

A MIXED METHODS APPROACH TO UNDERSTANDING COLLEGE
STUDENT RETENTION AND GRADUATION

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ABSTRACT

This study examined the retention and graduation patterns of a cohort of students at one baccalaureate, public, commuter campus. Quantitative and Qualitative data were analyzed to develop a campus specific retention model (risk model). The results of this study are used to inform retention initiatives on this campus. Recommendations for a specific strategy to improve the year-to-year student retention rate and improve the 6-year graduation rate are made based on the findings of this study.

FOR MAYA

Thank you for making me want to be a good role model and finish what I had started long before you were born. I wouldn't have finished this degree without you.

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CHAPTER 1

INTRODUCTION

The literature on the study of student retention spans over forty years. This research field includes books, edited volumes, a journal, as well as a variety of conferences all aimed at trying to understand the complexities of student leaving and persistence. Despite all of this attention, the national rate of student persistence and graduation has shown little change between 1983 and 2015 (American Testing Program, 2015). The highest percentage of freshman to sophomore year retention during this time band was a rate of 70% that occurred in 2004 for BA/BS public institutions. In 2015 the United States experienced the lowest rate during this time period with a rate of 64.2% retention from freshman to sophomore year (American Testing Program, 2015). It has been estimated that 40% of college students will leave higher education without earning a degree. Of those that leave, 75% leave within their first two years of college (DeBerard, Spielmans & Julka, 2004). Looking at the cohort of first-time, full-time students who began seeking a bachelor's degree at a 4-year institution in fall 2006, about 59% had completed that degree within six years. Females had a higher graduation rate (61%) as compared to males (56%) in this cohort (Kena et al., 2014).

There is a cost to both the institution as well as the individual for each student who leaves before degree completion. On the institutional side, there is the loss of thousands of dollars in unrealized tuition, fees, and alumni contributions (DeBerard, Spielmans & Julka, 2004). Several organizations and *US News and World Reports* rank intuitions using data that include indices of retention. For the 2015 rankings, retention makes up 22.5% of the rankings. This measure has two parts: six year graduation rate

which is 80% of the retention score and freshmen retention rate which is 20% of the score (US News and World Reports, 2014). Many states use some measure of institutional retention and/or graduation rates in their accountability programs to determine state sponsored support of institutions. The federal government is considering doing this as well (Tinto, 2006). On the student side, students who drop out before earning their degree often are in a position to earn much less over a lifetime of work (DeBerard, Spielmans, & Julka, 2004). In 2012, an analysis of the annual earnings of young adults (those aged 25-34) showed that those with a bachelor's degree earned more than twice as much as those without a high school credential (\$46,900 vs. \$22,900) and 57% more than young adult high school completers (\$46,900 vs. \$30,000) (Kena et al., 2014). Examining the unemployment rate based on educational attainment rate showed differences as well. In 2013, the unemployment rate for young adults with at least a bachelor's degree was lower than for those with lower levels of educational attainment. Even during the most recent economic recession in the United States (2008 through 2010), there was less of an increase in the unemployment rate for young adults who had at least a bachelor's degree than for those who had less than a bachelor's degree (Kena et al., 2014).

Academic difficulty is a main reason why students leave college (Tinto, 1993). Researchers have looked at the many factors that contribute to academic difficulty. These include: peer culture, academic major, college environment, faculty contact, work, career choice, personal motivation, organization, study habits, quality of effort, self-efficacy and perceived control (Pascarella & Terenzini, 1991). In addition to academic difficulty, students face other challenges which can impact degree persistence and completion. In

2012, 41% of full-time college students between the ages of 16 and 24 were employed. In 2012, 15% of students in this age group worked less than twenty hours per week, 18% worked between 20-34 hours per week and 7% worked 35 or more hours per week (Kena et al., 2014).

Increasingly, students require more than four years to complete a bachelor's degree program. Approximately 59% of fall 2006 first-time, full-time students had completed their bachelor's degree within six years. Completion is highly correlated with the type of institution attended. Institutions with a smaller percentage of accepted students compared to their application rate tend to have higher graduation rates. At institutions where fewer than 25% of applications are accepted (highly selective) the six year graduation rate was 86%. At open- enrollment institutions, however, the six year graduation rate was 33%. The six year graduation rate at private nonprofit institutions is 66%, 57% at public institutions, and 32% at private for-profit institutions. There are gender differences in completion rates, with the rate for females being higher than for males (56% for males vs. 61% for females). These were the same percentages that were seen with the 1999 cohort. Completion rates also vary by race/ethnicity. Looking at the percentage of people who were aged 25 to 29 years old in 2013, Asian/Pacific Islander students had the highest six year completion rate (58%), followed by White students (40%), Black students (20%) and Hispanic students (16%). The gap in the attainment rate widened between the years of 1990 and 2013 with the gap between Whites and Blacks widening from 13 to 20 percentage points, and the gap between Whites and Hispanics widening from 18 to 24 percentage points (Kena et al., 2014).

Increasing durations of time to degree completion also impact student financial responsibility for tuition and fees as well as loss of wages during the terms of enrollment. For the 2011-2012 academic year, the average total cost of tuition and fees for full-time students was \$10,300 (Kena et al., 2014). Many students and their families receive some type of financial aid such as grants or loans to help cover their educational expenses. For the 2011-2012 academic year, 85% percent of first-time, full-time undergraduate students at 4-year institutions received some type of financial aid. That is up from the 2006-2007 year where the rate was 75%. For those students at 4- year institutions who received aid in the form of federal grants, the average federal grant amount was \$4,764 for students attending private for-profit institutions, \$4,751 for students attending private nonprofit institutions, and \$4,540 for students attending public institutions. Student loans are a part of the financial aid packages of many students. In 2011-2012, 51% of students who received student aid received some of that aid in the form of student loans. The average student loan amount for the 2011-2012 academic year was \$6,800. This was a 36% increase from the 2000-2001 academic year (after controlling for inflation). In looking at the data on students who were scheduled to begin paying their loans back in 2011, there was a 10% default rate (approximately 476,000). Default rates varied by institution type with it being highest at public 2 -year institutions (15%) and lowest at private nonprofit 4-year institutions (5.1 percent). This overall default rate was also higher than the rates for the fiscal year of 2010 and 2009 (Kena et al., 2014). These data are reported based on type of institution and do not contain information regarding default rates and demographics such as any racial or ethnic disparities in default rates.

Statement of Problem

There is a negative impact to both the institution as well as the individual for each student that leaves before degree completion. Attending college and earning a degree requires a substantial commitment of time and energy on the part of the student as well as family members who offer support. There are various costs involved in seeking a bachelor's degree and students at risk for not completing their degree are facing financial as well as psychological stressors. Despite a vast amount of research in this area, departure and graduation rates have not drastically changed in the last thirty years. Retention and graduation rates continue to be of concern to institutions of higher education. This campus of study has relatively lower rates of year- to- year retention and higher than average time-to-degree than the national average. This campus has been charged with examining its retention and graduation rates and raising its six year graduation rate to 60%. Therefore, the development of a retention model (risk model) is needed.

Purpose and Rationale of Study

This mixed method single institution study will explore factors that contribute to student persistence and graduation at one baccalaureate, public, commuter campus. While quantitative methods are the most commonly employed to study college persistence (Benjamin, Chambers, & Reiterman, 1993), incorporating qualitative research by interviewing persisters will add the student perspective to this issue. I chose a mixed methods approach because I'm interested in using different types of data/knowledge to get a better idea of patterns of persistence and graduation at a particular commuter

institution. The development of a retention model (risk model) will enable the campus to better understand campus patterns of retention and graduation. This knowledge will aid campus stakeholders in identifying specific populations of students at risk for not graduating or being retained to who would benefit from targeted interventions.

RESEARCH QUESTIONS

Tinto's (1975) Interactionist Model will serve as the as the theoretical framework for modeling college student persistence and graduation. Using a mixed methods approach, this research will examine the following questions:

Research Question 1

What factors influence persistence in a particular commuter-college? Do these factors change across time (i.e., first year to second year; second year to third year; and third year to fourth year)?

Research Question 2

What factors influence graduation from a particular commuter college? Do these factors change for fourth-year, fifth- year or sixth year graduation?

Qualitative investigation was also employed to compliment the quantitative analysis in addressing the above research questions.

DEFINITIONS OF TERMS

Attrition- an institutional measure; the decrease in numbers of students resulting from lower student retention (Hagedorn, 2005).

Graduate- a student measure; a former student who has completed a prescribed course of study in a college or university; all graduates have persisted (Hagedorn, 2005).

Graduation- an institutional measure; the completion of degree requirements to merit the awarding of a degree.

Persistence- a student measure; remaining enrolled in college until degree completion (Hagedorn, 2005).

Retention- an institutional measure; a measure of the rate at which students persist in their educational program at an institution, expressed as a percentage. For four-year institutions, this is the percentage of first-time bachelors (or equivalent) degree-seeking undergraduates from the previous fall who are again enrolled in the current fall (online glossary provided by the Integrated Postsecondary Education Data System (IPEDS) <http://nces.ed.gov/ipeds/glossary/> retrieved December 5, 2014.)

SIGNIFICANCE OF THE STUDY

In relation to student retention, there is no generalized model that is applicable to all institutions. Much of the research on college student retention has focused on four-year, residential institutions (Feldman, 1993). While many studies have examined patterns of student retention and persistence to graduation from the macro level using large- scale, multi- institutional data, this single institution study will assist the campus in better

understanding enrollment patterns of students on a commuter campus. Commuter students may spend a small amount of time on campus, and may have other tasks to occupy their time (Tinto, 2010). Much of the research on college student retention has also utilized quantitative methodology. By incorporating qualitative methods into this study via individual interviews, I will be able to elicit deep descriptions of students' postsecondary experience and their perceptions of key aspects of their success. This will enable me to identify key factors from the participants' point of view (Jackson, Smith, & Hill, 2003). This will enable the campus to enact changes to address Core Council recommendations. The Core Council is a 13-member council chaired by the Executive Vice President to provide in- depth analyses of programs, examine available resources, find efficiencies and determine how to maintain the University's excellence in an era of declining state revenue and mounting fiscal challenges. The Core Council made specific recommendations to this campus regarding retention and graduation rates. These being:

- Development of strategies to improve the year- to- year student retention rates to 84%
- Studying its graduation rates to determine the reasons for the relatively lower rates and higher than average time-to-degree, and develop strategies to improve 6-year graduation rates at this specific campus. The expectation rate according to the Core Council is 60% in six years for campus colleges.

CHAPTER 2

REVIEW OF THE LITERATURE

Historical Context of Retention Research

In Colonial America of the 1600's, the earliest colleges such as Harvard, William and Mary, and Yale were established to educate young men to satisfy the demand for pastors and missionaries. As demand for ministers decreased, colleges expanded their curriculum to prepare men for careers in law and public life. Retention during this time did not exist as a concept because degree attainment was rare. It was not until the 1930's that the first studies of "student mortality" began. One of the first studies that looked at multiple issues related to the departure of students at multiple institutions was published by John McNeeley in 1938 on behalf of the United States Department of the Interior and the Office of Education. McNeeley's study called "College Student Mortality" used data from sixty institutions across the country and looked at the extent of attrition, average time to degree completion, points in the academic career in which attrition was most prevalent, impact of institutional size, impact of other factors (such as gender, age, participation in extracurricular activities, part-time work), and reasons for departure (such as academic dismissal, financial difficulties). Attention toward higher education took a back burner as the nation focused its resources and interests on other issues such as the Great Depression and the impact of World War II (Berger, Ramirez & Lyons, 2012).

The 1950's and 1960's was a period of expansion for higher education, due in part to the GI Bill and the Higher Education Act of 1965. Both of these acts encouraged college attendance and promoted higher education as being a means for the country to

progress. The federal government's role in financially supporting higher education was also defined in these acts. The Civil Rights movement addressed issues of access to higher education. With increasing enrollments across many types of institutions, as well as a more diverse student body, institutions began to think about the retention issue. Retention became a major focus for educators, researchers, and institutions in the 1970's when there were predictions of decreases in enrollment. Spady (1971) characterized the types of retention studies that were being done during that time as: philosophical, census, autopsy, case, descriptive, and predictive. Philosophical studies which were also known as theoretical studies focused on recommendations for preventing attrition. Census studies focused on trying to describe the extent of attrition, dropout, and transfer rates within and across institutions. Autopsy studies gathered self-reported data about reasons that students left college. Case studies followed students who were identified as at-risk upon entry to college to see what led to their success or failure to graduate from college. Descriptive studies were concerned with providing an overview of the characteristics and experiences of students who dropped out. Predictive studies tried to identify admissions criteria that could be used to forecast the potential for a student to be successful in college (Berger, Ramirez & Lyons, 2012).

In an attempt to synthesize existing knowledge and empirical evidence, Spady (1971) developed a model that emphasized the interaction between individual student characteristics and key aspects of the campus environment. In his 1971 article "Dropouts from Higher Education: An Interdisciplinary Review and Synthesis", he laid out a sociological model of student departure that looked at student's attributes such values,

interests, attitudes and the environment such as faculty, peers, and administrators.

According to Spady (1971), if the student and the environment were congruent in norms, the student would assimilate both socially and academically, thus increasing his or her likelihood of persistence. His model would become a precursor to Tinto's (1975) interactionist theory of student departure (Berger, Ramirez & Lyons, 2012).

During this time period another group of researchers was also studying retention issues. Astin and his colleagues at UCLA were studying retention using large national databases. Astin's (1975) book *Preventing Students from Dropping Out* is a foundational text for retention research (Reason, 2009). Astin's model (1977; 1985) focused on how student involvement (social and academic) was related to retention (Berger, Ramirez & Lyons, 2012). Astin defined student involvement as the amount of physical and psychological energy that a student devotes to the academic experience. Astin (1999) focused on student behavior and recognized that the "psychic and physical time and energy of students are finite" (p. 523); therefore, "the time and energy that the student invests in family, friends, job, and other outside activities represent a reduction in the time and energy the student has to devote to educational development" (p.523). Astin identified specific forms of involvement such as place of residence, honors programs, academic involvement, student-faculty interaction, athletic involvement, and involvement in student government.

