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The Influence of Academic and Social Self-Concept on College Student Withdrawal

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**THE INFLUENCE OF ACADMEIC AND SOCIAL SELF-CONCEPT ON
COLLEGE STUDENT WITHDRAWAL**

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DEDICATION

To my parents, Paul and Maribeth Orehovec. Thank you for teaching me the value of education and letting me discover my love for learning at my own pace.

And, to my husband, Geoff Schwitzgebel, and our two girls. I can't wait to spend this next chapter with the three of you!

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ABSTRACT

This quantitative study explored students' self-reported, pre-college academic self-concept and students' self-reported, pre-college social self-concept and the likelihood of student withdrawal prior to their second year. Additionally, the interaction between academic self-concept and social self-concept and first-year academic performance were examined. Using data from the University of South Carolina, three binary logistic regression models were run to determine whether academic self-concept and social self-concept were significant predictors of student withdrawal and/or whether or not the self-concept variables moderated the relationship between students' first-year academic performance and student withdrawal. Additional academic, financial, and demographic pre-college attributes were selected as control variables and included in each logistic regression model. The variables selected for this study reflect each of the three categories (family background, individual attributes, and pre-college schooling) of pre-entry characteristics in Tinto's (1993) Student Integration Model, the theoretical framework for this study. As researchers have cited the need to include a psychological component to Tinto's model (Berger & Lyon, 2005; Braxton, 2000; Pascarella & Terenzini, 1991; Robbins & Noeth, 2004), this research sought to advance the literature by determining whether academic self-concept and social self-concept were variables to include as additional pre-college characteristics in the Student Integration Model. The results from the study revealed there is not a statistically significant relationship between academic self-concept and student withdrawal or between social self-concept and student

withdrawal. Additionally, neither self-concept variable moderates the relationship between students' first-year academic performance and student withdrawal. However, there were several significant findings outside the scope of the research questions. Of the ten control variables used in this study, four were statistically significant predictors of student withdrawal, after controlling for the other variables in the model. As expected, first-year academic performance was a significant predictor of student withdrawal. Additionally, major declaration, student residency, and completion of the FAFSA were also significant predictors of student withdrawal.

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CHAPTER ONE: INTRODUCTION

Student retention and graduation have been pressing issues for college and university administrators since the 1970s. As traditional college student enrollment declined and competitive admission practices rose, it became increasingly important for colleges and universities to retain students from acceptance through graduation (Astin, 1993; Berger & Lyon, 2005; Noel, 1985; Spady, 1971; Tinto, 1993). More recently, increased policy pressure and discussion of accountability-based funding have forced institutions to focus on increasing retention and graduation rates (Bautsch & Williams, 2010; Miao, 2012; Selingo, 2013). Researchers have found that “both the number of people attending college and the share of them receiving financial aid continue to grow, while graduation rates remain flat” (Supiano, 2011, para. 1). Numerous studies have been conducted on college performance, persistence, and attrition (e.g., Astin, 1985, 1993; Bean, 1980; Pascarella & Terenzini, 1980, 1983; Spady, 1971; Tinto, 1975, 1993). Additionally, increased resources at the institutional level have been dedicated to retention initiatives (Kalsbeek, 2013; Tinto, 2012). However, college retention and graduation rates have remained relatively stable since the 1980s.

Background

Nationally, 58 percent of first-time students who sought bachelor’s degrees full-time in fall 2004 completed their degrees at their original institution within six years, which means more than one-third of students leave their institution prior to graduation

(Aud et al., 2012). Of the students who leave, more than half withdraw prior to beginning their second year. Only “79 percent of first-time, full-time students who entered four-year institutions in 2009 returned the following year to continue their studies” (Aud et al., p.114).

Completion rates vary by institution type, institution selectivity, and student demographics. Of the students who started full-time in fall 2004, those at private, nonprofit institutions had the highest six-year graduation rate at 65 percent and those at private for-profit institutions had the lowest six-year graduation rate at 28 percent. Students who enrolled at public institutions had a six-year graduation rate of 56 percent. Regardless of institution type, the six-year graduation rate for females is higher than males and low income, first-generation and minority students are disproportionately at risk when compared to their higher income, white counterparts. In terms of six-year graduation rates by race/ethnicity, Asian/Pacific Islander students graduate at the highest rate (69 percent), followed by White students (62 percent), Hispanic students (50 percent), and Black and American Indian/Alaska Native students (39 percent) (Aud et al., 2012). Low income, first generation students are four times more likely to leave college after their first year than students who do not have either of these risk factors (Engle & Tinto, 2008).

Historically, graduation and retention rates have been measured at an institutional level. Researchers have started to examine retention from a systematic perspective as some students do leave their original institution to successfully complete a degree elsewhere (Shapero, Dundar, Yuan, Harrell, & Wakhungu, 2014). However, the majority of students who leave their original four-year institution fail to graduate from any college

or university. Of full-time students who started at four-year public institutions in fall 2006, 29 percent left their original institution prior to graduation, and only 10 percent of those completed a degree at another institution within six years (Shapiro et al, 2012). Further, while students may transfer to other institutions to continue their degree, the cost of transferring can be substantial for both the student and institution (Ott & Cooper, 2013; Raisman, 2013). Many colleges and universities do not have transparent transfer processes so students risk losing credit, and oftentimes take more than four years to graduate. For the purpose of this study, transfer students are viewed from an institutional perspective and therefore, all students who left the institution prior to graduation are seen as a loss to the institution.

Hunt Jr. and Tierney (2006) note that “retention and completion have long been the Achilles heel of American higher education. In the past, far too many students who enrolled in college failed to graduate, and this remains true today” (p. 9). While overall college participation has increased, the rate at which students are earning degrees has declined slightly (Bound, Lovenheim & Turner, 2010). This is concerning, particularly given the research conducted and student success and early intervention initiatives that have been implemented to improve persistence and graduation rates (Barefoot, 2004; Berger & Lyon, 2005; Braxton, 2000; Kuh, Kinzie, Buckley, Bridges & Hayek, 2007; Tinto, 2012).

There are numerous societal, institutional, and individual benefits to earning a college degree. On average, college graduates earn a million dollars more in their lifetime than individuals who do not have a bachelor’s degree (Aud et al., 2012). In addition to higher earning potential, college graduates are less likely to live in poverty or depend on

public assistance (“The rising cost,” 2014). They are also more likely to exercise, avoid smoking, and make better overall health choices. Furthermore, college graduates pay more taxes due to higher salaries and are more likely to volunteer their time and vote (Baum, Ma, & Payea, 2010). A 2011 study by the Institution for Higher Education Policy determined that “58 percent of the 1.8 million borrowers whose student loans began to be due in 2005 hadn’t received a degree” (Casselman, 2012, para 4).

