (2015). Boenningsted, DE.

Figure 1. Path Analysis Diagram for Independent Variables



Note. Adapted from *SmartPLS* by C. M. Ringle, S. Wende, & J. M. Becker. (2015). Boenningsted, DE.

Figure 2. Path Analysis Graph Representation of Independent Variables

Table 23

Path Coefficients

Total Effect	Not Retained
Admit Term	0.01
Admit Type	0.00
Age	0.01
Best of ACT-SAT	0.07
College	0.04
Ethnicity	0.02
First Generation	0.01
Gender	-0.05
Hours Completed	-0.08
Major	-0.07
Postal	0.00
Residency	-0.03
Retained	0.00
University GPA	-0.33

The path coefficients examine or point to possible causal linkages between independent variables and retention. Thus, for retention, the coefficient for the best of the ACT/SAT scores (.07) and the college enrolled in (.04) would indicate good variables to investigate when studying students who return for their third year. Initial research indicates that students with the highest ACT/SAT scores may not return to the institution for the third year.

For the purpose of this study, the research also examined variables that best predicted students' attrition between the second and third year of their college careers. Relative to that part of the research question, it is important to recognize those variables that earned negative numbers for the path coefficients. These indicated attrition areas at the end of the second year. These variables included university GPA (-.33), hours completed (-0.08), major (-0.07), gender

(-0.05), and residency (-0.03). Initial research indicates that as students' grade point averages decrease, students may not return to the institution for the third year. These indicate important variables to emphasis when researching students at risk of not returning for their third year.

Summary

Data were collected on 26,957 students who began their college careers at a large public university between the summer term of 2009 and the fall term of 2013, and remained enrolled for two consecutive years. Of those cohorts, 24,409 students returned for their third year at the same institution and 2,548 did not return. Logistic regression tests were run, but the Hosmer-Lemeshow Goodness of Fit Test did not find a strong model.

Path Analysis tests were conducted and strong coefficients were found for attrition in the following independent variables: university GPA, hours completed, major, gender, and residency. Chapter Five will delve deeper into those variables, and the researcher will make recommendations for policy and practice when working with second-year students.

CHAPTER FIVE SUMMARY, DISCUSSION AND RECOMMENDATIONS

Introduction

This study was undertaken to show the importance of attrition between the second and third years of students' academic careers at their native institution. Other studies on second-year retention and attrition have stressed the need for more research (Evans, 2012; Gardner et al., 2010; Graunke & Woosley, 2005; Lewis, 2009; Macrillo, 2008; Schaller, 2010; Schreiner, 2010). Among the studies that have been conducted, one has shown that between 12% and 20% of second-year students do not return to their original institutions for the third year (Schreiner, 2011). This chapter expands on these previous findings by asking the question: What variables best predict students' attrition or persistence between the second and third year of their college career?

Discussion of Findings

The analysis of the current data supported the finding that university GPA, the number of hours completed, certain majors, being in-state or out-of-state resident for tuition purposes, and being a certain gender can be predictors of attrition in the second year of college. Pascarella and Terenzini (2005) reported that no other variable has a stronger relationship to persistence to degree completion than that of grade performance. "College grades may well be the single best predictor of student persistence" (Pascarella & Terenzini, 2005, p. 396). Other researchers have outlined how second-year students, disengaged from the academic community, tend to have higher levels of absenteeism and lower GPAs (Gump, 2007; Miller & Herreid, 2009; Schaller, 2010; Schreiner, 2011). Gump (2007) was one faculty member who conducted research using

his general education class to investigate the sophomore slump. One of his conclusions was defining the second year as a period when students decrease their academic performance.

In this present study, of the 2,548 students who did not return for a third year, 716 (28.10%) had a grade point average of 2.00 or less. Of the same students, 920 (36.10%) had a grade point average of 2.25 or less. Miller and Herreid (2009) found, in their research, that cumulative GPA was not important for predicting attrition unless student grades were in the lowest quartile of performance. This was echoed by Pascarella and Terenzini (2005) who reported that grades in the top two quintiles increased a student's persistence to completion of a degree to the order of two to three times over students with grades in the bottom three quintiles.