In the 1980's, with concerns of demographic shifts and the anticipation of a leveling off of the supply of college age students, the concept of enrollment management was born and spread throughout the country. During this time Bean's (1980; 1983)

theoretical perspective of retention used concepts adapted from organizational studies of worker turnover. Bean's model looks at how organizational attributes and reward structures affect student satisfaction and persistence (Berger, Ramirez & Lyons, 2012). Bean and Eaton (2001) developed a model that blends the psychological constructs of self- efficacy, coping behavioral theory, and attributional theory (Melguzio, 2011). Self- efficacy is described as an individual's perception of how effective he or she will be able to deal with a particular task or situation. This personal belief is based on past experiences and observation of the situation. Coping behavioral theory addresses how individuals adapt and adjust to a new environment. Locus of control is an aspect of attribution theory. Locus of control is related to an individual's motivation for a particular task. According to Bean and Eaton's (2001) model, successful retention programs assist students in gaining positive self- efficacy, approach instead of avoid social and academic activities, develop an internal locus of control regarding social and academic activities, and develop positive attitudes toward their educational setting. Some types of programs that have been able to do this include service- learning, learning communities and freshman interest groups, freshman orientation seminars, and mentoring programs (Bean & Eaton, 2001).

In the 1990's there continued to be an expansion of research. Much of this research was rooted in Tinto's interactionist model. During this time, the role of finances and student ability to pay for college received more attention. Researchers such as Cabrera, Nora and Castaneda (1992), and Paulsen (1997) looked at the financial barrier/retention connection. Also during this time, research on learning communities

grew. Research on student diversity continued as well as a focus on retaining students of color and students from diverse economic backgrounds. During this time, there also was a focus on differentiating the term “persistence” from the term “retention” (Berger, Ramirez & Lyons, 2012).

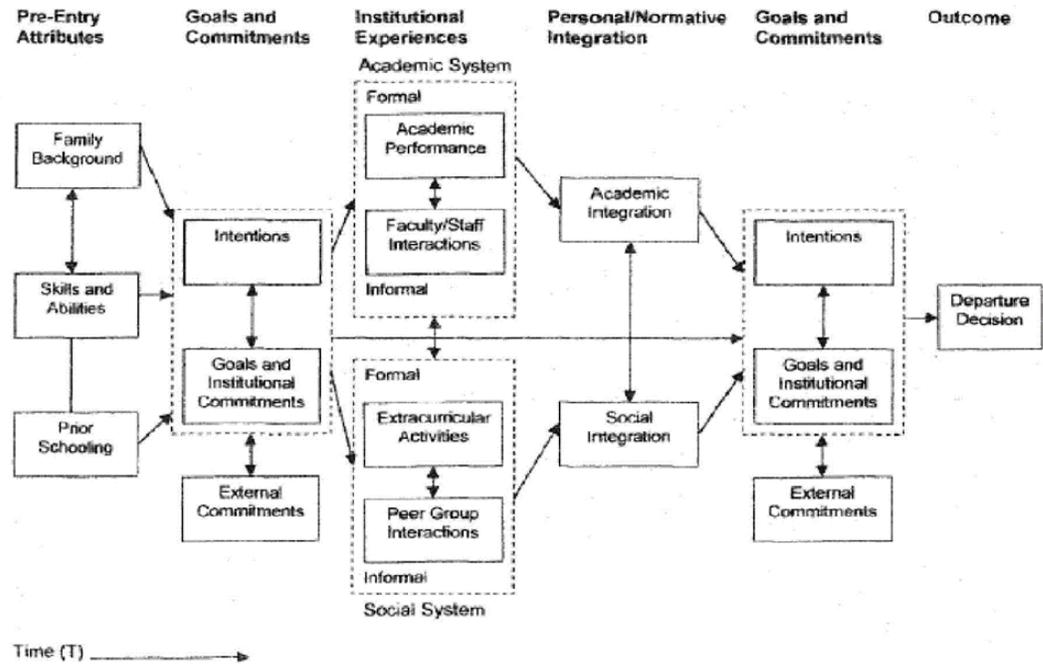
In the early twenty-first century there was the development of a journal devoted to retention issues: *The Journal of College Student Retention: Research, Theory & Practice*. There has been an increase in looking at retention in different institutional contexts such as racial/ethnic oriented campuses such as Historically Black Colleges and Universities (HBCUs) or Hispanic Serving Institutions (HSIs), campus racial climates on predominantly white campuses, and the impact of organizational behavior on different groups of students. Retention remains a crucial issue with continued increase of competition for resources in higher education (Berger, Ramirez & Lyons, 2012). Enrollment in higher education institutions is also projected to continue to rise. In fall 2012, the total undergraduate enrollment in degree-granting postsecondary institutions was 17.7 million. This was an increase of forty-eight percent from 1990 when the total undergraduate enrollment was 12 million students. By the year 2023, undergraduate enrollment is projected to increase to 20.2 million (Kena et al., 2014).

Tinto’s (1975, 1993) Interactionist Model

Over the years, various researchers have attempted to explain the phenomenon of college student retention by developing various models. These include: Spady’s Attrition Model (1970), Tinto’s Attrition Model (1975), Pascarella’s Attrition Model (1980), Bean’s Attrition Model (1985), and Tinto’s Revised Attrition Model (1993). Of the

various theories that have attempted to account for the phenomena of college student departure, Tinto's interactionist theory of college student departure is the most widely known and cited (Braxton, Milem & Sullivan, 2000). In 2011, a google citation index showed a combination of almost 5,000 citations for his 1975 article *Dropout from higher education: A theoretical synthesis of recent research* and his 1993 book *Leaving College: Rethinking the Causes and Cures of Student Attrition* (Melguizo, 2011). Tinto's work draws from the fields of sociology, cultural anthropology, economics, and psychology. In studying the voluntary withdrawal of individuals from local educational communities, he draws parallels to the egotistical suicide category developed by French sociologist Emile Durkheim (1951). According to Durkheim, egotistical suicide occurs when individuals are unable to become integrated and establish membership within the communities in society. For Durkheim (1951), there are two types of integration: social and intellectual. Durkheim's (1951) social integration is the product of personal affiliations and day-to-day interactions with different members of society. Durkheim's (1951) intellectual integration is the product of sharing common values with other members of the society. Tinto (1975, 1993) adapted these concepts in his longitudinal theory of student departure (Melguizo, 2011).

Figure 1: Tinto's (1975, 1993) Interactionist Model



(Tinto, 1993 p. 114)

Tinto (1993) writes about this model:

Broadly understood, it argues that individual departure from institutions can be viewed as arising out of a longitudinal process of interactions between an individual with given attributes, skills, financial resources, prior educational experiences, and dispositions (intentions and commitments) and other members of the academic and social systems of the institution. The individual's experience in those systems, as indicated by his/her intellectual (academic) and social (personal) integration, continually modifies his or her intentions and commitments...the model further argues that subsequent experiences within the institution, primarily those arising out of interactions between the individual and other members of the college, student, staff, and faculty, are centrally related to further continuance in that institution...the model posits that, other things being equal, the lower the degree of one's social and intellectual integration into the academic and social communities of the college, the greater the likelihood of departure. (pp. 113-116)

According to Tinto's (1975, 1993) theory, goals and institutional commitments impact a student's decision to persist. This part of Tinto's (1975, 1993) theory has been

well studied. Variables looked at under this category have been certainty of major and intentions to work (Caison, 2007). Braxton et al. (1997) empirically tested the fifteen propositions of Tinto's (1975) theoretical model in an attempt to assess the internal consistency of each of these propositions. Using single- institution research studies, the results of empirical tests showed robust support for five of the 13 primary propositions, with four of these being interrelated; namely, that student entry characteristics affect the level of initial commitment to the institution. Included in student entry characteristics are things such as family background characteristics, individual attributes and pre-college schooling experiences. Initial commitment to the institution influences subsequent level of commitment to the institution. Subsequent level of institutional commitment is positively affected by the extent of a student's integration into the social communities of college. Students with a higher level of subsequent commitment to the institution have a higher likelihood of persisting in college (Braxton, Milem & Sullivan, 2000).

Terenzini, Pascarella, Theophilides and Lorang (1985) used path analytic techniques to examine the constructs and causal linkages in Tinto's (1975) model. Results of their study showed that the model has predictive validity and utility for explaining voluntary attrition between freshman and sophomore year. However, their findings bring up the question of whether there are (or should be) direct paths between academic and social integration and persistence (Terenzini, Pascarella, Theophilides & Lorang, 1985).

While Tinto's (1975) model has been widely accepted to explain the attrition/persistence process in general, for individual students some aspects of the model

are more important than others. There have been shown to be compensatory relationships among variables that can be called “persistence patterns” that lead to persistence in college. Researchers have looked at Tinto’s (1975) model in relation to subgroups of students such as those determined by gender or ethnicity. Stage (1989) conducted research using Tinto’s (1975) model as the framework to look at persistence patterns of students by motivation type. Students in the study were identified as falling into one of three motivational orientation subgroups: Certification, Cognitive, and Community Service. He was able to map out a structural pattern within the Tinto (1975) framework for each motivational pattern subgroup and found that persistence patterns varied by motivational type (Stage, 1989).

Research on retention and graduation has typically focused on traditional, residential, full- time, college populations (Melendez, 2015). With the few studies conducted on commuter campuses, correlations between traditional predictors and grade point average and retention have been smaller than with residential college populations. Baseline dropout rates after the first, second, and third years of college have also been higher than residential campuses. Commuter students may be more severely impacted by environmental, social, and familial challenges (Melendez, 2015) and are likely to limit their time on campus (Newbold, Mehta, Forbus, 2011). Commuter students may face concerns such as transportation, weather, parking and costs of driving. They also may be trying to balance work, school, and household obligations (Melendez, 2015).

Both social integration and academic integration have been found to impact retention (Tinto, 1993). However, commuter students tend to participate less in school

activities, campus social events, and be less involved with fellow students and faculty (Newbold, Mehta, Forbus, 2011). Related to social integration of commuter students, neighborhood and community friendships were often abandoned if such friends did not attend college. Commuter students formed relationships with college peers around specific college activities, but rarely extended those friendships beyond the academic setting. Commuter students also reported overwhelming external responsibilities that impacted the development of new friendships while in school (Melendez, 2015). However, on a commuter campus, the construct of academic integration may play a larger role in relation to student retention than at residential colleges and universities (Braxton, Brier, & Steele, 2007).

An area of retention research has focused on looking at risk factors. The goal with this strand of research is that if such risk factors can be identified and then targeted, intervention programs can be designed to increase retention rates. Results of various studies have consistently pointed to the relationship between college academic achievement and retention; namely, that higher performing students tend to persist in their studies to a greater degree than their lower achieving cohorts (DeBerard, Spielmans & Julka, 2004).

DeBerard, Spielmans, and Julka (2004) sought to create a multidimensional risk model that would optimize prediction of both academic achievement and attrition. They included several variables in a comprehensive risk model such as gender, overall high school GPA, SAT scores, global social support, coping strategies, and physical and mental quality of life. In testing for multicollinearity, the correlations among predictor

variables were low; therefore, they were able to maximize the model's predictive power and the interpretation of regression weights (DeBerard, Spielmans & Julka, 2004). Marsh, Dowson, Pietsch, and Walker (2004) describe multicollinearity as being "a ubiquitous phenomenon that can produce strange, misleading, or uninterpretable results when a set of highly related independent variables is used to predict a dependent variable" (p. 518). Several of the predictor variables were statistically-significantly related to cumulative GPA (female gender, high school GPA, SAT total scores, smoking, binge drinking, physical and mental quality of life, global social support and coping strategies). Their regression model accounted for 56% of the total variance in cumulative GPA. However, only one of the predictors (high school GPA) had a statistically-significant correlation with retention. The authors concluded that their model may be useful as a tool to proactively identify students at high risk for poor academic performance during their freshman year. Based on their research, it stands to reason that universities that are more selective in terms of high school GPA should expect greater retention among their freshmen.

Sociodemographic Factors

Various sociodemographic factors have been looked at regarding their relationship to college student degree persistence and graduation. This includes racial or ethnic differences, gender, and first generation college student status. Sociodemographic factors have been found to account for some, but not all of the variance associated with college student degree persistence and graduation.

Racial and Ethnic Differences

“On average, minority students make slower progress toward a degree than do non-Hispanic Whites and have markedly lower short-term graduation rates” (Attewell, Heil, & Reisel, 2011, pp. 4). In the literature, there has been variability in the effects of racial and ethnic differences found as a function of institution type. Feldman (1993) conducted a single institution study looking at retention after one year at a community college. Results of logistic regression analysis for this sample showed that black students were 1.75 times more likely to drop out than white students. However, there were small sample sizes in the remaining ethnic groups (Hispanic, Asian, and Native American); therefore, it is more problematic to try to interpret the odds ratios for those groups in this sample. Johnson, Wasserman, Yildirim, and Yonai (2014) conducted a single institution study that looked at the effects of stress and campus climate on student persistence. Part of this study included separate factor analyses for White students and students of color. They then compared factors across the two groups to identify factors with identical sets of item loadings. They then followed this with separate path analyses for White students and students of color. While there were some common direct and indirect effects for persistence between the two models, there also were some unique forms of stress and campus experiences between the two groups. There were differences in explained variance between the two models, with the model for White students explaining more of their persistence (Johnson, Wasserman, Yildirim & Yonai, 2014).

Students from various racial and ethnic groups are likely to have different experiences related to education. This in turn may affect how variables impact their retention rates, therefore race or ethnicity may be a moderator of other variables as they

relate to retention (Reason, 2009). These differences may be attributable to differences in the quality of high school academic preparation and or socio economic status (Attewell, Heil, & Reisel, 2011).

Gender Differences

There have been mixed results with studies that looked at the influence of gender on retention (Reason, 2009). In addition to the existence of ethnic gaps related to college student degree persistence and graduation, gender gaps also exist within ethnic groups (Keels, 2013).

Looking at the interaction of gender and race may provide more insight (Reason, 2009). Keels (2013) conducted a study of minority students who attended highly selective predominately white institutions. Data from this study came from the National Longitudinal Survey of Freshmen (NLSF). In focusing on highly selective institutions with students of similar level SAT scores, the author concluded that any gender and ethnic gaps can be expected to be magnified in the larger population of postsecondary students. Results of this study showed that even at highly selective institutions, there were large ethnic gaps among men and women related to GPA and degree attainment. The pattern of ethnic gaps in graduation was different based on gender. For example, while like national trends, Black students were the least likely to graduate within six years; Black men were significantly less likely to graduate than Black females. Keels (2013) notes that a possible explanation for these differences is that men and women may have different proximal experiences or be situated in different peer niches within the same larger institution.

First-Generation College Students

One of the risk factors that have been included in some studies is first-generation college student status. A student is considered a first-generation college student if neither parent had more than a high-school education. These students tend to be at a disadvantage with respect to basic knowledge about postsecondary education such as the costs and application process as well as level of family income and support, educational degree expectations and plans and academic preparation in high school. The theoretical explanation for this disadvantage relates to cultural and social capital (Pascarella, Pierson, Wolniak, & Terenzini, 2004). In addition to lacking shared knowledge about college attendance, first-generation students often do not know what to expect from college and what they need to do to be successful in college (Tinto, 2010). From a sociological perspective, the concept of *habitus* seems pertinent. The term *habitus* refers to an internalized system of beliefs, experiences, and values acquired from the social environments such as family, school and work. Therefore, *habitus* and cultural capital complement each other and have impact on how individuals experience and interact within their environment (Padgett, Johnson, Pascarella, 2012). Students who are already familiar with or have been exposed to the dominant *habitus* have the least amount of adjustments (attitudinal or behavioral) to make as they become integrated into the campus community (Berger, 2000).