Even with all the benefits of earning a college degree, the United States is falling behind other countries in the percentage of citizens graduating with a bachelor’s degree (Carnevale & Rose, 2011). For many years, the United States was ranked significantly higher than any other country in college completion rates. However, among 25-34 year olds, the United States currently ranks seventh in bachelor’s degree completion and ninth in total degree completion (Carnevale & Rose). It is also more important than ever to increase college graduation rates due to the number of jobs that require advanced skills and knowledge, particularly in technological fields (Hunt Jr. & Tierney, 2006).

In addition to societal and individual benefits, colleges and universities lose a substantial amount of revenue when students withdraw from their institution (Johnson, 2012). A recent study found that “the loss of revenue from attrition for schools is significant and hurtful to the financial well-being of colleges and universities” (Raisman, 2013, p. 8). On average, public, four-year institutions lose more than 13 million dollars due to attrition of a single cohort of students (Raisman). Therefore, in addition to societal and individual benefits, it is also in the best interest of colleges and universities to determine ways to increase college student retention and graduation rates.

In 2010, President Obama declared that “by 2020, America will once again have the highest proportion of college graduates in the world” (Obama, 2010). To achieve this goal, the United State degree attainment rate must increase from 40 percent to 60 percent which means an additional 10 million Americans aged 25 – 34 must earn an associates or baccalaureate degree by 2020, a number that is eight million people beyond the projected growth. In response to President Obama’s call for increased graduation rates, the College Board’s Advocacy and Policy Center recommends “that institutions of higher education set out to dramatically increase college completion rates by improving retention, easing transfer among institutions and implementing data-based strategies to identify retention and dropout challenges” (Hughes, 2012, p. 3).

This study addresses this call by developing and testing a data-driven model to determine the individual characteristics that increase one’s risk for withdrawal prior to his/her second year. More specifically, the researcher examined the academic, financial, demographic, and psychosocial (e.g. self-concept) variables that predict student withdrawal in an effort to develop a model to aid practitioners in designing outreach and intervention strategies that best meet individual student needs.

Two categories of student withdrawal, involuntary and voluntary, help define why students leave college. Involuntary departure typically occurs when a student does not meet the academic progression requirements of the institution and is not allowed to return. However, approximately half of students withdraw voluntarily. Of the students who withdraw, 48 percent leave in good academic standing within their first two years (Johnson, 2012). These students are in good academic standing, but choose to leave the institution for a variety of other reasons. Some students cite personal reasons including

lack of belonging, homesickness, financial difficulties, personal issues, and health problems. (Johnson, 2012). Other students cite institutional reasons for departure such as poor service and treatment, scheduling difficulties, the feeling that the college does not care, and the belief that the experience is not worth the cost (Raisman, 2013).

Researchers have explored many models for predicting student departure in an effort to identify students who are at-risk for leaving in order to intervene early to prevent student withdrawal (Astin, 1985; Astin & Oseguera, 2005; Bean & Eaton, 2000; Braxton, 2000; Tinto, 1975, 1993). However, with the exception of early research conducted by Pascarella and Terenzini (1983), research models rarely differentiate between varying levels of first-year academic performance, which is a limitation of the current body of literature. Further, while many studies explore pre-college academic, financial, and demographic attributes, few examine the impact of psychosocial factors. In this study, the psychosocial variables studied were students' self-reported, pre-college academic self-concept and students' self-reported, pre-college social self-concept.

Purpose of the Study

The focus of this study, first-to-second year student withdrawal, concerns the timeframe in which the greatest proportion of non-retained students withdraw from college (Bradburn, 2002). Identifying these students early in their college career can aid in retention efforts. Many of the recent studies and programmatic interventions focus on students who are at-risk academically as opposed to those who are at-risk of withdrawal for non-academic reasons. Current predictive models do not differentiate between students who leave due to failure to meet academic progression requirements and those

who are in good academic standing, but choose not to return. Furthermore, most predictive models use students' previous academic achievement (as measured by high school grade point average and standardized test scores) as the predictor variables and academic success as the criterion variable (as measured by collegiate grade point average). It is necessary to consider other psychosocial factors, particularly when predicting whether or not students in good academic standing are likely to return after their freshman year. Preliminary research has shown that motivation, intellectual self-confidence, and self-ratings of academic ability can be used to predict degree completion (Astin & Oseguera, 2003; 2005; Robbins et al., 2004).

The purpose of this study is to determine which pre-college attributes significantly predict student withdrawal among first-time, full-time students, after controlling for first-year academic performance. In addition to academic, financial, and demographic predictor variables, students' self-reported, pre-college academic self-concept and pre-college, self-reported social self-concept are used as psychosocial predictive variables. Additionally, the interaction between each self-concept variable and first-year academic performance is explored. By testing this model at one institution, it will aid researchers in developing models that may be useful at other colleges and universities.

Research Questions

The researcher of this study sought to answer the following research questions:

- 1) What is the effect of students' self-reported, pre-college academic self-concept and students' self-reported, pre-college social self-concept on the likelihood of

withdrawal, after controlling for first-year academic performance and selected academic, financial, demographic pre-college attributes.

- 2) Does the effect of students' self-reported, pre-college academic self-concept moderate the relationship between students' first-year academic performance and student withdrawal?
- 3) Does the effect of students' self-reported, pre-college social self-concept moderate the relationship between students' first-year academic performance and student withdrawal?

Theoretical Framework

The most prominent theory of student departure is Tinto's (1975) model of student integration. Tinto's model posits that students' pre-college entry characteristics, in addition to their initial commitment to the institution and commitment to graduate, influence their social and academic integration within the institution. Integration into both the formal and informal, social and academic domains of an institution, in turn, lead to their departure decisions. The model suggests that the more integrated a student is in each of the domains, the more likely s/he is going to persist at a given university. This theoretical framework views departure as a longitudinal process beginning prior to enrollment at the institution and ends with the decision to persist (Tinto, 1975; 1993).

Since its inception, this is the most widely-accepted theory of student departure. Consequently, there was limited research to advance student departure theory between 1975 and the late 1990s (Braxton, Hirschy, & McClendon, 2004). However, graduation rates did not improve, so researchers began exploring economic, organizational,

psychological, and sociological frameworks on college student departure decisions (Bean & Eaton, 2000; Berger & Braxton, 1998; Braxton, 2000; Robbins et al., 2006; Roberts & Styron, 2009). More recently, researchers have noted other theoretical frameworks that need to be explored and integrated into Tinto's model (Berger & Lyon, 2005; Braxton, 2000). This study explored self-concept, a psychosocial variable, as a pre-entry characteristic that, if found significant, can be incorporated into Tinto's model.