The number of hours completed by students who did not return for their third year ranged from 21 hours to 208 hours. If they are taking full-time loads, with two years of academic coursework, most students should have 60 hours of course work completed. However, in this study, of the 2,548 students who did not return, 909 (35.70%) had completed less than 60 hours. With this group, 367 (40.37%) had a university GPA of less than 2.00. Lack of progress towards degree completion can indicate a number of issues during the first two years. Students may have to work; they may have lost a grade-based financial aid package at the end of their first year and need to supplement that loss with income from a job. It may be an indication of not being admitted into a restricted access or limited access degree program (Pattengale, 2000). It may signify that students have not successfully passed all of their previous coursework, thereby reflecting a lower GPA. Lack of progress towards degree completion could be a symptom of a failure to plan course requirements for a major or indecisiveness about choosing a major, either

of which could increase time to degree completion (Anderson, & Schreiner, 2000; Gardner et al., 2010).

Of the students who did not return, 2,487 (97.60%) left with a declared major. However, the 61 (2.40%) students who left without declaring a major represented 58% of the total number of undeclared majors who left the institution at the end of their respective second year.

Mirroring Miller and Herreid's (2009) findings, attrition was greatest for students enrolled in the College of Applied Health Science (19.01%) or having an undeclared major. Applied Health Science majors are limited access degree programs. This means that there are a limited number of applicants accepted for the BSN program, and all applicants must have a minimum of a 3.0 on a 4.0 scale as calculated by the university. The College does inform applicants that meeting the minimum GPA requirement does not guarantee acceptance into the program (College of Applied Health Science, 2016). Of the Applied Health Science majors who did not return, 81 (38.76%) earned a university GPA of less than 3.00. Researchers have stressed the importance of supporting second-year students who seek to enter limited access majors. Advising for this group is important to define pathways to graduation for students who may not qualify for admission to the major that they desire (Evenbeck et al., 2000). It is reasonable to assume that these students may be at risk for attrition due to loss of their long-term goal and, thus, the loss of commitment to the higher education process which represented their conduit to that goal (Cuseo, 2005).

Gender is an independent variable that scored a -0.05 on the Path Analysis. However, in investigating further, there was no clear difference between the male and female genders. There were 1,282 (50.31%) women who did not return and 1,266 (49.69%) men who did not return. Of

the 2548 students who did not return, 334 women (13.10%) were majors in the College of Sciences, 186 women (7.30%) majored in the College of Applied Health Science, and 177 women (6.95%) majored in the College of Health. Of the same 2548 students who did not return,, 311 men (12.20%) were majors in the College of Engineering, 251 men (9.85%) majored in the College of Business, and 246 men (9.65%) majored in the College of Sciences.

A more in-depth manner of researching these findings would be to narrow the choices of colleges to investigate, collecting the data on the majors in those colleges. The institution that was studied offers 200 undergraduate majors. A study to correlate data with almost 200 majors and almost 27,000 students would not offer usable data. The researcher, in collaboration with the statistician, made a decision to restrict the choices to a dichotomous data set of declared majors and undeclared majors. However, narrowing the colleges to permit studying the most recent two or three years of non-returning students may offer more accurate data as to the degree programs that students may find most challenging.

There were attributes peculiar to the size of the institution studied that may present themselves as variables due to the uniqueness of this school. The size of the institution would be first. The university studied was a large institution that encouraged much effort to make personal connection during the first year of enrollment. However as evidenced in the literature, not as many, if any, of those personal connections were available for second-year students.

Second, for the most part, housing on campus is only for first-year students. With the advent of the second-year, having to look to find residence off-campus would makes the chances of integrating on campus lower, as per Astin's (1999) student involvement theory.

It may be that this particular type of institution – very large – is a variable in itself as opposed to a second year at a smaller school.

Implications and Recommendations for Practice and Policy

As has been mentioned previously, the attrition of second-year students can be seen as inefficiency on the part of public institutions. A great deal of time and resources are expended by a college or university to ensure the retention of first-year students at an institution. Little, if any, of that same energy is expended to ensure that those students who do return for their second year are meeting their developmental and academic goals.

In terms of tuition and fee losses, this calculates to \$2,547.36 per full time, in-state student per semester. For full time, out-of-state students, this is a loss of \$8,986.68 per student per semester. Using the results of this research, this is a loss in tuition and fees of approximately \$2,440,371 per year for in-state students, and a loss of \$539,201 per year in out-of-state tuition and fees.

It is recommended that administrators and faculty become more aware of the issues that second-year students may face. More outreach must be conducted with advisors, administrators, and faculty to discuss and discern information about issues surrounding the second year. As the First-Year Experience gained footing after many years of advocacy, so should the same activism surround the second-year theme. Framed according to the relevant issues of the audience, second-year advocates can present issues relevant to retention and tuition savings to administrators. These include career choice planning, degree program commitment, and schedule planning for advisors; and undergraduate research mentoring for faculty. This will be a challenge. It may be unrealistic for faculty at large institutions to provide mentoring for the

majority of second-year students who request it. A cascading model of the faculty member supervising graduate students, who in turn supervising upper-level undergraduates has been proposed (Packard, 2004). The research on this issue is growing and should be shared with a larger audience.