Research has shown that first-generation students are more likely to leave a four-year institution at the end of the first year. They also are less likely to remain enrolled in a four-year institution or be on a persistence track to a bachelor's degree after three years. First-generation students are also less likely to stay enrolled or attain a bachelor's degree

after five years (Pascarella, Pierson, Wolniak, & Terenzini, 2004). In addition to psychosocial outcomes, researchers have also found a relationship between first generation college student status and cognitive outcomes. Findings indicated that first generation college students had lower initial critical thinking abilities compared to their non-first-generation peers (Padgett, Johnson, & Pascarella, 2012).

A study by Pascarella, Pierson, Wolniak, and Terenzini (2004) divided students into three groups: students whose parents had both completed a bachelor's degree or above were termed "high parental postsecondary education"; students who had one or more parent who had attended college but no more than one parent who had obtained a bachelor's degree or above were termed "moderate parental postsecondary education"; students having both parents with no more than a high-school education were termed "first-generation college students." Their study found that most of the significant differences in outcomes for first-generation college students were between first-generation students and students whose parents were both college graduates (high parental postsecondary education). First-generation students have been found to attend institutions with significantly lower average level of entering student academic selectivity, even after controlling for precollege/demographic influences, than students having parents with a high level of postsecondary education. First-generation students were also found to have completed significantly fewer credit hours and worked significantly more hours per week than students whose parents had a high level of postsecondary education (Pascarella, Pierson, Wolniak, & Terenzini, 2004).

Differences exist after students have earned a bachelor's degree as well. First-generation students were less likely than students whose parents have college degrees to be enrolled in a graduate or first professional program four to five years after graduation (Pascarella, Pierson, Wolniak, & Terenzini, 2004).

QUALITATIVE STUDIES

Mendoza, Malcolm and Parish (2015) conducted a single institution study to examine how undergraduate students experienced the Great Recession, and how that impacted students' engagement and institutional commitment. They describe their study as "providing rich descriptions to inform the process of engagement as well as a broader model of student retention" (Mendoza, Malcolm, & Parish, 2015, p. 642). Their study used an adaptation of Bronfenbrenner's ecological systems theory (1993) as a way to conceptualize various environmental conditions and contexts that shape students' retention and academic success. According to Bronfenbrenner's theory the various levels are the macrosystem, exosystem, mesosystem, microsystem, and student. They matched the themes or typologies that students discussed through semi-structured interviews into a specific level of the theoretical framework. Interestingly, variations found between students interviewed were related to income and socio-economic status and not by race/ethnicity. The typologies found by environmental level include family economic/labor conditions, parental financial support, financial aid, social and academic integration, lifestyle, employment, anxiety, aspirations, and financial behaviors (Mendoza, Malcolm & Parish, 2015).

Although college student retention is a highly studied area, the national rates of student degree persistence and completion is still of concern to students, families, college and university administrators, and the federal government. Students face many challenges that can impact degree persistence and completion. While there are general national trends regarding degree persistence and completion, there is no “one size fits all” model. Results with one student population are not necessarily generalizable to another student population. Campus specific retention initiatives will be most successful when they directly address the needs and concerns of their student population. Theoretical models such as Tinto’s (1975, 1993) Interactionist Model need to be tested in different student populations and instances. This study examined how Tinto’s model can explain the retention and degree completion patterns of a particular commuter campus. Information from this study will be used to develop campus specific retention initiatives.

CHAPTER 3

METHODOLOGY

MIXED METHODS (QUANTITATIVE AND QUALITATIVE)

Institution Information

The institution where this study took place is located in a suburban area, 15 miles north of a major metropolitan city in the Northeastern part of the United States. This baccalaureate campus college is part of a larger land-grant research university system that includes more than 20 campuses across the state. This particular campus is a commuter campus. The student population originates from a variety of places. Eleven percent are admitted to this campus from 17 states and 29 countries. Students have the option of starting and completing 18 undergraduate majors at this campus (Associates degrees and Bachelor's degrees are offered) or starting 160+ majors at this campus and completing them at another campus within this system, including the primary, largest campus (university fact book). I have been working at this institution for the past six years as an academic advisor/administrator. It is through that work that I have become aware of the need to look more closely at retention and graduation patterns at this particular institution.

This campus currently enrolls almost 4,000 full and part-time students; 51% are men and 49% are women. Of the students currently enrolled, 79.9% attend as full time students and 21.1% attend as part time students (university fact book).

The current demographic makeup of students is 50.4% White, non-Hispanic/Latino, 17% Asian, non-Hispanic/Latino, 13.1% Black or African American, non-Hispanic/Latino, 9.6% Hispanic/Latino, 4.5% Nonresident aliens, 2.8% Race and/or ethnicity unknown, 2% Two or more races, non-Hispanic/Latino, .2% American Indian or Alaska Native, non-Hispanic/Latino and .2% Native Hawaiian or Other Pacific Islander, non-Hispanic/Latino (university fact book). Seventy-five percent of students at this campus receive some form of financial aid (university fact book).

The campus mission is to provide multiple educational options for degree choice, campus location, learning strategies, disciplinary and interdisciplinary studies, experiential and public scholarship, leadership, and civic commitment, culminating in the integration of academic learning with life experiences (campus website).

Selection of Study Participants

Participants in this study were first year students who started at the campus during the fall 2009 term as freshmen. Retention data are usually separated and reported based on first time, first year students or transfer students. These two groups come to the institution with various needs and their patterns of retention and graduation vary. Students admitted into an associate degree status or admitted under provisional status were excluded from analysis because they are evaluated for admissions differently and their pattern of entry into the campus differs from the majority of freshmen students. The number of cases excluded for this purpose was 11. Cases with missing data were excluded pairwise in the various multivariate statistical analyses. Since the data are

utilized by institutional researchers for generating reports for the university as well as for the Integrated Postsecondary Education Data System (IPEDS), the data were assumed to be accurate.

The campus has a six year graduation rate of less than 50%. For the fall 2008 cohort, the six year graduation rate was 45%. This rate includes students who graduated from this campus, as well as students who graduated from another campus within this campus system. May 2015, December 2015 and May 2016 graduates who were part of the cohort that entered in fall 2009 as freshmen were invited to participate in the individual interviews for the qualitative component of this study. Recruitment of participants for the individual interviews via email began after receiving notification from Temple's IRB as well as the institution where these data came from. This study was submitted to Temple's IRB and it was determined by them that it did not fall under human subjects research as defined by DHHS regulations. See Appendix 1 for the Temple IRB letter. The institution that these data came from used the Temple IRB letter to determine that this project would also not need to be approved through their IRB. See Appendix 2 for that personal communication.

Potential graduates apply for graduation. Their emails are on a graduation list. With institutional approval, May 2015 graduates, December 2015 graduates and potential May 2016 graduates were emailed and invited to participate in the study. The email template is included in the appendix for review.

Study Design

Institutional data were matched and merged into one data set. Student ID numbers were initially used in order to match the various data sources. Once the dataset was coded and organized, student ID numbers were replaced with an independent numeric code. Tinto's (1975, 1993) Interactionist Model served as the theoretical framework for model building. More specifically, this study examined the paths between pre-entry characteristics, initial goals and commitments, and institutional experiences to the outcome variables. This study did not include variables related to the paths between personal/normative integration and subsequent goals and commitments. Multivariate analysis was conducted to identify factors that might predict student retention and graduation and examine the effectiveness of the entire model in predicting graduation. This multivariate analysis allowed for the study of conditional or interactional effects of demographic variables (Reason, 2009). While carrying out the multivariate analysis, I was mindful of the concept of model parsimony.

Qualitative data were subsequently employed as a way to "explain specific aspects of the quantitative results," specifically to better understand individual experiences that impacted students' persistence and graduation. Students who were May 2015, December 2015, or potential May 2016 graduates were contacted and invited to participate in this study. Potential graduates apply for graduation. Their emails are on a graduation list. With institutional approval, May 2015, December 2015 and potential May 2016 graduates who were part of the fall 2009 cohort were emailed and invited to participate in the study. After various recruitment attempts, six students agreed to participate in the study.

For this type of interview, a range of 8-12 interviews has been recommended to obtain saturation of data for analysis of themes (McCracken, 1998). Research Question #3 was approached from a phenomenological research perspective to explore the academic and social experiences of former students. “Phenomenology is a process of learning about a phenomenon by talking to those who have experienced it” (Duffy & Bowe, 2014, p .4). Because of the small response rate for the individual interviews, interviews are presented in the form of case studies.

This type of research allows for understanding of the experiences of the participants and what those experiences have meant to them and what is important about those experiences. Others have described this as gaining access to the participant's “lifeworld” (Duffy & Bowe, 2014). A semi-structured interview technique was used which included open-ended prescribed questions as well as follow-up questions. Interviews were conducted via in-depth phone and notes were taken. Interviews were recorded when given permission by the participant. I read through research notes and made self-reflective notes to help form initial themes. Questions from the individual interviews are based on questions used by Jackson, Smith, and Hill (2003) in their qualitative study on academic persistence among Native American college students. These questions are meant to stimulate discussion on the areas that may have had an impact on the individual student’s persistence and success in college and are centered on social, institutional, and familial experiences. Below are the questions:

- 1. Please describe your experience here at (college name).*

2. *Can you tell me about your experience before coming to college that seemed to make a difference while you have been a student here?*
3. *What kinds of things have been most helpful to you while in school here?*
4. *What kinds of things have made school more difficult?*
5. *How have your family members been involved in your education?*
6. *How have your friends been involved in your education?*
7. *What advice would you give to someone who was coming to college from circumstances similar to yours when you came to college?*
8. *If you were to design a college, what would you do differently to help students like yourself?*
9. *What are your plans as you graduate? (Jackson, Smith, Hill, 2003).*

Instruments and Measures

Pre-Entry Attributes: Tinto's (1975) Interactionist Model

Achievement Variables

Self- reported high school SAT scores and institution- reported SAT scores tend to be the two strongest predictors of retention although the effect sizes of these variables are relatively small (Reason, 2009). Researchers have also cited high multicollinearity between high school GPA and SAT scores (Reason, 2009). This study used actual scores obtained from official university data.

SAT scores- official SAT scores that were reported to the university by the College Board. The SAT is made up of three sections- Critical Reading, Math, and

Writing. The score range for each section is 200 to 800. SAT Writing scores were not available for this cohort.

High School GPA (HSGPA) - official high school transcripts sent to the university from the student's respective schools. The maximum GPA in in this data set is 4.33 for schools that award additional credit for honors or Advanced Placement classes.

Remedial Coursework- data obtained from official university data on whether students placed at the remedial level for English and/or math. Remedial courses do not count toward credit for graduation and can extend students' time to degree completion.

For the academic year of 2007-2008, the U.S. Department of Education reported that 21% of students at public 4-year institutions enrolled in at least one basic skills or remedial course in reading, writing, or mathematics (Sparks & Malkus, 2013).

Developmental courses have been called "The Bermuda Triangle of higher education" (Complete College America, 2012, p. 16) because students sometimes can get lost in the process of attempting to complete these courses. Students also may get frustrated at having to take courses whose credits do not apply to graduation for their intended degree. Research results have been conflicting on whether remediation adversely impacts degree completion for students at 4- year institutions. Attewell, Heil, and Reisel (2011) found that remediation had significantly larger effects in least selective four-year colleges compared to moderately selective colleges.

Honors status was obtained from university admissions data. Students do not always leave an institution due to academic difficulties; it is sometimes in order to transfer to another institution. This variable was included to allow for the analysis of

retention and graduation patterns for honors students to see if this campus is losing a disproportionate number of students from this population.

Demographic Information

Demographic Information- self reported age at beginning of first year, race/ethnicity, gender, highest parental income level obtained from the student's application to the university as well as their Educational Planning survey.

Age at beginning of first year was coded as a dichotomous variable. A traditional age student may be adjusting to a change in living situation as well as formulation of new friendships and sense of identity. A non- traditional age student may be adjusting to returning to school and juggling various responsibilities.

Country of residency was obtained from university admissions data. Domestic students were coded as a 0 (university codes as a 1). Students who are coded as permanent resident/immigrant or hold a non- resident visa were coded as a 1. International students may experience cultural and/or linguistic barriers that may shape their college experience and academic outcomes. While this variable is not always included in retention literature, for a campus with a growing international student body, it is a variable that will be useful to examine further.

Gender As self-reported on admissions application. Application allows for selection of Male or Female. This variable may interact with other variables.

Parental education was collapsed into a dichotomous variable to indicate first-generation college student status.

Race/ethnicity This variable may be a predictor and/or mediator of other variables. Race/ethnicity was collapsed into two categories to create an underrepresented minority status indicator.

Initial Goals and Commitments: Tinto's (1975, 1993) Interactionist Model

According to Tinto's (1975) Interactionist Model, included under Initial Goals and Commitments are Intentions, Goals and Institutional Commitments, and External Commitments. Items from the educational planning survey were used to attempt to measure these constructs.

Educational Planning Survey- All new undergraduates are asked to complete an Educational Planning Survey (EPS). This survey was developed by the Division of Undergraduate Studies to facilitate students' educational development and in establishing programs to foster effective academic advising.

The EPS is divided into two parts. Part I consists of open-ended questions about the student's high school and out-of-school experiences, his or her educational, occupational, and extracurricular plans, and self-assessments of assets, weaknesses, and educational needs. Part I also asks students to indicate the importance of discussing various academic topics (choice of major, academic requirements, advanced placement, study skills, etc.) in the individual educational planning meeting.

Part II of the EPS consists of multiple-choice questions concerning a student's educational background and plans.

Prior to 2004, both parts of the EPS were administered in paper and pencil format, with Part II being a machine-scannable form. Beginning in 2004, both parts of the EPS were administered via the Web. (<http://dus.psu.edu/eps/> retrieved 7/24/14)

I ran factor analysis of selected items from the EPS in an attempt to identify items that addressed the constructs under the goals and commitments category (Intentions, Goals and Institutional Commitments, and External Commitments). Tabachnick and Fidell (2013) provide useful guidelines that were used for these analyses. Factors, their reliabilities, and item factor loadings are presented in Chapter 4.

In looking at the questions that are a part of the EPS many of them address the larger constructs of Intentions, Goals and Institutional Commitments, and External Commitments.