Currently, pre-college academic indicators, such as high school grade point average and standardized test scores, have been shown to be the most significant predictors of college success and persistence (Astin, 1993; Astin & Oseguera, 2005; Bradburn, 2002). However, researchers have started to explore other psychosocial variables that may help predict student departure (Astin & Oseguera, 2003; Lotkowski, Robbins & Noeth, 2004). Some of the factors that have been explored include motivation, perceived social support, and institutional commitment (Friedman & Mandel, 2011; Kahn & Nauta, 2001; Klomegah, 2007; Rayle & Chung, 2007; Robbins et al., 2006). An additional factor that has received recent attention as a predictor of student persistence is student's self-concept or self-efficacy (Astin & Oseguera, 2003; Elias & Loomis, 2000; Zajacova, Lynch & Espenshade, 2005). College self-efficacy has been defined in the literature as a college student's degree of confidence in performing various college-related tasks to produce a desired outcome. Researchers have specifically examined academic self-efficacy and college self-efficacy as they relate to student success and persistence (Solberg, O'Brian, Villareal, Kennel & Davis, 1993).

Several recent studies have found a relationship between students' academic and/or college self-efficacy and persistence and/or academic success (Brady-Amoon &

Fuertes, 2011; Chemers, Hu, & Garcia, 2001; Choi, 2005; DeWitz, Woolsey & Walsh, 2009; Multon, Brown & Lent, 1991; Torres & Solberg, 2001; Vuong, Brown-Welty, & Tracz, 2010; Zajacova, Lynch & Espenshade, 2005). The findings of these studies suggest that students' who have higher levels of self-efficacy perform better academically and are more likely to persist in college than their peers with lower levels of self-efficacy.

This study sought to advance the literature by building on the current body of research and examining the influence of students' self-reported, pre-college academic self-concept and social self-concept on student withdrawal. Additionally, the interaction between self-concept and first-year academic performance was examined. It was hypothesized that students' self-reported, pre-college, academic and social self-concept will be significant predictors of student withdrawal, even among students who are in good academic standing. If these self-concept variables are found to be significant, they should be considered as additional pre-college entry characteristics in Tinto's Student Integration Model as they may play a role in students' ability to become integrated in the academic and social domains of an institution. Research has shown that integration in these domains can influence students' departure decisions (Astin, 1993; Braxton, Vesper, & Hossler, 1995; Tinto, 1993). Further analysis of the literature will be discussed in chapter two.

Research Design

Binary logistic regression models were used in order to examine the relationship between students' pre-college, self-reported academic self-concept and social self-concept and the likelihood of withdrawal from the University of South Carolina, a large,

public flagship institution in the southeast. Additionally, the way in which academic self-concept and social self-concept interact with students' first-year academic performance and their decision to withdraw were explored through logistic regression interactions. Logistic regression is used because first-to-second year retention is a categorical dependent variable; therefore, ordinary least squares (OLS) regression was not appropriate (Allison, 2012).

There is evidence that students' individual background characteristics influence their chances for degree attainment (Astin, 1993; Pascarella & Terenzini, 1991; Tinto, 1993). Academic, financial, and demographic variables that have been shown in previous research to be significant predictors of first-year academic performance and/or first-to-second year retention were selected as predictor variables (Astin & Oseguera, 2003, 2005; Bradburn, 2002; Lotkowski, Robbins & Noeth, 2004). These include: high school grade point average, standardized test scores, state residency, academic major declaration, first-year academic performance, pre-enrollment campus visit, Free Application for Federal Student Aid (FAFSA) completion, expected family contribution (EFC), gender, and race/ethnicity.

In addition to these predictor variables, students' self-reported, pre-college academic self-concept and social self-concept are collected and used as predictor variables. Academic self-concept and social self-concept data were chosen as the psychosocial variables to be studied because similar constructs have been shown to have a significant effect on students' academic performance (Multon, Brown & Lent, 1991; Robbins et al., 2006; Torres & Solberg, 2001). Self-concept variables were collected via

two constructs from the Cooperative Institutional Research Program (CIRP) Freshman Survey, which is administered to the incoming freshman cohort prior to enrollment.

Definition of Terms

For the purpose of this study, the following terms are defined as:

- *First-year students* are defined as first-time, full-time students who enrolled in college the summer or fall term following their high school graduation.
- *Full-time students* are defined as those students who enrolled in a minimum of 12 credit hours each semester.
- *First-year academic performance* is based on students' first-year cumulative grade point average.
- *Retention* is defined as students who reenroll at the institution from initial term of admission through to graduation.
- *First-to-second year retention* is defined as students who reenroll at the institution in the fall following their first year.
- *Student withdrawal* is a student's decision not to return to the institution for the fall of his second year.
- *Academic self-concept* is a construct comprised of multiple variables that represent "a unified measure of students' beliefs about their abilities and confidence in academic environments" (Pryor et al., 2012, p. 54).
- *Social self-concept* is a construct comprised of multiple variables that represent "a unified measure of students' beliefs about their abilities and confidence in social situations" (Pryor et al., 2012, p. 54).

Significance

While there has been a great deal of national research on college student persistence, most recent studies still focus on academic attributes and very few differentiate between varying levels of academic performance among students who withdraw. The majority of research also examines student success as measured by collegiate grade point average and not first-to-second year retention. Other research focuses on institutional programming such as academic advising, early warning or intervention initiatives and student success programs to prevent student departure, particularly for students who are in danger of falling below academic standards (Tinto, 2012).

By examining the relationship between students' self-reported, pre-college academic self-concept and social self-concept and their likelihood of withdrawal, this study addresses two gaps in the current literature. Few studies have examined self-concept as a psychosocial predictor in student withdrawal and no studies have examined the interaction between self-concept variables and varying levels of first-year academic performance in predicting student withdrawal.

Students who leave voluntarily are presumed to have different risk factors than those who no longer meet academic requirements (Johnson, 2012). Furthermore, students who are in good academic standing are still likely to graduate with their bachelor's degree; therefore, it is in the institution's best interest to retain these students. Exploring the reasoning behind voluntary departure will allow practitioners to develop practices and programs geared toward improving student retention, particularly among students who have been successful academically. If the logistic regression models from this study are

able to significantly predict student withdrawal, researchers and practitioners can replicate the model at their individual institutions to aid in early intervention initiatives once students are enrolled at the institution. By differentiating between varying levels of first-year academic performance, practitioners can tailor their outreach to the specific needs of the students. As noted previously, the institutional, individual, and societal benefits of earning a college degree are high; therefore, it is more important than ever to explore ways to retain students who are academically successful during their first year of college.