At the institutional level, the support for second-year students can be built around the successes of the institutions new student orientation program and its first-year experience program. While many students have successfully made the transition from high school to college, research has shown that there can be anywhere from 9% to 20% of those returning students who may still be working on a successful transition. Institutions need to develop a program targeting second-year students that is independent of other retention effort and has its own infrastructure dedicated to this cohort. Using some of the independent variables in this and other research studies would provide an introductory method of reaching out to second year students (i.e. grades, hours completed, declared or undeclared major). A second-year center and its staff would be committed to advocating for students with regard to career interest choices, to financial aid assistance, and to integration into the culture of the institution. Some institutions offer a “Welcome Back!” celebration for second-year students with the intent of making a public statement that these students do matter and that the institution will not allow them to be forgotten.

The most important facet would be for more focused advising and mentoring of second-year students. The policy of the institution should be to query the returning students and to conduct research on grade point average and hours completed. A review of students who are not meeting certain predefined benchmarks in grades and hours would necessitate a phone call to

those students. Email correspondence may not be efficient and effective in reaching a student, but a phone call has a better chance of being more proactive and is a more personal way to communicate. These are students who may feel that they no longer have an advising advocate, and a personal conversation may be more inviting (Graunke & Woosley, 2005; Karp & Logue, 2002).

Once the student has been contacted, the advisor should be working with the student to ascertain where the issues with grades lie and, if appropriate, why the student is not meeting course hour standards for degree completion. This conversation may lead to the student participating in career interest inventories. The results of these inventories may confirm students' degree programs and career choices, or they may present data that help student make more appropriate degree choices based on their skills and interests.

Phone calls and good intentions do not always bring students in for help. To ensure that students, whose grades will bring them close to an academic standing impact, have a face-to-face consultation with an advisor/advocate, stricter measures may be put into place. At-risk students, may have their registration privileges for the subsequent semester suspended. This action would force them to meet personally with an advisor/advocate to discuss their academic future at the institution.

The literature on second-year attrition makes advising and mentoring a large factor in the successful progression of these students to degree completion. If the target institution in the present study would inaugurate a dedicated second-year advising center, and increase retention rates by 1% each year, it would retain almost \$41,000 in in-state tuition and fees; for out-of-state students it would retain almost \$9,000. This savings could justify the salaries of two academic

advisors. It would also make great strides in helping second-year students to feel less like the “middle child.” Tinto (1987) made the point that successful programs and institutions exhibit a deep commitment to serve the students they admit, and this institutional commitment is the source of development of the students’ commitment to the institution (p. 140).

Suggestions for Future Research

As mentioned previously, another quantitative study should focus on a narrower choice of colleges to investigate and then collect the data on the majors in those colleges. The institution that was studied offers 200 undergraduate majors. Narrowing a study to the colleges with the highest percentages of students non-returning for a third year, and studying the most recent two or three years of those students, may offer more accurate data as to the degree programs that students may find most challenging.

It is also recommended that a qualitative design be explored in order to analyze the voices that shape the lived experiences of the students who do not return to college for their third year. Astin’s (1999) student involvement would be an appropriate theoretical framework for such a study. A survey using this theory could include questions about academic involvement, cocurricular activities, time spent on campus versus time spent at home, work, and interaction with faculty, staff, and administrators.

Limitations of the Study

While some of data were calculated from objective records (GPA, residency, hours completed, gender); other data were subjective, as it was entered by student (major, postal code, ethnicity). The accuracy of the subjective data could be called into question. Students may have

chosen their mailing addresses (which were used in this study to calculate distance the student traveled to campus) to be their permanent home address where their parents reside. Many students may not have understood the meaning of the term “First Generation.” Higher Education takes its jargon for granted. However, many people do not understand the terminology used, the colloquialisms within an institution, and phrases and concepts within higher education. This may lead to inaccurate information on students’ records.

Summary

The findings of this study revealed five variables that predict between students’ attrition or persistence amid the second and third years of their college careers: (a) university cumulative grade point average, (b) the number of course credit hours successfully completed, (c) college major, (d) student’s gender, and (e) in-state or out-of-state residency. Recommendations included building a second-year advising and mentoring infrastructure to increase the retention rates of second-year students who may be at-risk of attrition.