Of particular interest to me are the following items from the EPS:

Estimate your grade average after one year at Penn State.

A, A-,B+,B,B-,C+, C

How certain are you of your first preference of major?

Completely Certain, Slightly Uncertain, About 50/50, Very Uncertain

How long ago did you decide on your major field?

Have Not Yet Decided, In the Past Six Months, Between Six Months and a Year Ago, About a Year Ago, Two to Four Years Ago, More Than Four Years Ago

Before coming to college, how much time have you spent in activities related to the major you are considering (e.g., attending lectures, reading books, etc.)?

Almost Nothing, Only A Little, A Moderate Amount, A Great Deal, Undecided About Major (N/A)

Estimate the chances that before graduating you will transfer to a totally different kind of major than the one you are presently considering.

Definitely Will Transfer, About 75%, About 50%, About 25%, No Chance of Transfer

How does your family (parents, guardians, spouse) feel about the major you are presently considering?

Strongly Approve, Approve, Neutral, Disapprove, Not Aware

Institutional Experiences: Tinto's (1975, 1993) Interactionist Model

Academic Performance

First Year GPA (FYGPA) - first year GPA obtained from official university data. The range of this score is 0.0 to 4.0.

Outcome: Tinto's (1975, 1993) Interactionist Model

Retention

College retention- 2nd, 3rd, and 4th year retention data were obtained from official university data for the fall 2009 first- time, first- year students at this campus. The retention indicator for each year was dichotomously coded for each year indicating whether this student was enrolled at this particular campus or one of the other campuses within this university campus system.

Graduation

Graduation data were obtained from official university data for fall 2009 first- time, first- year students at this campus. Graduation date were coded to allow for analysis based on number of years it took students to earn their baccalaureate degree.

Analysis

Quantitative Data

Factor analysis of select items from Educational Planning survey items was conducted in an attempt to identify items that address the constructs under the goals and commitments category. This process included item level analysis for missing cases, descriptive statistics, varimax rotation and examination of factor loadings and eigenvalues.

A student's predicted FYGPA was calculated by running a regression analysis using HSGPA, SAT Quantitative, and SAT Verbal scores as predictors.

Logistic regressions were run with retention to the 2nd, 3rd, and 4th year as the outcome variable. This will model the natural logarithm of the odds (i.e. the logit) of being retained (Mattern, Marini, & Shaw, 2013).

Multiple regressions were also run using graduation rate as the outcome variable. Four references were of particular value for the analysis of the quantitative data. Cabrera (1994) provides an introduction to the use of logistic regression with dichotomous outcomes. Chao-Ying, J, Kuk, and Ingersoll (2002) provide a guide for logistic analysis and reporting and also include recommendations on tables, figures, and charts that should

be included. Pallant (2013) provides instruction on using SPSS. Tabachnick and Fidell (2013) provide a wealth of information on multivariate statistics.

Qualitative Data

I read through research notes and listened to recordings (when available) of semi-structured interviews and made self-reflective notes and transcriptions to help form initial themes. Transcriptions and notes did not include identifying personal information. Through an iterative process of analyzing the transcript, and looking for overarching themes, I tried to get to the “essence” or “eidos” of the experiences of persistence in college and graduating (Halloway, 1997; Marshall & Rossman, 2011). Throughout this process, I tried to employ the technique of bracketing. The term bracketing refers to a practice used by researchers to help them to clearly understand their preconceptions and theoretical constructs that they may hold to be true (Racher & Robinson, 2002) and to put those preconceptions and constructs aside as they undertake research (Halloway, 1997) in order to let the essence of the phenomena emerge (Racher & Robinson, 2002). Giorgi (1994) describes this as standing back attitudinally and “discovering one’s own taken-for-granted assumptions.” There is some debate as to how possible it is for researchers to put aside their own views because they are the interpreter of the data. Their interpretation might be influenced by their experience (Lichtman, 2013). Researchers such as Giorgi (1994), and Hycner (1985) have outlined systems of phenomenological analysis to provide researchers with practical examples of strategies for carrying out this type of research. Giorgi’s (1994) and Hycner’s (1985) work was of particular value to me for the analysis of the qualitative data. When an individual’s

response was used as an exemplar for a particular issue or theme, a pseudonym was used to retain his or her confidentiality.

CHAPTER 4

QUANTITATIVE RESULTS

This chapter will be presented in four sections. Section A will present descriptive statistics on the subjects in the cohort of fall 2009 freshman admits. Section B will include data on the Factor Analysis of the items of the Educational Planning Survey items. Section C will include data on the multiple regression analyses that were run. Finally, Section D will summarize these quantitative results.

SECTION A: DESCRIPTIVE STATISTICS

The fall 2009 cohort of freshmen admits consisted of 761 students; however, the total number for analysis is 750 students. Eleven students were excluded from this analysis. Students excluded were admitted into an associate degree status or admitted under provisional status. These two categories of students are evaluated for admissions differently and their pattern of entry into the campus differs from the majority of freshmen students. Several of the variables for consideration in this analysis were treated as dichotomous variables. Tabachnick and Fidell (2013) discuss the problematic nature of dichotomous variables with very uneven splits between the categories as this can present problems with several types of statistical analyses. This is due to the fact that many types of statistical analysis involve correlation and issues in the correlation matrix that is constructed. When a dichotomous variable with a high split (such as 90% of responses falling into one category) is correlated with another variable, unless that second variable also has a similar 90/10 split, the obtained correlation is deflated. Several of the variables proposed for inclusion in this study exhibit these characterizes of a high split.

Under the category of Pre-Entry Attributes from Tinto’s (1975) Interactionist Model, three proposed achievement variables were Remedial English, Remedial Math, and Honors Status. Remedial English and Remedial Math measure whether an incoming first semester student was placed at the remedial level for English or Math. Honors Status measures whether a student was admitted into campus or university honors at the time of their admission. Table 1 shows the descriptive statistics for these variables

Table 1 Descriptive Statistics for Non Normally Distributed Achievement Variables

	Frequency	Percent
Remedial English:		
No Remedial English	697	92.9
Remedial English	53	7.1
Remedial Math:		
No Remedial Math	677	90.3
Remedial Math	73	9.7
Campus or University Honors:		
Not Honors Admit	718	95.7
Campus or university Honors	32	4.3

A majority of the students in the fall 2009 cohort were not placed at the remedial course level or admitted into campus or university honors programs.

Under the category of Pre-Entry Attributes from Tinto’s (1975) Interactionist Model, two proposed variables that fall under the category of demographic information

also had very uneven splits. These two variables will not be included in further multivariate analysis. These are Age and Country of Residency.

Table 2 Descriptive Statistics for Non Normally Distributed Demographic Variables

Variable	Frequency	Percent
Age:		
Traditional (19 or younger at beginning of first year)	707	94.3
Non Traditional (20 or older at beginning of first year)	43	5.7
Country of Residency:		
Domestic	702	93.6
Permanent resident, immigrant, non-resident visa	48	6.4

A majority of the students in this fall 2009 cohort were of traditional age and born in the United States.

Table 3 provides information on the descriptive statistics for achievement variables under the category of Pre-Entry Attributes from Tinto's (1975) Interactionist Model that will be included in further multivariate analysis.

Table 3 Descriptive Statistics for Pre-Entry Attributes Tinto's (1975) Interactionist Model: Achievement Variables

Variable	Mean and Range
High School GPA	Range= 2.00 to 4.33 Mean= 3.14

Table 3 Continued

SAT Quantitative	Range= 200 to 770 Mean= 496.16
SAT Verbal	Range= 210 to 750 Mean= 473.38

Related to the above achievement variables, for High School GPA there were five students with missing values. For SAT Quantitative and SAT Verbal there were 40 missing values each. Students in the fall 2009 cohort tended to have higher SAT Quantitative than SAT Verbal scores. SAT Writing Scores were not available for this cohort. The maximum GPA of 4.33 is due to the fact that some schools report weighted GPA's. Students who take honors or Advanced Placement coursework in High School have additional points that are added to their High School GPA.

Table 4 provides information on the descriptive statistics for demographic variables under the category of Pre-Entry Attributes from Tinto's (1975) Interactionist Model that will be included in further multivariate analysis.

Table 4 Descriptive Statistics for Pre-Entry Attributes Tinto's (1975)

Interactionist Model: Demographic Variables

Variable	Frequency	Percent
Gender:		
Male	429	57.2
Female	321	42.8

Table 4 Continued

Underrepresented Minority:		
White, Asian, Other	584	77.9
African American, American Indian, Hispanic	166	22.1
Parental Education:		
At least one parent Bachelor's or higher	332	44.3
Neither parent Bachelor's	353	47.1
Missing Values	65	8.7

There were more males than females in the fall 2009 cohort. Underrepresented minority students made up 22.1% of this cohort. First generation college students make up 47.1% of this cohort.

This university confers degrees three times a year: May, August, and December.

Table 5 Fall 2009 cohort non-condensed graduation rates

Value	Count	Percent
no graduation	414	55.2%
3 year, 3.25 year (summer2012)	3	0.4%
3.5 year	17	2.3%
4 year	130	17.3%
4.25 year (summer 2013)	6	0.8%
4.5 year	73	9.7%
5 year	57	7.6%
5.25 year (summer 2014)	5	0.7%
5.5 year	28	3.7%
6 year	17	2.3%

For students in the fall 2009 cohort, 55.2% had not yet graduated after six years. Due to the relatively small values in some of the groups, the graduation variable was collapsed. The No graduation group remained unchanged. The 4-year graduation group was recoded to include students with a 3, 3.25, 3.5, 4 and 4.25 year graduation rate. The 6-year graduation group was recoded to include students with a 4.5, 5, 5.25, 5.5, and 6-year graduation rate.

Table 6 Fall 2009 cohort condensed graduation rates

Value	Count	Percent
no graduation	414	55.2%
4 year	150	20.0%
6 year	186	24.8%

Forty-four point eight percent of this cohort had graduated within six years or less. This is well below the 60% expectation rate that was set by the Core Council for campus colleges.

Table 7 provides information on the descriptive statistics for outcome variables under the category of Departure Decision from Tinto's (1975) Interactionist Model that will be included in further multivariate analysis.

Table 7 Descriptive Statistics for Departure Decision Tinto's (1975)

Interactionist Model: Outcome Variables

Variable	Frequency	Percent
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Table 7 Continued

Graduation:		
No Graduation	414	55.2
4 Year Graduation	150	20
6 Year Graduation	186	24.8
Year 1 Retention :		
Not Retained	67	8.9
Retained	683	91.1
Year 2 Retention :		
Not Retained	217	28.9
Retained	533	71.1
Year 3 Retention :		
Not Retained	307	40.9
Retained	443	59.1
Year 4 Retention :		
Not Retained	360	48
Retained	390	52

After four years, 80% of the first semester students from the fall 2009 cohort had not yet graduated. After six years, 55.2% of first semester students from the fall 2009 cohort had not yet graduated. Retention numbers drop 20% between year one and year two. Retention numbers drop 12% between year two and year three. Retention numbers drop between 7.1 % between year three and year four. At end of year 4, 52% of first semester students who started in the fall 2009 cohort had been retained. These retention

and graduation numbers indicate the percentage of students who are no longer enrolled at any campus location within this campus system. Students who continued their enrollment at another campus within this system continue to be counted as being retained and persisting to graduation.

The educational planning survey is a 32 question instrument that is taken by incoming freshmen admits prior to completing their required placement testing. As part of this survey, students are asked to select their top three majors of interest. Out of over 260 majors that are available throughout this campus system, 137 majors were listed.

Table 8 shows the top five majors that were listed.

Table 8 Top 5 Majors of Interest from Educational Planning Survey (EPS)

Variable	Frequency	Percent
Major 1:		
Biology	51	6.8%
Business	47	6.3%
Management, SMEAL	33	4.4%
Accounting, SMEAL	31	4.1%
Agricultural Science	25	3.3%
Major 2:		
Business	30	4.0%
Psychology	24	3.2%
Science	23	3.1%
Secondary Education	23	3.1%
Major 3:		
Business	33	4.4%
Secondary Education	21	2.8%
Accounting, SMEAL	19	2.5%
Psychology	18	2.4%
Administration of Justice	17	2.3%

Business or specific majors with the field of business were most represented in the sample.

SECTION B: FACTOR ANALYSIS OF EDUCATIONAL PLANNING SURVEY ITEMS

Several principal components factor analyses with a varimax rotation of items of the Educational Planning Survey were conducted. The first factor analysis consisted of items from the question asking students to rate themselves in various study skills area. Missing values were addressed by excluding cases pairwise. Factor loadings were sorted by size and those below .4 were suppressed in order to assist with interpretation of output (Pallant, 2013). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value for this analysis was .632 with a significance of $p=.000$. A value of .6 or above and significance at the .05 level or smaller is one way to verify that this data set is suitable for factor analysis. A second way to verify that this data set is suitable for factor analysis is to examine the correlation matrix and look for correlation coefficients of .3 and above (Pallant, 2013). There were two correlation coefficients of .3 and above. These were between reading speed and reading comprehension and understanding lectures and reading comprehension. Components with eigenvalues above 1 were retained. This resulted in a two factor solution for items on this question. These 2 components explain a total of 52.40 percent of the variance.

Table 9 Rotated Matrix for EPS Item EPS Item # Rate Yourself in Study

Skills Areas

Factor 1: Comprehension	Factor Loading:
How would you rate yourself in the following study skills areas? Reading Comprehension	.818
How would you rate yourself in the following study skills areas? Reading Speed	.753
How would you rate yourself in the following study skills areas? Understanding Lectures	.692

Factor 2: Organizing	Factor Loading:
How would you rate yourself in the following study skills areas? Note Taking	.719
How would you rate yourself in the following study skills areas? Organizing	.686
How would you rate yourself in the following study skills areas? Preparing for Quizzes & Exams	.519

The second factor analysis consisted of items related to major. Missing values were addressed by excluding cases pairwise. Factor loadings were sorted by size and those below .6 were suppressed in order to assist with interpretation of output because two of the items loaded on both of the factors (Pallant, 2013). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value for this analysis was .731 with a significance of $p=.000$. A value of .6 or above and significance at the .05 level or smaller is one way to verify that this data set is suitable for factor analysis. A second way to

verify that this data set is suitable for factor analysis is to examine the correlation matrix and look for correlation coefficients of .3 and above (Pallant, 2013). There were 7 instances where the correlation coefficients were .3 and above. This occurred between decided major and major certainty, major parent and major certainty, major transfer and major certainty, major parent and decided major, major transfer and decided major, major activities and major knowledge, and major transfer and major parent. Components with eigenvalues above 1 were retained. This resulted in a two factor solution for items on the EPS that are related to major. These two components explain a total of 59.90 percent of the variance.