Summary

During the past several years, accountability in higher education has become a pressing issue. With proposals being developed to base college and university funding on retention and graduation rates, it is more important than ever to ensure students are returning after their first year. It is especially important to retain students who are in good academic standing and are on track to graduate. Developing a predictive model to identify students who are at risk of withdrawal can help administrators and practitioners in developing early intervention programs. Students who withdraw in good academic standing are presumably doing so for different reasons than those students who are forced to withdraw due to failure to meet academic progression requirements. Therefore, it is important to differentiate between these two groups of students when developing a predictive model. Furthermore, academic, financial and demographic variables alone cannot predict a strong model for identifying at-risk students as other psychosocial variables have been shown to positively predict student departure decisions (Astin &

Oseguera, 2003; Lotkowski, Robbins & Noeth, 2004). It is necessary for researchers to continue to explore psychosocial predictors, such as college student self-concept. For this reason, this study sought to determine the predictive relationship between students' self-reported, pre-college academic and social self-concept and their likelihood of returning to college for their sophomore year.

CHAPTER TWO: REVIEW OF THE LITERATURE

Prior to the 1950's, colleges and universities were not nearly as focused on student retention and graduation as institutions are today; therefore, there was limited research on the subject. As colleges and universities began to expand in the early 1900s, it was primarily students from elite backgrounds who enrolled at institutions of higher education (Thelin, 2004). At that time, colleges and universities were more concerned with recruitment and selectivity, than they were with retaining students (Berger & Lyon, 2004). However, college student enrollment began to increase due to the GI Bill in 1944, the National Defense Education Act of 1958, and the Higher Education Act of 1965, which promoted college attendance in an effort to grow the American economy and stay competitive with other countries (Berger & Lyon, 2004; Thelin, 2004). During the 1960s, the need for a college degree became much more apparent as students saw that it was necessary for mobility and the chance for a sound economic future (Kinzie et al., 2004).

Higher education expanded rapidly during the 1960s, and while colleges and universities started paying more attention to retention, it was not until the 1970s when enrollment was projected to decrease that retention became a primary focus for researchers, practitioners and university administrators (Kinzie et al.). Since that time, college student retention has become one of the most widely researched topics in higher education as researchers and college and university administrators strive to understand

what influences students' decisions to withdraw. However, retention and graduation rates have not improved and there are still gaps in the literature, which this study addressed. In this chapter, a review of the literature is divided into three sections, beginning with, a brief description of early student departure theories. Next, Tinto's (1975) Interactionalist Theory of Student Departure, which serves as the theoretical framework for this study, is examined. Third, studies concerning psychosocial factors, particularly those categorized as self-concept and self-efficacy, as they relate to college success and retention are discussed.

Early Theories of Student Departure

Psychological Theories

The earliest studies of college student withdrawal primarily focused on psychological theories and attributed college student attrition to individual characteristics and personalities (Heliburn, 1965, Marks, 1967; Rossmann & Kirk, 1970).

Characteristics which were found to lead to withdrawal included assertiveness and low task orientation (Heliburn, 1965), hostility (Marks 1967), and low levels of motivation (Rossmann and Kirk 1970). There were several larger, more comprehensive and systematic studies conducted in the late 1960s (Panos & Astin, 1967; Bayer, 1968; Trent & Medsker, 1965). These larger scale studies were important as they began the shift toward a comprehensive study of student withdrawal, but they still focused primarily on psychological student characteristics and "contained little emphasis on the interaction of student and campus characteristics" (Berger & Lyon, 2004, p. 18).

Early psychological theories shared the common belief that departure is a weakness or failure on the part of the individual as opposed to any reflection of the institution (Tinto, 1975). Psychological theories of student departure are problematic because they are “not truly explanatory nor well suited to the policy needs of most colleges. Because it has largely ignored the impact context may have on student behaviors” (Tinto, 1993, p. 86). However, the early psychological theories were important as they initiated the study of student withdrawal. Further, while initial psychological theories have their limitations, the present study revisits the impact of a psychological construct through the use of self-concept in predicting college student withdrawal. In this case, it is suggested that the psychological construct of self-concept be integrated into an interactionalist model of college student withdrawal.

Sociological Theories

One of the first attempts to use previous empirical work to develop a cohesive sociological framework was presented in Spady’s (1971) article *Dropouts from Higher Education: An Interdisciplinary Review and Synthesis*. After conducting an in-depth review of the existing literature and empirical work, Spady’s sociological model was the first to explore both individual student characteristics and their interaction with the institution. His theory drew on Durkheim’s (1951) theory of suicide and pointed to students’ individual experiences within the organizational structures of the institution. This was the first interactional model of student departure that integrated various aspects of previous models into one comprehensive theory. Further, Spady (1971) encouraged other researchers to explore the interaction between students and their institutional environment as opposed to just one or the other. Spady’s research was also important

because it was the precursor to Tinto's (1975) Interactionalist Theory of Student Departure, which is explored in-depth later in this chapter.

Environmental Theories

During the 1970's – 1980's theorists also began to explore environmental causes of student attrition. Environmental theories focus on the impact of societal, economic and organizational influences on individual student behavior within institutions.

Environmental theories see “educational attainment as only one part of the broader process of social attainment and the success or failure of students in higher education as being molded by the same forces that shape social success” (Tinto, 1993, p. 86). These theories examine the larger context of the student's environment and focus on factors such as social status, race, institutional prestige and opportunity structure.

Societal. Societal theories, a subset of environmental theories, emphasize the role of forces that are external to the institution. These theorists view a student's decision to leave as part of the environment in which s/he is surrounded (Featherman & Hauser, 1978; Karabel, 1972; Pincus, 1980). Societal theories of student departure vary widely as their “views of the underlying causes of social success also differ” (Tinto, 1993, p. 87). Two types of societal theories are structural-functional and conflict theories.

One early societal theory, which supports a structural-functional view, contends that there are four factors that determine a student's educational attainment and persistence, which include mental ability, past academic performance, aspirations, and socioeconomic background (Featherman & Hauser, 1978). Conflict theorists, such as Pincus (1980) believe higher education institutions are structured to serve the interests of social and educational elites. Karabel (1972), also a conflict theorist, concluded that

community colleges have been given the responsibility of educating the students that four-year institutions are not interested in accepting. Most of these students are from moderate to lower socioeconomic backgrounds and have a difficult time completing an associate's degree. Since community colleges do not have the means to develop programs to assist with student retention the way that four-year institutions do, it is very difficult for working class students at community colleges to complete their degrees (Karabel). However, societal theories are limited in that they do not consider the individual institutional influences that impact student departure. Instead, they take a much more broad approach to examining student retention (Tinto, 1993).

Economic. Economic theorists claim that students make their decision to withdraw after weighing "the costs and benefits of alternative ways in investing one's scarce resources" (Tinto, 1993, p.88). From an economic perspective, departure decisions result from students examining the cost of attending a particular institution and whether or not those costs outweigh the benefits (Cabrera et al. 1990). Students look at their investment in education in the same way they would look at any large investment. Economic theories contend that students' finances and the ability of a university to award financial aid play a large role in students' decision to remain enrolled (Stampen & Cabrera, 1988). Jensen (1981) notes students who receive scholarships and grants as financial aid are more likely to show educational persistence than students who receive loans. While these theories certainly explain why some students may choose to withdraw from an institution, they are unable to account for the non-economic reasons why a student may leave.