CLOSING VIGNETTE

Frank came home from work one night to find a message for him on the refrigerator door. “Call Monica Grey from the University”, it said with a phone number. The next day, Frank called Ms. Grey. She told Frank she was now working in a new office, dedicated to working with second-year students. She expressed concern that Frank had not enrolled in classes for the upcoming school year. Frank explained that he had not done well the previous year, had lost his financial aid, and had nowhere to live near campus. The advisor said she was going to look into Frank’s situation, and would call him back by the end of the week.

The advisor called back and asked if there were any way Frank could take some time off to meet with her on campus. Frank took an afternoon off and drove out to campus. When he met with Monica, she talked to him about his grades in science courses, and asked him what it was that he wanted to do. Frank was no longer sure, and Monica suggested an on-line career interest inventory. This, she explained, would help Frank learn his academic strengths and abilities, and make suggestions for careers and appropriate majors. The advisor also informed Frank that she has spoken with the Financial Aid office and that he was in a position to appeal his financial aid loss. She also gave Frank the name of a staff member in Housing who might be able to research some off-campus residences still available.

At the beginning of the semester, Frank was re-enrolled in classes for his new Public Service major. He had also found a room to rent in a house on the campus shuttle line, and was not only able to reestablish his financial award (albeit on a probationary status), but also discovered that he was eligible for a First-Generation award as well. At the end of his third year, Frank’s grades were closer to a 3.00, and he was well on his way to earning a Bachelor’s degree.

APPENDIX A
INSTITUTIONAL REVIEW BOARD APPROVAL

Approval of Exempt Human Research

From: [REDACTED] Institutional Review Board #1
FWA00000351, IRB00001138

To: Paul H. Viau, Jr.

Date: May 24, 2016

Dear Researcher:

On 05/24/2016, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Project Title: Second-year TO THIRD-YEAR IN COLLEGE: IDENTIFYING FACTORS IN THE DECISION 'NOT TO RETURN'
Investigator: Paul H Viau Jr
IRB Number: SBE-16-12302
Funding Agency:
Grant Title:
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

On behalf of [REDACTED] IRB Chair, this letter is signed by:

[REDACTED]

Signature applied by [REDACTED] on 05/24/2016 09:27:53 AM EDT

IRB Manager

APPENDIX B
PERMISSION TO CONDUCT RESEARCH

From: [REDACTED]
Sent: Monday, April 25, 2016 12:13 PM
To: Paul Viau
Subject: RE: Permission to use data

Hi Paul,

This is approved. We might be able to help create the new unique IDs for you if this would be of help.

Let's talk when you get settled back in regarding the selection criteria for the query.

[REDACTED]

From: Paul Viau
Sent: Thursday, April 21, 2016 10:19 AM
To: [REDACTED]
Subject: Permission to use data
Importance: High

[REDACTED]

Dear [REDACTED]

I am requesting permission to access the PeopleSoft database for use in my quantitative dissertation, "*SECOND-YEAR TO THIRD-YEAR IN COLLEGE: IDENTIFYING FACTORS IN THE DECISION 'NOT TO RETURN'*"

I am requesting a query of the PeopleSoft database be performed to identify second-year university students who were admitted as first-time-in-college students for the Fall 2012 semester, and admitted as first-time-in-college students for the Fall 2013 semester, but who did not return to the university for the Fall 2014 semester nor for the Fall 2015 semester respectively. Students from these cohorts who involuntarily separated the institution because of academic suspension will be not included in the dataset of non-returners.

The query will include such student attributes as semester admitted, current home zip code, local school zip code, gender, ethnicity, college major, university grade point average, overall grade point average, hours completed, residency, and age. Once profiles have been completed, personal identifiers will be removed and new unique identifiers will be assigned to each student.

The data will be encrypted and stored on my work computer. To access this computer requires my unique ID and password. The files will be stored on an [REDACTED] server in a folder that is exclusive to my use. Once my research is completed, the files will be deleted.

Please let me know if you have any questions about my research or about my use of the data.

Sincerely,

Paul H. Viau, Jr. M.S.Ed Doctoral Candidate

APPENDIX C
VARIABLES USED IN FULL SAMPLE TEST

IDENTIFIER
ADMIT_TYPE
ADMIT_TERM
POSTAL
AGE
COLLEGE
MAJOR
ETHNICITY
FIRST_GENERATION
GENDER
HOURS_COMPLETED
OVERALL_GPA
UNIVERSITY_GPA
RESIDENCY
ACT_SCORE
SAT_SCORE
RETAINED

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