Table 10 Two Factor Solution of EPS Items Related to Major

Factor 3: Commitment to Major	Factor Loading:
How long ago did you decide on your major field?	.769
How does your family (parents, guardians, spouse) feel about the major you are presently considering?	.739
Estimate the changes that before graduating you will transfer to a totally different kind of major than the one you are presently considering?	-.713
How certain are you of your first preference of a major?	.654
Factor 4: Knowledge about Major	Factor Loading:
Before coming to college, how much time have you spent in activities related to the major you are considering (e.g. attending lectures, reading books, etc.)?	.869
How much do you think you know about the major you are considering?	.808

The third factor analysis consisted of items where students rated how they reacted to various subjects in high school. Missing values were addressed by excluding cases pairwise. Factor loadings were sorted by size and those below .5 were suppressed in order to assist with interpretation of output because of items loading on multiple factors (Pallant, 2013). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value for this analysis was .631 with a significance of $p=.000$. There were four correlation coefficients of .3 and above. This was between react physics and react chemistry, react biology and react chemistry, react social studies and react history, and react art and react music. Components with eigenvalues above 1 were retained. This resulted in at four factor solution for items on the EPS that are related to reaction to high school subjects. These four components explain a total of 61.95 percent of the variance. Because the fourth factor only contained one item, computer studies, that will not be considered a factor. The 3 factor solution explains at total of 51.48 percent of the variance.

Table 11 3 Factor Solution of EPS Items Related to Reaction to Subjects in High School

Factor 5: ?	Factor Loading:
How did you react to these subjects in high school? (Music)	.744
How did you react to these subjects in high school? (Art)	.725
How did you react to these subjects in high school? (Foreign Language)	.612
How did you react to these subjects in high school? (English)	.566
Factor 6: ?	Factor Loading:
How did you react to these subjects in high school? (History)	.909
How did you react to these subjects in high school? (Social Studies)	.902

Table 11 Continued

Factor 7: Science	Factor Loading:
How did you react to these subjects in high school? (Chemistry)	.776
How did you react to these subjects in high school? (Biology)	.758
How did you react to these subjects in high school? (Physics)	.634

While the subjects in factor 5 could be classified as Arts and Humanities, it is unclear what the common construct is between these areas. Similarly, where History and Social Studies are concerned, there are enough similarities between the two disciplines whereby if students enjoy one of those classes, they tend to enjoy the other. But it is also unclear what the common construct is between these areas. Factor 3 is easier to interpret. It could be named “science”. These three areas all rely on the use of the scientific method or hypothetico-deductive reasoning. In looking at these factors, it brings up an issue raised with the procedure of factor analysis. Namely, that this statistical technique is examining the mathematical relationship between items. As we can see with factors 3 and 4, although there is a mathematical relationship, it is challenging to name a particular construct being measured that unifies each of these sets of items. Therefore, factors 3 and 4 will not be included in any further multivariate analyses.

SECTION C: T TESTS, MULTIPLE AND LOGISTIC REGRESSIONS

In order to understand which variables singly impact retention to specific years several independent sample t- tests were run using high school gpa, first year gpa, SAT Quantitative, and SAT Verbal as the continuous variables and Retention of a specific year

as the grouping variable. Table 4.9 shows the results of the various t- tests with Retention to end of first year (RET1) as the grouping variable along with effect size. The following formula was used to calculate effect size: $\text{Eta squared} = \frac{t^2}{t^2 + (N1 + N2 - 2)}$. Cohen (1998) proposed guidelines on p .284-7 for interpreting effect size. He proposed .01 = small effect, .06 = moderate effect, .14 = large effect.

Table 12 t Test Results with RET1 as Grouping Variable

	Mean	Sig (2-tailed)	Eta squared
SAT Verbal	473.38	.004	.012
SAT Quantitative	496.16	.001	.015
High School GPA	3.14	.042	.005
First Year GPA	2.54	.000	.087

Although there were statistically significant differences between the two groups, the effect sizes for many of these variables were small or very small. The one exception to this was First Year GPA which explains 8.7% of the variance in Retention1.

Table 13 t Test Results with RET2 as Grouping Variable

	Mean	Sig (2-tailed)	Eta squared
SAT Quantitative	496.16	.000	.014
High School GPA	3.14	.000	.021
First Year GPA	2.54	.002	.178

There were no significant differences in SAT Verbal scores between the RET2 groups. There were statistically significant differences between the two groups with the remaining variables. The effect sizes for the remaining variables were small with the exception of First Year GPA. First Year GPA explains 17.8% of the variance in Retention2.

Table 14 t Test Results with RET3 as Grouping Variable

	Mean	Sig (2-tailed)	Eta squared
SAT Verbal	473.38	.031	.007
SAT Quantitative	496.16	.000	.024
High School GPA	3.14	.000	.025
First Year GPA	2.54	.000	.155

Although there were statistically significant differences between the two groups, the effect sizes for many of these variables were small. The one exception to this was First Year GPA which explains 15.5% of the variance in Retention3.

Table 15 t Test Results with RET4 as Grouping Variable

	Mean	Sig (2-tailed)	Eta squared
SAT Verbal	473.38	.006	.011
SAT Quantitative	496.16	.000	.030
High School GPA	3.14	.000	.026
First Year GPA	2.54	.000	.137

There were statistically significant differences between the two groups with small effect sizes for many of these variables. The one exception to this was First Year GPA which explains 13.7% of the variance in Retention4.

For the four retention variables (RET1 through RET4) First Year GPA consistently was significant and explained a meaningful amount of the variance between students who were retained and who were not retained for a particular point in time. In order to attempt to better understand the First Year GPA (FYGPA) variable, a multiple regression was run using High School GPA (HSGPA), SAT Verbal, and SAT Quantitative, Factor score 1: comprehension, Factor score 2: organizing, Factor score 3: commitment to major, Factor score 4: knowledge about major, and factor score 7: science as predictors and First Year GPA (FYGPA) as the dependent variable. The following correlations are above .3: HSGPA and FYGPA, SAT Quantitative and SAT Verbal, Factor score 1: comprehension and SAT Verbal. To examine the possible issue of multicollinearity, the Tolerance and VIF values were examined. The eight tolerance values for the predictors were greater than .1. This indicates that the multiple correlation with the other variables is low, which suggests that multicollinearity may not be a problem. The eight VIF values were below 10, which is a second indicator that multicollinearity may not be a possibility. An examination of the scatterplot indicated a roughly rectangular shape with the presence of outliers. However, these outliers do not exceed 3.33 or -3.33 as defined by Tabachnick and Fidell (2013). Table C.4 p. 952 list the critical values of chi-square based on the number of independent variables as the

degrees of freedom. Using an alpha level of .001, for eight independent variables, the critical value is 26.13. In looking at the Residuals Statistics Table, the maximum Mahal.

Table 16 Multiple Regression with FYGPA as the Outcome Variable

Model	Unstandardized		Standardized	Sig.	95.0% Confidence Interval for B		Correlations	Collinearity Statistics		
	Coefficients	Coefficients			Lower Bound	Upper Bound		Part	Tolerance	VIF
	B	Std. Error	Beta		Lower Bound	Upper Bound	Part	Tolerance	VIF	
(Constant)	795	549		1.448	150	1.879	289			
High School GPA	428	121	.256	.529	.001	188	667	.250	.952	.050
SAT Verbal	.002	.001	.212	.281	.024	.000	.004	.162	.584	.713
SAT Quantitative	.002	.001	.194	.350	.020	.000	.003	.166	.734	.363
Comprehension (factor score)	.158	.076	-.176	2.086	.039	.307	.008	.148	.702	.424
Organizing (factor score)	.084	.066	.094	.284	.201	.045	.214	.091	.931	.074
Commitment to major (factor score)	.040	.077	-.038	.519	.605	.192	.112	.037	.959	.042
Knowledge about Major (factor score)	.060	.066	.067	.914	.362	.070	.189	.065	.933	.072
Science (factor score)	.133	.070	-.139	1.906	.059	.271	.005	.135	.949	.054

a. Dependent Variable: First year GPA

Distance in the data file is 20.12. This does not exceed the critical value. In evaluating the model, the R square value of .227 indicates that 22.7% of the variance in First Year GPA (FYGPA) can be explained by High School GPA (HSGPA), SAT Verbal scores, SAT Quantitative scores, Factor score 1: comprehension, Factor score 2: organizing, Factor score 3: commitment to major, Factor score 4: knowledge about major, and Factor score 7: science. In order to determine how much each of the predictor variables contributed to the prediction of the dependent variable, Beta weights were examined. The largest (strongest) Beta value is for High School GPA (HSGPA) $p < .01$. SAT Quantitative, SAT

Verbal, and Factor score 1: comprehension are significant at the $p < .05$ level. Factor score 2: organizing, Factor score 3: commitment to major, Factor score 4: knowledge about major and Factor score 7: science all had $p > .05$ which means that they are not making a significant unique contribution to the prediction equation. Squaring the Part correlation coefficients (semipartial correlation coefficients) gives an indication of the contribution of each variable to the total R square. In this model, HSGPA explains 6.25% of the variance in this model. SAT Verbal explains 2.62% of the variance in this model. SAT Quantitative explains 2.76% of the variance in this model. Factor score 1: comprehension explains 2.19% of the variance in this model.

In evaluating the model, the R square value of .227 indicates that 22.7% of the variance in First Year GPA (FYGPA) can be explained by High School GPA (HSGPA), SAT Verbal, SAT Quantitative scores and Factor score 1: comprehension, $F(8, 154) = 5.651$, $p < .001$.

Research Question 1

What factors influence persistence in a particular commuter-college? Do these factors change across time (i.e., first year to second year; second year to third year; and third year to fourth year)?

In order to address Research Question 1, a series of Logistic Regressions were run. Retention to the end of the first year was analyzed by Logistic regression. Based on the results of the various t tests, it should be expected that First Year GPA (FYGPA) would be statistically significant. Logistic regression, using the forced entry method which tests all predictor variables in one block, was run with retention to the end of the first year as the outcome variable. The predictor variables were the four significant variables from the prior multiple regression (HSGPA, SAT Verbal, SAT Quantitative, and Factor score 1: comprehension) along with First Year GPA (FYGPA). In looking at the classification table, block 0 which does not include any of the independent variables correctly classified 91.7% of the cases. Block 1 which included the five independent variables correctly classified 93.3 % of the cases. The full model containing all five predictors was statistically significant, $\chi^2(5, N= 661)= 87.94, p<.01$, indicating that the model was able to distinguish between students who were retained and who were not retained to the end of their first year. The model as a whole explained between 12.5% (Cox & Snell R Square) and 28.6% (Nagelkerke R Square) of the variance in retention to end of first year and correctly classified 93.3% of cases. Only one independent variable made a unique statistically significant contribution to the model. This was First Year GPA (FYGPA). Table 17 provides the results of model 1 predicting retention to the end of the first year.

Table 17 Logistic Regression Predicting Retention to End of First Year (RET1)

								95%	
								C.I.for Odds Ratio	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	HSGPA	.155	.405	146	1	.702	1.857	.388	1.894
	SATV	.002	.003	388	1	.533	1.002	.997	1.007
	SATM	.003	.002	.619	1	.4203	1.003	.999	1.007
	FAC1_1	.063	.182	121	1	.728	1.065	.746	1.522
	FYGPA	.357	.184	4.165	1	.0400	1.884	.706	5.575
	Constant	1.952	.548	.591	1	.4207	1.42		

a. Variable(s) entered on step 1: HSGPA, SATV, SATM, FAC1_1, FYGPA.

Logistic regression was run with retention to the end of the second year as the outcome variable. The full model containing all predictors was statistically significant, $\chi^2(5, N= 661)= 155.63$, $p<.001$, indicating that the model was able to distinguish between

students were retained and who were not retained to end of their second year. The model as a whole explained between 21% (Cox & Snell R Square) and 30.1% (Nagelkerke R Square) of the variance in retention to the end of the second year and correctly classified 79.6 % of cases. Only one independent variable made a unique statistically significant contribution to the model. This was First Year GPA (FYGPA).

Table 18 provides the results of the model predicting retention to the end of the second year.

Table 18 Logistic Regression Predicting Retention to End of Second Year (RET2)

		B	S.E.	Wald	df	sig.	Exp(B)	95% C.I. for Odds Ratio	
	HSGPA	.081	.242	113		.737	.085	.675	.743
Step	SATV	.001	.002	396		.529	.999	.996	.002
1 ^a	SATM	.001	.001	405		.524	.001	.998	.003
	FAC1_1	.043	.118	133		.715	.958	.761	.206
	FYGPA	.342	.143	7.857		.000	.825	.889	.063
	Constant	2.497	.944	.002		.008	.082		

a. Variable(s) entered on step 1: HSGPA, SATV, SATM, FAC1_1, FYGPA.

Logistic regression was run with retention to the end of the third year as the outcome variable. The full model containing all predictors was statistically significant, χ^2 (5, N=661)= 125.18 , $p < .001$, indicating that the model was able to distinguish between students who were retained and who were not retained to end of their third year. The model as

a whole explained between 17.3% (Cox & Snell R Square) and 23.3% (Nagelkerke R Square) of the variance in retention to end of the third year and correctly classified 68.7% of cases. In looking at the variables in the equation, there are two variables with a $p < .05$ value which are HSGPA and FYGPA. The strongest predictor of retention to end of the third year was FYGPA, recording an odds ratio of 2.619. Table 19 provides the results of the model predicting retention to the end of the third year.

Table 19 Logistic Regression Predicting Retention to End of Third Year (RET3)

							95%		
							C.I. for Odds		
							Ratio		
	B	S.E.	Wald	Df	Sig.	Exp(B)	Ratio		
	HSGPA	.517	.213	.868	1	.015	.676	.104	.546
Step	SATV	.001	.001	505	1	.477	.999	.996	.002
1 ^a	SATM	.002	.001	.450	1	.063	.002	.000	.004
	FAC1_1	.001	.105	.000	1	.989	.999	.814	.226
	FYGPA	.963	.125	9.118	1	.000	.619	.049	.348
	Constant	4.203	.859	3.940	1	.000	.015		

a. Variable(s) entered on step 1: HSGPA, SATV, SATM, FAC1_1, FYGPA.

Logistic regression was run with retention to the end of the fourth year as the outcome variable. The full model containing all predictors was statistically significant, $\chi^2(5, N=661) = 107.23$, $p < .001$, indicating that the model was able to distinguish between students who were retained and who were not retained to end of their fourth year. The model

as a whole explained between 15% (Cox & Snell R Square) and 20% (Nagelkerke R Square) of the variance in retention to end of the fourth year and correctly classified 64.8% of cases. In looking that the variables in the equation, there are two variables with a $p < .05$ value which are SAT Quantitative and FYGPA. The strongest predictor of retention to end of the fourth year was FYGPA, recording an odds ratio of 2.363. Table 20 provides the results of the model predicting retention to the end of the fourth year.