Organizational. Organizational theories of student departure focus less on the external environmental characteristics and more on the characteristics of the institution. Theorists, such as Kamens (1971) and Bean (1980) believe that it is how the institution is organized that determines how satisfied students will be at that institution. Factors that he examined include institutional size, faculty to student ratio, structure of the institution, and institutional resources (Kamens). Kamens found that larger institutions have more success retaining students due to the fact they have more links in the social environment. Bean (1980) also took an organizational approach and examined organizational attributes and rewards and the impact they have on student satisfaction, which in turn, leads to retention. He found that institutions that encourage participation and reward the students for their work will have increased retention rates (Bean). However, organizational theories also have their weaknesses as they place all responsibility on the institution and none on students' individual characteristics. Organizational theories "lack explanatory power in that they do not enable us to understand how organizational attributes eventually impact student decisions to stay or leave" (Tinto, 1993, p. 90).

As noted previously, each of these early theories has weaknesses as they only look at one or two factors in relation to student departure (Braxton & Hirschy, 2005). Tinto (1993) pointed to the fact that existing models were not effective in explaining student departure, and were not meeting the needs of researchers and practitioners. The early psychological, sociological, and environmental models do not fully explain how students interaction with the social and academic environments of their institutions impact departure decisions. For this reason, a multi-theoretical approach to reducing student departure is needed (Braxton & Mundy, 2001). The current study used an

interactionalist framework which contends that there are multiple influences in students' decision to withdraw.

By the late 1970's, Tinto's (1975) Interactionalist Theory of Student Departure was the most comprehensive and systematic exploration of college student withdrawal. Since its inception (1975), and subsequent revisions (1987, 1993), this is the most widely accepted and utilized theory of student departure. For this reason, there was limited research to advance student departure theory between 1975 and the late 1990s and this theory is said to have reached pragmatic status (Braxton, Hirschy & McClendon, 2004). While Tinto's theory may have reached pragmatic status, there are limitations which will be discussed throughout the next section.

Tinto's Interactionalist Theory of Student Departure

The most widely cited and accepted model of student departure is Tinto's (1975, 1987, 1993) Interactionalist Theory of student departure. After conducting a comprehensive review and synthesis of existing theoretical literature on student departure (Tinto & Cullen, 1973), Tinto built on Spady's (1971) research that linked Durkheim's (1951) theory of suicide to the study of college student departure (Braxton, Hirschy & McClendon, 2004). His intention was "the development of a model linking various individual and institutional characteristics to the process of dropout...as a means of synthesizing a large number of recent studies but also as a means of suggesting in which direction future research might be most fruitfully directed" (Tinto & Cullen, 1973, p. 36).

Tinto's model posits that students' pre-college entry characteristics, in addition to their initial commitment to the institution and commitment to graduate, influence their

social and academic integration within the institution. This in turn, leads to students' departure decisions. This theoretical framework views departure as a longitudinal process beginning prior to enrollment at the institution and ends with the decision to persist (Tinto, 1975).

Pre-Entry Characteristics

Since Tinto's (1975) theory is one of individual student departure, it is necessary to determine individual attributes which may predispose a student to certain conditions or behaviors related to withdrawal. Tinto identified several characteristics students possess prior to entering college. These characteristics impact students' initial commitment to the institution as well as students' commitment to graduate. He identified family background, individual attributes, and pre-college schooling experiences as the three categories of pre-entry characteristics. Family background includes socioeconomic status, parental education level, and parental expectations. Individual attributes include academic ability, race, and gender. Pre-college schooling experiences include characteristics of students' high schools and their academic achievements in high school (Tinto).

For the purpose of this study, pre-college entry characteristics in each of the three categories identified by Tinto are included in the model. Additionally, this study proposes that additional psychosocial variables, such as self-concept, be explored as pre-entry characteristics. Additional pre-entry characteristics of campus visit, state residency, and major declaration are being included in the model as those may also impact a student's level of commitment to the institution and graduation (Beggs, Bantham & Taylor 2008; Micceri, 2001; Murtaugh, Burns & Schuster, 1999).

Goals and Commitments

According to Tinto (1975), students enter college with educational and occupational goals as well as a level of commitment to achieving their goals. Goals and commitments vary for each student and are influenced by their pre-entry characteristics. Students' level of commitment to the institution and to graduation will influence their institutional experiences within the academic and social domains. These experiences, determine students' integration into the formal and informal, academic and social domains. Students who possess a high level of commitment to achieving their goals will put forth the energy and resources to achieve their goals. On the other hand, students may have clear goals, but not possess the commitment or motivation to achieve their goals. Individual variations in goals and commitments help explain why some students will persist to graduation while others, with the same academic credentials, may not persist. Students not only examine their goals and commitments at the start of their college career, but they do so prior to determining whether or not they plan to depart. It is this process of re-examining ones goals and commitments that may eventually lead to students' decisions to leave the institution.

In addition to institutional commitments, students have commitments that are external to the institution. External commitments may influence and alter students' goals and institutional commitments at the point in which students enter college and any time throughout their college career.

Academic and Social Domains

Tinto (1993) states that institutions are comprised of academic and social domains that are both formal and informal in nature. He notes "the academic [domain] concerns

itself almost entirely with the formal education of students. Its activities center about the classrooms and laboratories of the institution and involve various faculty and staff whose primary responsibility is the education of the students” (p. 106). In addition, students have informal experiences within the academic domain which primarily include interaction with faculty, staff and other students outside of the classroom.

On the other hand, the social domain of the institution “centers about the daily life and personal needs of various members of the institution, especially the students” (Tinto, 1993, p. 106). On formal level, these include extracurricular activities and campus-sponsored events. Informally, students’ interactions with their peers outside of the organized campus structure are considered part of the social domain. These interactions often take place in residence halls, student unions, meeting spaces, and dining halls.

Students’ experiences in each of these domains impact their decision to depart in different ways depending on their integration into both the formal and informal, academic and social domains of the institution. For example, a student who does not become integrated within the formal academic domain of the institution may not meet the minimum academic requirements, a formal condition for persistence. This student may be forced to leave the institution. On the other hand, a student who does not become integrated into the social domain of the institution has a choice as to whether or not s/he wants to remain, and may decide to persist because of his/her academic integration. Student integration into one of the domains does not necessarily indicate integration in the other; yet, both are equally important (Tinto, 1975; 1993). Further, the strength of each domain and ability for a student to become formally and informally integrated may be dependent on the institutional structure or the student’s individual behavior (Tinto).