Table 20 Logistic Regression Predicting Retention to End of Fourth Year (RET4)

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for Odds Ratio	
	HSGPA	.392	.205	.645	1	.056	.480	.990	.214
Step	SATV	.001	.001	150	1	.698	.999	.997	.002
1 ^a	SATM	.002	.001	.085	1	.024	.002	.000	.005
	FAC1_1	.006	.101	.004	1	.953	.006	.825	.227
	FYGPA	.860	.122	9.591	1	.000	.363	.860	.002
	Constant	4.261	.832	6.253	1	.000	.014		

a. Variable(s) entered on step 1: HSGPA, SATV, SATM, FAC1_1, FYGPA.

Table 21 Summary of Logistic Regression Results

Dependent Variable	Significant Predictor(s)	% of Cases Correctly Classified	% of Variance Explained
RET1	FYGPA $p < .001$	93.3%	between 12.5% (Cox & Snell R Square) and 28.6% (Nagelkerke R Square)
RET2	FYGPA $p < .001$	79.6%	21% (Cox & Snell R Square) and 30.1% (Nagelkerke R Square)
RET3	FYGPA $p < .001$ HSGPA $p < .05$	68.7%	17.3% (Cox & Snell R Square) and 23.3% (Nagelkerke R Square)
RET4	FYGPA $p < .001$ SAT Quantitative $p < .05$	64.8%	between 15% (Cox & Snell R Square) and 20% (Nagelkerke R Square)

FYGPA remained the strongest predictor though these analyses. It is interesting to see how the number of cases correctly classified decreases as time progresses. The percentage of variance explained fluctuates from year to year.

In order to address Research Question 2, multiple regression analyzes were performed.

Research Question 2

What factors influence graduation from a particular commuter college? Do these factors change for fourth-year, fifth- year or sixth year graduation?

This question was addressed by running a multiple regression analysis with graduation as the outcome variable. Variables included in this multiple regression were variables that were found to be significant in at least one of the logistic regression models of retention to end of a specific year (FYGPA, HSGPA, and SAT Quantitative). In looking at the correlations, only HSGPA and FYGPA have a correlation between each other above .3. None of these variables correlate highly with Graduation Condensed. Using cutoff points for determining the presence of multicollinearity in interpreting the tolerance value and the VIF value from the coefficients table (Pallant, 2013), multicollinearity is not an area of concern. An examination of the scatterplot indicated a roughly rectangular shape with no outliers. The definition of outliers of Tabachnick and Fidell, 2013 as being standardized residual less than -3.33 or greater than 3.33 was used to make that determination. Tabachnick and Fidell, 2013 table C.4 p. 952 list the critical values of chi-square based on the number of independent variables as the degrees of freedom. Using an alpha level of .001, for 3 independent variables, the critical value is 16.27. In looking at the Residuals Statistics Table, the maximum Mahal. Distance in the data file is 16.00. This is below the critical value. In evaluating the model, the R square value of .020 indicates that 2.0% of the variance in Graduation can be explained by First Year GPA (FYGPA), High School GPA (HSGPA), and SAT Quantitative $F(3, 706) = 4.718, p < .05$. Only one independent variable made a unique statistically significant contribution to the model. This was First Year GPA (FYGPA). Table 22 provides the results of the model predicting graduation.

Table 22 Multiple Regression with Graduation as the Outcome Variable

Model	Coefficients		standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations	partial	Part	Collinearity Statistics	
	B	std. Error				Lower Bound	Upper Bound				zero order	Tolerance
(Constant)	234	243		963	.336	.243	710					
First year												
GPA	110	038	.117	.884	.004	.035	185	.129	.108	.107	.844	.185
High School												
GPA	086	061	.055	.404	.161	.034	207	.089	.053	.052	.905	.104
SAT												
Quantitative	000	000	.019	.503	.615	.001	001	.016	.019	.019	.927	.079

a. Dependent Variable: Graduation Condensed

Running a linear regression with FYGPA as the only predictor variable and Graduation as the outcome variable produces a model that is also statistically significant but explains less of the variance in graduation than the model above. The r square of .017 indicates that 1.7% of the variance in Graduation can be explained by First Year GPA (FYGPA), $F(1, 748) = 12.59, p < .001$.

SECTION D:

First Year GPA (FYGPA) was a consistent predictor of retention and graduation in the various models. FYGPA was a stronger predictor than the other achievement variables. None of the factors from the Educational Planning Survey (EPS) proved useful in predicting retention or graduation. With the passage of time, the number of cases correctly classified by the various retention to end of a specific year models decreased. Retention to the end of the first year was the most difficult to attempt to model with this data set. None of the items that relate to areas from Tinto's (1975, 1993) Interactionist Model that fall under the area of goals and commitments such as major intentions and institutional commitments made a statistically significant contribution to the prediction in any of these models. Research by DeBeard, Spielmans, and Julka (2004) on a multidimensional risk model included similar variables to this study such as gender, high school GPA and SAT scores. In their regression model, only one of the predictors (high school GPA) has a statistically-significant correlation with retention. Similar to their conclusions, because we see such a strong pattern of the strength of the predictive power of First Year GPA (FYGPA) with this cohort, this model might be useful as a way to identify students at high risk for not being retained and not graduation early in their college career.

CHAPTER 5
QUALIATIVE RESULTS

INTRODUCTION

Qualitative results of the six individual interviews conducted are presented in the form of case studies. Lichtman (2013) defines case studies as “an in-depth examination of a particular case or several cases p. 90”. Lichtman (2013) goes on to write that “a case can be limited to a characteristic, a trait, or behavior...a case can be limited to one type of situation p. 91”. For purposes of this study, a case is defined as recent graduates from this particular campus of interest.

Table 23 Interview Subject Profile

Subject Pseudonym	Gender	Race/Ethnicity	Special Designations	Major	Graduation Date
Carol	Female	African American	First Generation	Psychological and Social Sciences	December 2015
Steve	Male	Caucasian	No	Information Sciences and Technology	December 2015
Meghan	Female	Hispanic	Honors Student	Psychological and Social Sciences	May 2016
Rachel	Female	Caucasian	Student Athlete	Corporate Communication	May 2016

Table 23 Continued

John	Male	Caucasian	First Generation	Corporate Communication	May 2016
Karen	Female	African American	First Generation; Out of State Student	Psychological and Social Sciences	May 2016

Carol

Carol is an African American female who majored in Psychological and Social Sciences. She is a first generation college student. Carol was a December 2015 graduate. We conducted the phone interview two weeks before graduation day, as she was commuting home from an evening class.

Carol is from the nearby large local urban school district. Due to intervention on the part of her mother, Carol did not attend her local neighborhood high school. She was bussed to another public school which was thought to be able to provide her with more resources and supports. Carol reported that she received strong parental support during her college career. She reported that her parents value education and she was exposed to various local cultural and educational enrichment opportunities as a child. Related to peer support, Carol described that “A lot of my friends even before college were on the same schedule...When your friends are on the same schedule as you and you have the same focus it is easier to navigate college. While in college, I met friends who are the same,

who have the same state of mind. When you have a lot of friends who are not like minded, I makes it harder.”

For Carol, her first two years of college were challenging. She attributed part of this challenge to “not fitting in” with other students on campus due to her socioeconomic status as well as her ethnicity. In her first two years of college, she experienced “high anxiety” related to “being the only” African American student in class and “representing people that most of my colleagues did not come into contact with...I could not afford to underperform”.

As she became an upperclassman, Carol found a home with one of the student groups on campus; the Black Student Union. She eventually became president of this student group. Carol “didn’t feel like I was a part of the community when BSU was not there.” She said “I was lost for the first year and a half.” For Carol, this student organization was key to her being found or to use another term, to her social integration to the campus. Carol also talked about her relationships with a couple of female faculty members on campus who are both from underrepresented minority groups. Related to these relationships, she said “It is nice to see people who came from the same environment as you.” Although only one of these faculty members is from the same ethnic background as Carol, she was able to relate to them as see them as role models based on similarities in their socioeconomic status and neighborhoods of origin. Related to challenges with her college education, Carol discussed travel time and expenses related to being a student on a commuter campus and not living as close to campus as some of her classmates. A second

challenge that she mentioned is related to understanding and navigating the financial aid process.

The final interview question gives students the opportunity to imagine they could design a college focusing on what they would do differently to help students like themselves. Carol talked about a formal peer mentoring program that matches upperclassmen with lower classmen. She felt that this would be especially helpful with first generation students like herself. Carol reported that she “knew few people and had to figure a lot of stuff on my own, I made a lot of mistakes and had a lot of hard lessons” Financial supports was a second area that Carol mentioned. Due to financial issues she took one year off from her studies. Carol worked while in school and found finances to be tight as far as paying for her public transportation pass, her cell phone and lunch while on campus.

Steve

Steve is a Caucasian male who majored in Information Sciences and Technology. Steve had changed his major twice before transitioning to the main campus in his junior year. Feeling overwhelmed by the size of things at the main campus, he decided to come back to his local campus and finish a degree in one of the majors offered there; changing his major for the third time. Steve was a December 2015 graduate. We conducted the phone interview three weeks after graduation day. When we talked, Steve was anticipating starting his first full time job in a couple of days.

Steve reported that he didn't feel that high school prepared him for college. Steve was reportedly dealing with depression at the time. Steve reported that he did not start to think about planning for college until spring of his senior year in high school. Related to familial support, Steve reported that his parents weren't very involved in his education but his grandparents were heavily involved. Steve ended up moving in with his grandparents at one point. They helped him pay for school when he dropped below the number of credits needed for financial aid eligibility and helped him to get connected with and regularly attend therapy.

Related to peer support, Steve reported that he made friends at school and formed study groups with other students in his major. However, for Steve his "Social life and school were separate".

Related to challenges with his college education, for Steve managing his depression played a role. "With depression you lose motivation.... Instead of coming home and studying it's hard because you just want to go to sleep." When talking about this Steve recounted that "I felt like basically I was my worst enemy". A second challenge that Steve mentioned was related to parking. For Steve "Parking inhibited my ability to do stuff. It caused anxiety. If you have a bad day and wake up late and have a test that day and there is no parking you are going to be late either walking or waiting for the shuttle bus. Sometimes stuff comes up that you can't control." He went on to recount how students in one of his IST classes were trying to make an application to notify people if someone was leaving their parking spot.

The final interview question gives students the opportunity to imagine they could design a college focusing on what they would do differently to help students like themselves. Steve talked about metacognition. “Try to be more Meta to teach students how they learn about learning. I feel like my high school didn’t help me do that. I feel like therapy helped me learn how I learn. I learn better this way or that way. You have a great foundation when you can figure out how you are best able to learn things.”

Meghan

Meghan is a Hispanic female who majored in Psychological and Social Science with a minor in women's studies. Meghan was admitted to the university as part of the university honors program. She has been involved with research activities with a faculty member and was able to travel to a conference with that faculty member. We talked on the phone, the Friday before the spring 2016 semester started. When we talked, Meghan had just finished an orientation for her internship which is required of her major. Meghan was a May 2016 graduate.

Meghan is the child of immigrant parents. Both of her parents earned their college degrees while in the United States. Regarding familial support, Meghan did not feel pressure from her family to pursue a specific type of major. Meghan reported “I had the support to do what I wanted. With psychology, a lot of people going into it say you are never going to find a job. My parents trusted in me to find something that I like and I found my place in psychology. “Meghan reported “my parents support me financially and

emotionally.” Megan was able to pay for her college education through the combination of scholarships, loans, and financial assistance from her parents.

When speaking about her college experience, Meghan reported “My first year was my worst year. I was friends with people who I had been friends with while in high school and hanging out more with athletics and that peer group, and I didn’t study as much. I was doing the same thing that I had been doing in high school.” According to Meghan, once she got involved in different campus activities and had a chance to connect with a different peer group who was more “well rounded” and used “time management skills” she started to focus more on her academics.

Related to challenges with her education, Meghan reported that she often worked on the weekends. There were some courses in a specific psychology discipline that she was interested in taking. However, they were always offered on Saturdays. This was especially disappointing since Megan is researching graduate programs in psychology, and she is planning on applying to a few psychology programs in that discipline.

For the final question that gives students a chance to design a college, focusing on what they would do differently to help students like themselves, Meghan talked about a formal peer mentoring program. Meghan reportedly informally participated in peer mentoring and recognized the dual benefit of peer mentoring “It’s not only great for me it’s great for them. It is great practice and a leadership opportunity.”

Rachel

Rachel is a Caucasian female who majored in Corporate Communication. She also is a student athlete, playing on one of the campus National Collegiate Athletic

Association (NCAA) Division III teams. We talked on the phone during the first week of classes for the spring 2016 semester. Rachel was a May 2016 graduate.

Rachel reported high parental support to pursue her education in the form of emotional as well as financial support. “My mom and dad are my #1 support system.” Rachel reported that they supported her decision to get involved with campus athletics “... even though they knew it was time consuming and even though they knew the main point of college is getting a degree. I’m very blessed.”

Related to peer support, Rachel reported “It’s good to have friends around you who also know what it is like to be stressed out and to have to juggle everything; to be there to help you when you have to study or just need someone to talk to.” Rachel talked about being able to get together with friends who were in the same class to study or to talk about a specific class that a friend might have taken in a prior semester to go over notes.

Rachel discussed the importance of having different types of people in your support network “...not only just friends but faculty and staff that were here to help when you needed it. Whether it be someone in student life, an advisor, or a professor, just having people who were there to push and challenge you. But also having people to push you when you needed a little extra help.”

Related to challenges with pursuing her college education, Rachel talked about her two main challenges. Rachel’s first challenge was related to connecting with others in a new environment. Rachel reportedly was not that involved in high school. “If you didn’t play a sport in high school it was hard to get involved.” According to Rachel in

her first weeks of college, “I almost transferred because I couldn’t find that specific group to fit into. But after one month I really found my group of friends who I really like. And that makes a big difference; getting involved and being patient. You can’t automatically assume you are going to have the time of your life within the first week of school.”

Rachel’s second challenge was regarding time management and balance. Rachel talked about the importance of time management and managing various roles and responsibilities. “I think one of the most challenging parts is balancing work life, social life, school work, especially this semester with an internship and I’m playing lacrosse. It’s all about time management and balancing all those things together and being organized.”

For the last interview question that allows students to think about how they would design a college, focusing on what they would do differently to help students like themselves. Rachel talked about creating more interconnections between athletics and student life. Specifically having a location “Where people can come out not only to athletic events but also to other events.”

This is an issue on this particular campus, since due to space limitations, not all athletic events are physically held on campus. This can sometimes impact student knowledge about and attendance at specific events.

John

John is a Caucasian male who majored in Corporate Communication. He is a first generation college student. We talked on the phone during the first week of classes for the spring 2016 semester. John was a May 2016 graduate.

Related to familial support John received both emotional and financial support to pursue his college education. John reported “My dad has always been a strong advocate for my education. He doesn’t make a ton of money all the time but always makes sure to help me pay for college.” Since his parents had not attended college, John also relied on the support of his aunt, who was college educated. John reported that as soon as he was accepted to college, he met with his aunt and “talked about what college was like.” John reported that his aunt is constantly “texting how are your classes” and “checking in” on him and his progress.

Related to peer support, John reported “Friends are extremely important and a huge part of why I’m able to do well. The best support systems are people who understand and are going through the same thing you are going through. I have studied a lot with students who are taking the same classes as me.”

Related to challenges to pursuing his college education, John reported “When I first got to campus I had a lot of uneasiness and went through the motions at first my first semester GPA was not as high as wanted it to be...I changed my major 3 times.” John reported that he had “a lot of things to figure out”. He made it through this figuring out process by “Talking to different people and different students and getting opinions about

majors and their classes.” Another challenge that John mentioned was related to time management. According to John “my first semester into my second semester I had to drop my workload for extracurricular activities because wasn’t doing as well as I wanted to. I had to figure out what does it mean to be involved, to have classes, to work, and maintain my grades.” John reported “I remember being extremely scared and not really enjoying things. Once I found my place and where I belong on campus everything changed. Now I’m at the point that I don’t want to leave.”

For the last question of the interview that allows students to design their own college, focusing on what they would do differently to help students like themselves. John mentioning peer mentoring. “Maybe have a peer mentor program almost like a buddy. Someone who you can meet with in your first year, an older student who has been there before you who could help you in multiple areas. Being there for that support system. It happens unofficially now.”

Karen

Karen is an African American female majoring in Psychological and Social Sciences. She is an out of state student who flies home to spend time with her family for the holidays and during the break between semesters. We talked on the phone during the second week of classes for the spring 2016 semester. Karen did an internship this semester as required by her major with a local social service agency. She is finding working with this particular type of client challenging and unsure of which type of

population she would like to work with when she graduates. Karen was a May 2016 graduate.

Related to familial support Karen reported “In all honesty my family members did not really get involved until last year (junior year). That is when they started helping me with tuition and helping to pay for my apartment off campus. Before that I was doing things by myself. They are now trying to get involved with helping with my major going forward. I’m feeling pressure from them to go onto graduate school.”

Related to peer support Karen reported “I can’t say I had many friends that were involved with my education. Here and there I had friends who would study together and help with transportation by giving me rides to campus.” Karen seems to have been receiving minimal social support for most of her college career. According to Karen “I had a rough past you could say so coming to college helped. I feel like it helped me mature a lot, I feel independent and really comfortable here, especially coming from Massachusetts. I feel comfortable being by myself.”

Related to challenges in pursuing her college education, Karen mentioned campus facilities, transportation, as well as financial stressors. Related to facilities “having more computer labs. It sometimes sucks that they are crowded so you have to go from building to building to find a computer lab.” Related to transportation Karen reported “I knew that I was coming to a commuter campus, but I did not realize how hard it was going to be because back at home I did have a car. I don’t have a car here.” Karen travels to and from campus using public transportation and purchasing bus passes which cost \$100 each month. According to Karen “Being a college student I only have a certain income.” For

Karen, transportation issues tie into financial stressors. The cost of textbooks and technology needed for specific classes was also a stressor, according to Karen “my Spanish class needed a connect card that costs \$118 dollars. We’re college students, we’re working part time jobs. My math course needed a web assign card that costs \$85. I just dropped that course because of it. The whole book issue is another issue. They are getting new edition to the Spanish book so that I’m not going to be able to resell it and I can’t drop the class because it is my last semester and I need it.”

For the last question that asks students to design their own college, focusing on what they would do differently to help students like themselves. Karen mentioned the importance of having a residence hall on campus as well as additional supports to help students with their financial situation. When talking about finances, Karen reported “I think it plays a big role. I had a lot of scholarships and grants. It should not cost that much to get an education. I would have books for classes be free.”

OVERVIEW OF THEMES

Figure 2: Overview of Themes

Theme	Case	Possible Mechanism (s)	Possible Outcome
Peer Mentoring	Carol, Meghan, John	Facilitate Adjustment by Social Support	Social and personal-emotional adjustment

Figure 2: Overview of Themes Continued

Involvement (Engagement)	Carol, Meghan, Rachel, John	Facilitate Adjustment by Social Support	Social and personal- emotional adjustment
Familial Support (parents, first and second degree relatives)	Carol, Steve, Meghan, Rachel, John	Facilitate Adjustment by Social Support	Social and personal- emotional adjustment
Financial Stressors	Carol, Steve, Karen	Interferes with psychosocial adjustment	Decreased time to spend on academic tasks or campus enrichment activities

The transition to college is a stressful period with many transitional problems in part because of the individuation and separation that occurs in early adulthood but also because students are required to adjust to a novel environment (Permzadian & Crede, 2015). Peer Mentoring, Involvement, and Familial support, and financial stressors can impact adjustment to college. Adjustment to college has been found to be a predictor of college student grades and retention. Related to social adjustment, a student with low

social adjustment (a sense of loneliness) may be isolated from peers who might be able to help related to academic tasks. This isolation may also impact academic performance as the concern over their social situation could interfere with their ability or willingness to prepare for tests (Branand, Mashek, Wray-Lake, & Coffey, 2015). Steve's case is an example of a low social adjusted student. For Steve his "social life and school life were separate." Involvement could be measured by looking at the amount of time spent on campus outside of classes, participation in organized student extracurricular activities and participation in organized team or intramural sports. Involvement has been found to be directly related to satisfaction with the college experience (Branand, Mashek, Wray-Lake & Coffey, 2015). Related to poor personal-emotional adjustment, these students may be less likely to engage in effective help- seeking behavior when faced with academic challenges. With regards to retention, adjustment to college can be both a mediator and have a direct effect on retention. Students may withdraw from college more often for non-academic reasons than they do for academic reasons. Poor social adjustment and personal-emotional adjustment are thought to increase the likelihood that a student withdraws for non-academic reasons. Rachel's case serves as an example of this. When speaking about her experience early in her first semester of college, Rachel reported "I almost transferred because I couldn't find that specific group to fit into." Tinto's model emphasizes the role of social integration in determining institutional commitment. Interventions designed to help with adjustment to college should have a positive effect on grades as well as retention (Permzadian & Crede, 2015).

With both peer mentoring and involvement in campus activities, students are able to form relationships. With peer mentoring, students will learn more about support resources and can learn from another student about the academic demands that they may face (Crede & Niehorster, 2012). Social support is important because it has been found to be a buffering mechanism when faced with stress. Students often experience stress as a result of transition to a new academic and social environment along with uncertainty about expectations and norms of behavior (Crede & Niehorster, 2012).

Involvement (Engagement):

Involvement helps to foster a “sense of belonging”. The relationship between Involvement (Engagement) and retention has been highly studied (Astin, 1999; Braxton & McClendon 2001; Tinto 1975, 1993). Involvement is especially important during the first year as it serves as the foundation for future academic and social memberships. “The more students are academically and socially engaged with other people on campus, especially with faculty and student peers, the more likely (other things being equal) they will stay and graduate from college p. 64, Tinto, 2012)” John’s case serves as an example of this. John reported “I remember being extremely scared and not really enjoying things. Once I found my place and where I belong on campus everything changed. Now I’m at the point that I don’t want to leave.”

Familial Support:

“Families can legitimize the aspirations of students, transmit to students strong values concerning education, offer stores to reinforce the commitment of students to

education, and offer emotional sustenance, encouragement and tangible resources” (p. 59, Moxley, Najor-Durack & Dumbrigue, 2001). For individual students there is variability in the amount of familiar support they receive and whether that support comes from parents or first degree relatives. Some students may create their own support systems through friendships, self- help alliances, roommates and other intimate relationships. As it relates to retention, those support systems are important. Family, extended family, friendship circles and intimate support systems can influence retention both negatively in the form of the stresses that those relationships create and positively in the form of tangible support and assistance (Moxley, Najor-Durack & Dumbrigue, 2001). Carol, Meghan, Rachel, and John spoke about the various personal benefits of familial support.

Social Support:

Students’ sense of belonging or integration into the social communities of the institution impact retention. It does so in a number of ways such as easing the transition to college and reducing academic stress levels, enabling students to more easily access informal knowledge from their peers which helps them navigate within the institution, promotes a sense of self-worth which influences academic performance, and enhances students’ attachment or commitment to the institution which impacts their willingness to remain enrolled (Tinto, 2012). Crisp (2010) looked at mentoring in community colleges and found mentoring increased social and academic integration, as well as students’ commitment to earning their degree.

Peer Mentoring:

The main purpose of peer mentoring programs is to increase students' academic and social integration. This occurs through a formalized relationship whereby the mentor teaches and models effective behaviors (Morales, Ambrose-Roman, & Perez-Maldonado, 2016). Nora and Crisp (2007) constructed a theoretical framework to understanding the different types of support that colleges students receive via peer mentoring. This includes: psychological and emotional support, degree and career support, academic/subject knowledge support, and the presence of a role model (Crisp, 2010). Peer mentoring can be categorized as a social support program. Peer mentoring facilitates the sharing of knowledge. This knowledge may be especially helpful for many types of students such as first- generation, low- income students, underrepresented minority students at a predominantly white institution, and academically underprepared students. Peer mentoring can be most useful in the first year of college when students are learning to navigate a new environment with new expectations (Tinto, 2012). Carol, Meghan, and John mentioned the utility of a formal peer mentoring program where students would be "matched". Moxley, Najor-Durack and Dumbrigue (2001) discuss mentoring as a component of a formal retention program. The role of the mentor is to build a personalized and strong relationship with the mentee. The mentor cares and identifies with the student, teaches skills (instrumental support), fosters identity, helps with the resolution of problems, helps in networking with other people on campus and campus group. "In a successful case, the student will identify with the mentor, who will become an important role model in relationship to the student's choices about education, career and personal conduct" (p. 153, Moxley, Najor-Durack & Dumbrigue, 2001). This

support through the mentoring relationship helps students persist by providing resources as well as the opportunity for skill development. It also gives students access to additional resources and networking opportunities. Thus, peer mentoring can be a mechanism for promoting the exchange of social capital (Kiyama & Luca, 2014).

The peer mentoring relationship can be mutually beneficial. Possible outcomes for peer mentors include enhanced listening skills, expanded interpersonal skills, direct job experience, enhanced critical thinking skills, and increased retention rates (Kiyama & Luca, 2014), Kiyama and Luca (2014) conducted a qualitative study that looked at the experiences of former peer mentors. They found that peer mentors also benefited from the institutional social support that was part of the program structure such as developing important peer to peer and peer to staff social relationships that were influential in the retention of the peer mentors.

Financial Support:

Financial aid has direct and indirect effects on retention. As far as direct effects, students may have difficulties with purchasing needed books and supplies as well as making up for any gaps or “unmet need” in their financial aid packages (Tinto, 2012). Carol mentioned her challenges as a student who worked part time paying for regular expenses related to her monthly cellphone bill, food while on campus, and transportation to and from campus. Karen mentioned her challenges as a student who worked part time paying for public transportation, rent, as well as books. Karen even dropped a class due to the cost of one of the textbooks. Steve mentioned the financial support that he received

from his grandparents when he had an issue with his federal aid due to a deficit in number of credits successfully completed. Had he not had the financial support of his family, he may have made the decision to take time away from the university as Carol did to regain financial footing. Financial aid can also have an indirect effect on retention. Students may work part time or full time to help cover educational and living expenses. Time spent in academic and social activities on campus decreases as hours spent in employment increases (Perna, 2010). Work-study programs have been found to enhance student retention. These programs enable students to earn money while at the same time being engaged with others on campus (Tinto, 2012).

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

This chapter includes conclusions to the study, and recommendations for policy and practice as it relates to improving retention and graduation rates for this campus.

SUMMARY OF THE FINDINGS

Despite over forty years of research devoted to student retention, graduation and retention rates continue to be of concern to institutions, students, as well as other stakeholders. It has been estimated that 40% of college students will leave higher education without earning a degree (DeBerard, Spielmans & Julka, 2004). For full-time students who began seeking a bachelor's degree at a 4-year institution 59 percent had completed that degree within six years (Kena et al., 2014). This campus of study has relatively lower rates of year- to- year retention and higher than average time-to-degree than the national average. This campus has been charged with examining its retention and graduation rates and raising its six year graduation rate to 60%. This research was designed to explore factors that contribute to student persistence and graduation at one baccalaureate, public, commuter campus. This will enable them to create a retention plan that is specific to the needs of individual students and the institution. While academic difficulty is a main reason why students leave college (Tinto, 1993), students face other challenges which can impact retention and graduation (Kena et al., 2014).

Tinto's (1975) Interactionist Model served as the theoretical framework for modeling college student persistence and graduation. This model looks at retention as a longitudinal process that involves the interaction between individuals with their own

characteristics and other members of the institution. How individuals interact with the institution impacts their social and academic integration as well as their goals and commitments to the institution. According to this model, “other things being equal, the lower the degree of one’s social and intellectual integration into the academic and social communities of the college, the greater the likelihood of departure” (pp. 113-116). However, questions remain as to whether they are (or should be) direct paths between academic and social integration and retention (Terenzini, Pascarella, Theophilides & Lorang, 1985). While there have not been many studies on commuter campuses, correlations between traditional predictors and grade point average and retention have been smaller than with residential college populations. Commuter campuses also tend to have higher baseline dropout rates after the first, second, and third years of college than residential campuses (Melendez, 2015). For this study, none of the major intentions and institutional commitments items which would fall under the area of goals and commitments in Tinto’s (1975, 1993) interactionist model made a statistically significant contribution in the prediction of retention or graduation in any of the models run with data from this cohort.

Related to the quantitative results, what I found was that for this cohort first year GPA (FYGPA) was the strongest predictor of retention at this particular commuter campus. Prediction became stronger as years progressed (i.e. first year to second year; second year to third year; and third year to fourth year). This finding is consistent with other studies that have looked at the relationship between college academic achievement and retention. Other studies have shown that higher performing students tend to persist to

a greater degree than lower achieving students in their cohort (DeBeard, Spielmans & Julka, 2004). These findings differ somewhat with the retention literature in that high school GPA, SAT scores, and first semester GPA did not have statistically significant correlations with retention for this cohort. DeBeard, Speilmans, and Julka's (2004) multidimensional risk model study, which included gender, high school GPA and SAT total scores, only high school GPA had a statistically significant correlation with retention.