The formal and informal, academic and social domains are all interrelated. Tinto (1993) best describes this when he notes:

Colleges, like other human communities, are highly interdependent, interactive systems in which events in any one part may be felt in other parts of the system. Experiences in the formal social system, for instance via the well-documented effect of work-study, may have important effects upon one's success in the academic system of the college. At the same time, social isolation may undermine one's academic performance. In some instances, academic failure may arise not from the absence of skills but from the debilitating impact of social isolation upon a person's ability to carry out academic work. (p. 109)

Therefore, while it is important to distinguish between the separate domains of a college or university, it is also necessary to understand how the domains are inextricably linked, and together, impact students' decisions to withdraw.

Model of Student Departure

Tinto's (1975) Student Integration Model of student departure (depicted in figure 2.1) is characterized as a sociological model that explains the longitudinal process of college student departure at a specific institution. This model explores student departure decisions by examining the influence of students' pre-college attributes on their ability to become integrated within the formal and informal, academic and social domains at a specific institution. This model also focuses on students who withdraw from their institution voluntarily. While students who leave due to substandard academic performance are not ignored, this model strives to explain the reasons why students leave when they are in good academic standing. Lastly, the model is longitudinal and

interactional in nature. Tinto (1993) notes “the model seeks to explain how interactions among different individuals within the academic and social systems of the institution and the communities which comprise them lead individuals of different characteristics to withdraw from that institution prior to degree completion” (p. 113). In short, the model explains student departure as a process of interaction that occurs between individuals with certain pre-entry characteristics and the academic and social domains of an institution. Students’ experiences within the domains lead to academic and social integration, and continue to positively impact students’ goals and commitments to college completion at their institution. Through these interactions and assessment of goals, students make individual decisions to persist or withdraw from their institution (Tinto).

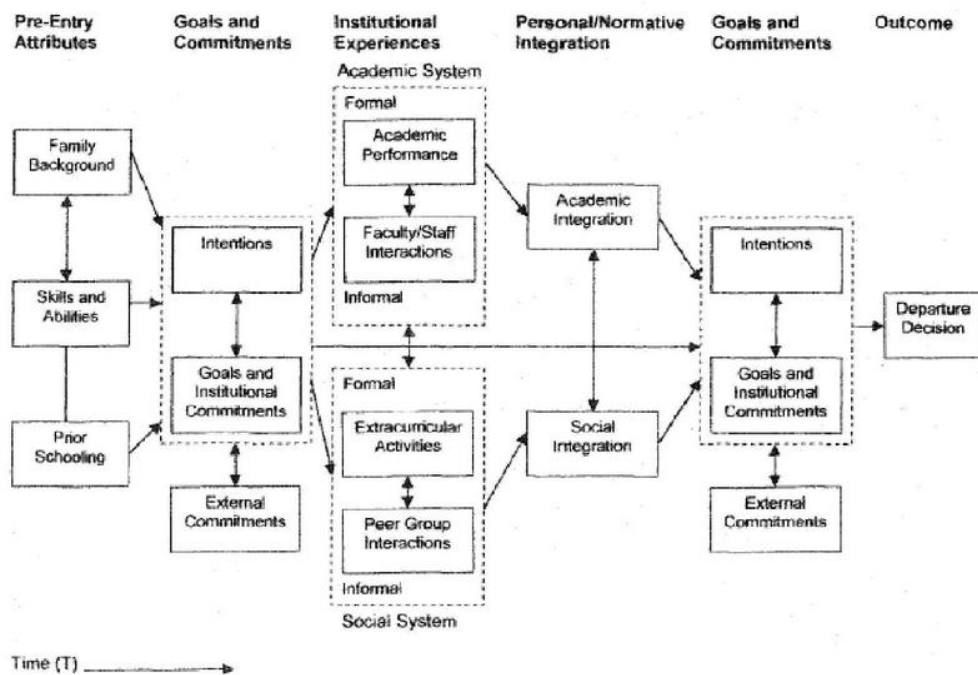


Figure 2.1. Tinto's Student Integration Model of Student Departure

Due to the comprehensive nature and pragmatic status of Tinto's (1975) Interactionalist Theory of Student Departure, no other student departure theory has received as much attention or support. In fact, research on college student departure stalled in the mid-1990s due to the nature of this theory (Braxton, 2002). Much of the student withdrawal research since then has been empirical studies to provide support for Tinto's theory (Braxton, Sullivan, Johnson, 1997; Brower, 1992; Cabrera, Stammen & Hansen, 1990; Pascarella & Terenzini, 1980). Other research has explored ways to improve or adapt the model as research has revealed limitations and weaknesses (Braxton, 2002).

Empirical Support for Tinto's Model

Since the inception of Tinto's (1975) model, hundreds of studies have been conducted to empirically test the model's validity (Bean, 1980; Munro, 1981; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1979, 1980). However, two of these studies provide a comprehensive review and analysis of existing research designed to provide empirical support for Tinto's model (Braxton, Sullivan & Johnson, 1997; Pascarella & Terenzini, 1980).

The first analysis was conducted on six studies published between 1977 and 1980 and was intended to summarize the research which tested Tinto's construct validity (Pascarella & Terenzini, 1980). Each of these studies were conducted by the same team of researchers and all were based on one or more of three independent samples of freshman at Syracuse University (Pascarella & Terenzini, 1980). After examining each of the six studies, the researchers concluded that Tinto's model proved to be a useful conceptual framework for examining student departure. They also found that "operational

indicators of both social and academic integration were consistently found to have statistically reliable (if sometimes modest) associations with freshman attendance patterns, even after prematriculation differences among students were taken into account” (Pascarella & Terenzini, 1980, p. 279). They also suggested that while these studies address the general model, individual variables believed to be most important need to be further explored. As a result, hundreds of studies have since explored individual aspects of Tinto’s model.

Braxton, Sullivan and Johnson (1997) were the next to provide a thorough appraisal of Tinto’s model. In reviewing the model, they identified 13 primary propositions that can be empirically tested. Using a box score approach, they examined peer reviewed studies to determine the magnitude of empirical support for each of the 13 primary propositions (Braxton, Sullivan & Johnson). They specifically reviewed studies that tested at least one of the propositions. Based on their analysis of multi-institutional and single-institutional studies, they determined whether each proposition had strong, moderate, weak or no support. They found four propositions received strong empirical support through multi-institutional studies and five propositions received strong empirical support through single-institutional studies. However, they also found six propositions that did not receive strong empirical support. Table 2.1 presents a summary of the findings. This led Braxton, Sullivan and Johnson (1997) to conclude that “Tinto’s theory is partially supported and lacks empirical internal consistency” (p. 3). Braxton (2002) went on to offer suggested approaches to revise Tinto’s theory and explore new theoretical frameworks including economic (St. John, Cabrera, Nora & Asker, 2000),

sociological (Berger, 2000), cultural (Kuh & Love, 2000) and psychological (Bean & Eaton, 2000) theories.

Table 2.1

Magnitude of Support for Each Proposition by Multiple and Single Institutional Tests

	Proposition	Multiple	Single
1	Student entry characteristics affect the level of initial commitment to the institution.	M	S
2	Student entry characteristics affect the level of initial commitment to the goal of graduation from college.	S	M
3	Student entry characteristics directly affect the student's likelihood of persistence in college.	M	W
4	Initial commitment to the goal of graduation from college affects the level of academic integration.	W	M
5	Initial commitment to the goal of graduation from college affects the level of social integration.	W	M
6	Initial commitment to the institution affects the level of social integration.	W	W
7	Initial commitment to the institution affects the level of academic integration.	W	W
8	The greater the level of academic integration, the greater the level of subsequent commitment to the goal of graduation.	M	M
9	The greater the level of social integration, the greater the level of subsequent commitment to the institution.	M	S
10	The initial level of institutional commitment affects the subsequent level of institutional commitment.	S	S
11	The initial level of commitment to the goal of graduation from college affects the subsequent level of commitment to the goal of college graduation.	S	S
12	The greater the level of subsequent commitment to the goal of college graduation, the greater the likelihood of student persistence in college.	S	W
13	The greater the level of subsequent commitment to the institution, the greater the likelihood of student persistence in college.	M	S

S = strong support; M = moderate support; W = weak support

The current study builds on Tinto's model by adding self-reported, pre-college academic self-concept and social self-concept as additional pre-college entry characteristics that may impact students' commitment and integration into the social and academic domain of the institution. This new model is combining Tinto's Student Integration Model with a psychological approach ascertaining that certain psychological factors impact students' decisions to remain in college. In the next section, literature which examines the relationship between self-concept and college success and/or retention is explored.

Influence of Psychosocial Factors on Persistence and Retention

Recently, researchers have started to explore psychosocial variables that may influence student departure (Astin & Oseguera, 2003; Robbins et al., 2004). Tinto's model is sociological in nature and it has been suggested that "developmental theories and the research based on them suggest that other important student traits may be overlooked if the perspective is strictly sociological" (Pascarella and Terenzini, 1991, p. 58). For this reason, the addition of academic and social self-concept will strengthen the model by including a psychological component.

Psychosocial Variables

One of the areas researchers have started to examine is the relationship between psychosocial factors and student persistence. Some of the factors explored include motivation, perceived social support, and institutional commitment (Friedman & Mandel, 2011; Kahn & Nauta, 2001; Klomegah, 2007; Rayle & Chung, 2007; Robbins et al., 2006).

In an effort to identify psychosocial factors that have a relationship with student persistence and success, researchers conducted a comprehensive review of more than 400 studies, which examined postsecondary retention (Robbins, et al., 2004). Of the 400 studies, 109 examined at least one psychosocial variable and were therefore, included in a meta-analysis to determine the psychosocial variables related to college outcomes. The studies' sample sizes ranged from 24 to 4,805, and all but one of the studies were published. The researchers identified nine categories of psychosocial variables, and after conducting the meta-analysis, they discovered 476 correlations with the retention criterion and 279 correlations with the GPA criterion. Most of the psychosocial variables were found to positively correlate to retention, with academic goals, academic self-confidence, and academic related skills being the strongest predictors. The relationships between psychosocial variables and GPA were also positively correlated, but not as strong. Academic motivation and academic self-confidence were found to have the strongest relationship to college GPA. A summary of the variables and correlation strength is provided in table 2.2.

This study also pointed to the need to further investigate and identify additional psychosocial variables related to retention as “information on these factors can enable postsecondary institutions to identify potential students for retention programs” (Lotkowski, Robbins, & Noeth, 2004, p. 13).

Based on the results of the previous study, Le, Casillas, Robbins, and Langley (2005), developed a Student Readiness Inventory (SRI) in an effort to measure psychosocial constructs centered around three primary domains including, motivation, academic related skills, and social engagement.

Table 2.2

Summary of Findings from Robbins et al. (2004) Meta-Analysis

Psychosocial Factors	Retention	GPA
Academic self-confidence	S	S
Academic-related skills	S	M
Academic goals	S	M
Institutional commitment	M	M
Social support	M	M
Social involvement	M	M
Achievement motivation	W	S
General self-concept	W	W

S = strong correlation; M = moderate support; W = weak support

The Student Readiness Inventory was administered to a sample of 14,464 students from 48 different institutions. This large-scale study was intended to examine self-reported psychosocial factors and college outcomes as evidenced by GPA and retention (Robbins et al., 2006). Specifically, researchers wanted to determine the “different effects of motivational, academic skill, self-management, and social factors when predicting college outcomes” and “whether or not psychosocial factors offer incremental prediction of college outcomes above that already predicted by prior academic achievement, demographic, and institutional effects” (Robbins et al., 2006, p. 600). They found that specific measures of motivational, self-management, and social engagement factors are all related to retention and GPA, but academic-specific motivational measures (academic discipline and commitment to college) are the best predictors of academic performance and retention (Robbins et al., 2006).

These studies examined multiple psychosocial factors and findings were mixed regarding a relationship between self-efficacy, self-concept and self-confidence and college student performance and retention. Robbins et al., (2006) also noted that “because we do not know the reasons for student dropout, the retention outcome has some ambiguity” (p. 602). The present study will start to address the ambiguity of the retention outcome by differentiating between students who withdraw voluntary from those who withdraw due to substandard academic performance

Self-Efficacy and Self-Concept as a Psychosocial Variable

As noted previously, student’s self-efficacy or self-concept is a variable that has been explored as a predictor of student persistence and performance in studies examining multiple psychosocial predictors. For the purpose of this study, research using both of these variables is explored as they have been shown to be similar constructs (Bong & Skaalvik, 2003). Self-efficacy was first introduced by Bandura (1977) and is defined as:

Beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments...Such beliefs influence the course of action people choose to pursue, how much effort they put forth in given endeavors, how long they will persevere in the face of obstacles and failures, they resilience to adversity, whether their thought patterns are self-hindering or self-aiding, how much stress and depression they experience in coping with taking environmental demands and the level of accomplishments they realize. (p. 3)

Self-concept was defined and explained by Shavelson, Hubner & Stanton (1976) as:

A person’s perception of himself...the construct is potentially important and useful in explaining and predicting how one acts. One’s perceptions of himself are

thought to influence the ways in which he acts, and his acts in turn influence the ways in which he perceives himself. (p. 411)

Self-efficacy is domain specific so researchers have specifically examined academic self-efficacy and college self-efficacy as they relate to student success and persistence (Peterson, 1993; Solberg, O'Brian, Villareal, Kennel and David, 1993); therefore, more research is available on college self-efficacy. However, academic self-concept and social self-concept are the specific constructs used in this study as there is an existing valid instrument designed to measure these constructs (CIRP, 2013). Solberg, O'Brian, Villareal, Kennel and David (1993) did develop a college self-efficacy instrument, and while recent research has expanded the instrument, varying levels of reliability and validity have been found, which is why the academic self-concept and social self-concept constructs as measured by the Cooperative Institutional Research Program (CIRP) Freshman Survey are being used in this study.