National data suggest that there continue to be gender differences in completion rates, with the rate for females being higher than for males (56% for males vs. 61% for females (Kena et al., 2014.) There also is a widening of the gap in degree attainment between Whites and Blacks and between Whites and Hispanics (Kena et al., 2014). Initial logistic regression models with data from this cohort included various sociodemographic factors such as gender, underrepresented minority status, and parental education in addition to achievement variables to model retention to end of a specific year (Retention1 through Retention4). When those initial models were run, none of the sociodemographic factors made a unique contribution to the variance in retention for any of the specified years. They were, therefore, not included in the final logistic regression models. This finding is contrary to much of the current retention literature. However, it provides a further reminder that retention patterns can express themselves differently depending on the institutional environment.

For graduation, a multiple regression analysis was run using graduation as the outcome variable. First year GPA (FYGPA) was the only variable in this model that

made a unique statistically significant contribution to the model. These two findings taken together underscore the lasting impacts of first year GPA (FYGPA) as they relate to retention and graduation for this cohort.

ROLE OF THE RESEARCHER

Because I work on this campus, I have certain knowledge of and am a part of the campus culture. This knowledge may bias my ability to be completely objective when students talk about campus culture. I've been in the academic advising field for over 13 years and have seen patterns with students; students who by admissions standards on paper were "academically prepared" for college but ended up doing miserably and went down the path of academic warning, academic probation, academic dismissal, as well as students who started their college career taking remedial courses, with some of them managing to do well, build skills and be successful at getting into a major and graduating, while others do not. While my experience has been advantageous in informing the study design, it might also inform how I interpret findings. These patterns that I've seen as a part of my work experiences might influence what I "see" in my data both qualitatively and quantitatively. I was mindful of this through this process and sought consultation when needed.

On the qualitative side, I had started a literature review so I was aware of themes that have been discussed by others before conducting my interviews. I tried to be careful not to "pigeonhole" my data into themes that others have uncovered and be open to the possibility of new and unique themes emerging with my data. It was important that interview questions, as well as any follow -up questions for clarification, were not be

considered leading. Direct knowledge of the institution of study which could be called “insider knowledge” (Kiyama & Luca, 2014) may have aided me in establishing rapport with my interview participants.

I conducted a trial run of the interview with a couple of students who are similar to my sample to get feedback about the questions. For the individual interviews, I knew that I may have tapped into an important theme when the third student mentioned the idea of peer mentoring. I also was intrigued by hearing individual accounts from students as to their personal story of how involvement changed their experiences as a student. I reviewed my interview transcripts several times and use an iterative process to condense the information to main themes so that my results are parsimonious.

On the quantitative side of my study, prior reading through courses or as part of my literature review has already had an impact on the variables that I included in my study. These variables were chosen because they have been included in prior studies of college student persistence and graduation. Many of them are also variables that are of personal interest to me as a student and researcher.

It will not be possible to completely eliminate researcher bias, but having an awareness of possible issues will help to lessen it.

REFLECTION ON THE INTERVIEW PROCESS

Student schedules are busy. There were several times that a scheduled phone interview needed to be rescheduled due to a change in student availability. While the recruitment literature stated that interviews would last up to one hour. Most interviews only lasted 45 minutes. That one hour time commitment might have been an issue and

could be partially related to the low response rate. Emails, letters home, and text messages were sent to try to recruit students for the individual interviews. As I went through the interview process with students I was amazed by how open and forthcoming the students who I interviewed were with me. Students were open to answering questions which sometimes meant revealing information of a sensitive and personal nature. I am thankful that the students trusted me enough to share this part of their experiences with me.

LIMITATIONS OF THE STUDY

While financial factors such as amount of unmet financial need have been shown to impact student retention and persistence, this type of data is highly classified and was not available to me as a variable to be included as part of this study.

A second limitation is regarding distance away from home and whether they are living at home while going to school. Living situation might be relevant. Someone living in the same home situation might have a different support network than someone living away from home, even though this is a commuter campus. This may even vary across years. There are not current mechanisms in place to capture this info. This type of variable was not included in this study.

A third limitation is regarding testing of paths based on Tinto's (1975) interactionist model. While data are available at student entry into the university via their admissions application and the Educational Planning Survey, there is no mechanism in

place to collect quantitative data regarding personal/normative integration and subsequent goals and commitments. Thus, this study was not able to model those potential paths.

Some variables pose measurement challenges; however, they also could impact student retention and graduation such as work/family responsibility and sexual orientation.

RECOMMENDATIONS

One of the themes to emerge from my analysis of the individual interviews was the idea of a formal peer mentoring program. My study offers suggestive evidence for the benefit of establishing a peer mentoring program geared toward students who are at-risk for not being retained based on their first year GPA (FYGPA). This action/policy proposal and potential area for further research combines the data from the quantitative and qualitative results of this study.

This university's prior dismissal policy was based on the number of deficiency points accumulated within a certain range of attempted credits. Deficiency points measure how far a student's GPA is below a 2.0. Any grade below a "C" accumulates deficiency points. Deficiency points are removed by earning a grade of "C+" or higher. This university will be initiating a new warning, probation, dismissal policy for fall 2016. In addition to students who will be on academic warning or probation under the new policy based on their semester or cumulative GPA, students within the GPA range of 2.0 and 2.3 might also be at risk for not being retained or completing their degree program within six years. Research by Gershenfeld, Hood and Zhan (2016) provides evidence for including students with a GPA between 2.0 and 2.33 in a "GPA at-risk zone", particularly

when they come from underrepresented populations. Therefore, a trigger of a GPA of 2.3 or below could be used to monitor and intervene with at-risk students. Looking at the qualitative results from this study, a formal peer mentoring program could be a way to improve both academic as well as social integration with these students. Paying peer mentors in this program a competitive rate (above minimum wage) could also aid in addressing some of the financial stressors of the mentors as well as increasing their social integration into the campus community.

Issues to Take into Consideration when Starting a Campus Peer Mentoring Program:

- Attaining “buy in” from the various campus stakeholders
- Developing program goals and objectives as well as plan for data collection
- Setting a budget
- Selecting mentors and training
- Selecting mentees
- Matching mentors and mentees
- Developing program events
- Data analysis and assessment of program outcomes

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APPENDIX A

EDUCATIONAL PLANNING SURVEY

Name (*Last, First, Middle Initial*)

Campus of Admission

Semester of Admission (*e.g., Summer 2013, Fall 2013, Spring 2014*)

Penn State Student ID # (*NOT Social Security Number; no dashes; begins with a "9" Ex: 987654321*)

Parents' Level of Education (*mark one for each parent*)

		S					
	Less Than High School	Graduated High School/GED	Some High Schooling Beyond High School	Baccalaureate Degree	Some Education Beyond Baccalaureate Degree	Graduate Degree	Not Applicable
Parent							

Other

Other

How many hours per week on average (*0 to 99*), did you study outside of class during your last year of high school?

How did you react to these subjects in high school? (*mark one for each course*)

	Subject	Liked	In different	I disliked	Did Not Have
Subjects	English				
	Mathematics				
	Chemistry				
	Physics				
	Biology				
	History				

Appendix A Continued

Social
Studies

Foreign
Language

Music
Art

Computer
Studies

Listed below are some of the reasons students give for attending college. Choose the **one** reason from this list that is most important as it pertains to your personal goals.

To be in activities, join and work for various organizations

To meet compatible people, enjoy myself

To pursue scholarly activities, for intellectual development

To prepare for a vocation, learn what I need to know in order to enter a particular career

To satisfy parents or family

To become more mature, learn how to take on responsibility and become an adult

To be in a place where I can be an individual, not have to conform, do what I want

To discover and develop my own talents

To gain a greater understanding and appreciation of diverse cultures

Estimate your grade average after one year at Penn State.

A

A-

B+

B

B-

C+

C

Appendix A Continued

About how many hours per week (*0 to 99*) do you think you will have to study outside of class to earn the grade average you estimate for your first year of college?

How would you rate yourself in the following study skills areas? (*mark one for each skill*)

Study Skills	Above Average	Average	Below Average
Note Taking			
Organizing			
Preparing for Quizzes & Exams			
Reading Comprehension			
Reading Speed Understanding			
Lectures			

1. In the "major" lists below, select your major(s) of interest. Major 1 should reflect your strongest interest, majors 2 and 3, other interests
2. How important is each major that you chose? Take 100 points and divide them up among the majors. Give the most points to the major that is most important to you. If you listed three majors and they are all equally important, give the first major 34 points and the other two majors 33 points each. If you listed only one major, give it 100 points. Enter the points in the blocks below. Be sure your points add up to 100.

Majors	Points
Major 1	
Major 2	
Major 3	

Appendix A Continued

How certain are you of your first preference of major?

Completely Certain

Slightly Uncertain

About 50/50

Very Uncertain

How long ago did you decide on your major field?

Have Not Yet Decided

In the Past Six Months

Between Six Months and a Year Ago

About a Year Ago

Two to Four Years Ago

More Than Four Years Ago

Who would you say has influenced you the most in your consideration of major?

Father

Mother

Brother/Sister

Adult Acquaintance

High School Teacher

High School Counselor

College Teacher or Administrator

Friend

Myself

Other

How much do you think you know about the major you are considering?

Almost Nothing

Only A Little

A Moderate Amount

A Great Deal

Undecided About Major (N/A)

Before coming to college, how much time have you spent in activities related to the major you are considering (*e.g., attending lectures, reading books, etc.*)?

Almost Nothing

Only A Little

Appendix A Continued

A Moderate Amount

A Great Deal

Undecided About Major (N/A)

How does your family (parents, guardians, spouse) feel about the major you are presently considering?

Strongly Approve

Approve

Neutral

Disapprove

Not Aware

Estimate the chances that before graduating you will transfer to a totally different kind of major than the one you are presently considering.

Definitely Will Transfer

About 75%

About 50%

About 25%

No Chance of Transfer

Listed below are 19 reasons that students frequently give for attending Penn State. Select up to **three** that are most important to you.

Offers a large number of majors

Brothers, sisters, or friends recommended Penn State

Only school where I was accepted

Reputation for research

Offers a great variety of social activities

Wanted to attend a large university

A Penn State degree is highly regarded by employers

Located close to home

Has an outstanding reputation for intercollegiate sports

Parents recommended Penn State

Wanted to attend a state university in Pennsylvania

Influence and encouragement of a Penn State representative

Wanted to attend an out-of-state school

Outstanding reputation in my intended field of study

Appendix A Continued

Needed the First-Year Counseling and Advising Program that Penn State provides

Offered a major not available at other schools
Teaching reputation of faculty

Accomplishments of Penn State graduates

Costs are lower

Please check 1, 2, or 3 boxes. So far, you have checked :

APPENDIX B

CORRELATIONS WITH FIRST YEAR GPA

Correlations with First Year GPA	
	First year GPA
Gender	.011
	Sig. (2-tailed)
	.764
	750
Age	.031
	Sig. (2-tailed)
	.390
	750
Underrepresented Minority	-.281
	Sig. (2-tailed)
	.000
	750
Remedial English	-.164
	Sig. (2-tailed)
	.000
	750
Remedial Math	-.201
	Sig. (2-tailed)
	.000
	750
High School GPA	.307
	Sig. (2-tailed)
	.000
	750

Appendix B Continued

Parental Education		-.131
	Sig. (2-tailed)	.001
<hr/>		
		685
High School Study Hours		-.035
	Sig. (2-tailed)	.360
<hr/>		
		701
Grade Estimate		.221
	Sig. (2-tailed)	.000
<hr/>		
		700
Study Estimate		-.065
	Sig. (2-tailed)	.083
<hr/>		
		701
Rate Note Taking		.000
	Sig. (2-tailed)	.996
<hr/>		
		699
Rate Organizing		.076
	Sig. (2-tailed)	.044
<hr/>		
		700
Rate Prep for Quizzes and Exams		.106
	Sig. (2-tailed)	.005
<hr/>		
		698

Appendix B Continued

Rate Reading Comprehension	-.064
Sig. (2-tailed)	.090
	700
Rate Reading Speed	-.122
Sig. (2-tailed)	.001
	700
Rate Understanding Lectures	-.050
Sig. (2-tailed)	.188
	700
Major Certainty	-.072
Sig. (2-tailed)	.058
	701
How Long Decided Major	-.027
Sig. (2-tailed)	.476
	701
Influenced Major	-.027
Sig. (2-tailed)	.472
	701
Major Knowledge	-.027
Sig. (2-tailed)	.492
	658

Appendix B Continued

Major Activities		.027
<hr style="width: 30%; margin-left: 0;"/>	Sig. (2-tailed)	.486
		<hr style="width: 30%; margin-left: 0;"/> 659
Major Parent		-.072
	Sig. (2-tailed)	.056
		<hr style="width: 30%; margin-left: 0;"/> 697
Major Transfer		.036
	Sig. (2-tailed)	.336
		<hr style="width: 30%; margin-left: 0;"/> 701
SAT Quantitative		.271
	Sig. (2-tailed)	.000
		<hr style="width: 30%; margin-left: 0;"/> 710
SAT Verbal		.233
	Sig. (2-tailed)	.000
		<hr style="width: 30%; margin-left: 0;"/> 710
React English		.008
	Sig. (2-tailed)	.843
		<hr style="width: 30%; margin-left: 0;"/> 699
React Math		.083
	Sig. (2-tailed)	.028
		<hr style="width: 30%; margin-left: 0;"/> 699

Appendix B Continued

React Chemistry		-029
	Sig. (2-tailed)	.455
<hr/>		
		668
React Physics		.078
	Sig. (2-tailed)	.096
<hr/>		
		454
React Biology		-.061
	Sig. (2-tailed)	.112
<hr/>		
		688
React History		-.084
	Sig. (2-tailed)	.027
<hr/>		
		697
React Social Studies		-.078
	Sig. (2-tailed)	.043
<hr/>		
		670
React Foreign Language		-.002
	Sig. (2-tailed)	.961
<hr/>		
		679
React Music		.000
	Sig. (2-tailed)	.998
<hr/>		
		339

Appendix B Continued

React Art		-.034
	Sig. (2-tailed)	.477
		433
<u>React Computer Studies</u>		.030
	Sig. (2-tailed)	.495
		517
Comprehension (factor score)		-.101
	Sig. (2-tailed)	.007
		697
Organizing (factor score)		.085
	Sig. (2-tailed)	.025
		697
Commitment to major (factor score)		-.053
	Sig. (2-tailed)	.174
		649
Knowledge about Major (factor		.009
score)	Sig. (2-tailed)	.815
		649
Science (factor score)		-.128
	Sig. (2-tailed)	.091
		176