Early Research on Self-Efficacy

In an extensive analysis of available literature incorporating students' self-efficacy beliefs to academic performance and persistence outcomes, Multon, Brown & Lent (1991) conducted the foundational research, which showed a relationship between overall self-efficacy and academic performance and persistence. The researchers reviewed thirty-eight studies with a total of 4,998 students. A majority of the participants were elementary students (60.6 percent) and college students (28.9 percent). This research provides support for the hypothesized relationship of self-efficacy beliefs to academic performance and persistence. The researchers found self-efficacy beliefs to account for approximately 14 percent of the variance in student's academic performance

and approximately 12 percent of the variance in their academic persistence. However, this study examined general self-efficacy, not specifically related to academic or college related tasks.

Around the same time Peterson (1993) and Solberg, O'Brian, Villareal, Kennel and David (1993) conducted studies specific to college students and self-efficacy. Peterson (1993) examined career decision-making self-efficacy and its relationship with integration of underprepared students within Tinto's (1975) theoretical model. In this study, survey responses from 418 students from a large, public university in Minnesota were analyzed using correlation, analysis of variance, and multiple regression. The researcher was guided by three primary research questions, which included 1) What is the relationship between students' perceived career decision-making self-efficacy and their integration with the educational institution and their goals and commitments? 2) Do students perceived career decision making self-efficacy, initial goals and commitments, and integration differ by background characteristics? 3) Can students' perceived career decision-making self-efficacy, in addition to background characteristics, goals and commitments, and intention to persist, help to explain the variance in integration? Overall results found there is a relationship between career decision-making and social and academic integration of underprepared students. The researcher found enough evidence to warrant including career decision-making self-efficacy as an individual characteristic in future studies of integration (Peterson, 1993). This study provides evidence of the importance of self-efficacy in student integration. This is one of the few studies, which directly links self-efficacy to Tinto's model of student integration.

Link Between Self-Efficacy and College Student Performance

More recently, researchers have established a relationship between self-efficacy and college performance (Brady-Amoon & Fuertes, 2011; Chemers, Hu, Garcia, 2001; Choi, 2005; Elias & Loomis, 2000; Lynch, & Espenshade, 2005; Vuong, Brown-Welty & Tracz, 2010). In a study of 99 introductory psychology students at a large, western public university, Elias and Loomis (2000) intended to examine the influence of academic self-efficacy on students' major persistence within a variety of academic majors. The researchers hypothesized that students with higher academic self-efficacy scores will be less likely to change their major than students with lower scores. While academic self-efficacy scores were not significantly related to persistence in their academic major, the researchers did find a direct link between students' academic self-efficacy scores and GPA.

A longitudinal study with 373 students at the University of California, Santa Cruz, examined first-year students' adjustment in relation to the two constructs of academic self-efficacy and optimism on academic performance, stress, health, and commitment to remain in school. They found self-efficacy to have a significant impact on academic performance and adjustment and self-efficacy was determined to have predictive power (Chemers, Hu & Garcia, 2001).

Choi (2005) also explored self-efficacy and self-concept and the relationship to college student's academic performance in a study with 230 undergraduate students in general studies classes at a large southeastern university. Specifically, she wanted to determine if self-constructs measured at a specific level correspond better with course grades than general self-constructs. Self-efficacy was measured at three different

specificity levels. Global self-efficacy, academic self-efficacy and specific self-efficacy was measured using seven items of the 17 item scale in an attempt to measure self-efficacy specific to seven major academic task areas. The researcher found that specific self-efficacy was the only significant predictor of grades. Based on previous research, they were surprised that academic self-efficacy was not a significant predictor (Choi).

Another study, with 170 freshmen at a large commuter institution, explored the joint effect of academic self-efficacy and stress on academic performance. It was determined that academic self-efficacy and stress are negatively correlated and that academic self-efficacy has a strong positive effect on freshman grades and credits earned. Self-efficacy was the single strongest predictor of GPA in all models (Zajacova, Lynch, & Espenshade, 2005).

Similarly, in a study with 1,291 first-generation sophomores at five California universities, Vuong, Brown-Welty & Tracz (2010) found that students' course self-efficacy was a significant predictor of previous term GPA and overall GPA. However, social self-efficacy did not predict any measure of academic success. However, in this study, all of the GPA data was for past terms as opposed to future terms. This may indicate that students' self-efficacy was a result of the low GPA as opposed to the other way around (Vuong, Brown-Welty & Tracz).

One of the most recent studies on college student self-efficacy and academic performance, revealed an individual association between self-efficacy and academic performance consistent with prior studies. However, the associations were lower in strength. This may be due to the fact that this is the only study of those listed which

measured overall college self-efficacy and not specific academic self-efficacy (Brady-Amoon & Fuertes, 2011).

Link Between Self-Efficacy and College Student Persistence

Researchers have also examined the relationship between self-concept and college persistence. While a significant relationship has been found between students' self-concept and persistence, the research and strength of the association is weaker than between self-concept and college performance (Torres & Solberg, 2001; Lotkowski, Robbins & Noeth, 2004; Vuong, Brown-Welty & Tracz, 2010).

In a study of 189 Latino students at a two-year technical college, Torres & Solberg (2001) evaluated the ability of academic self-efficacy, social integration, stress, and family support systems related to college student outcomes and health. The researchers used these four constructs to develop a model with varying paths. The first path predicted family support directly influences both academic self-efficacy and academic stress. The second pathway predicted that self-efficacy directly influences college stress. Lastly, the researchers predicted that self-efficacy, social integration, family support, and stress paths were expected to predict college persistence intentions. The researchers found that self-efficacy directly predicted social integration, persistence intentions, and stress. Stress was directly associated with mental and physical health; however, social integrations did not predict persistence intentions. They also found that family support directly affected level of academic self-efficacy. The overall finding was that self-efficacy "served as an important determinant in educational outcomes" (p.61).

This study is one of the few studies that show the importance of self-efficacy in relation to persistence. However, this study only looked at students' self-reported

persistence implications and not actual persistence. This study also combined the three sections of the College Self-Efficacy Inventory and other researchers have pointed out that these items are task specific and should not be combined into one average score. Lastly, persistence outcomes did not differentiate between students who withdraw voluntarily from those who withdraw due to substandard academic performance.

In their study with first-generation college sophomores, Vuong, Brown-Welty & Tracz (2010) also examined the effect of self-efficacy on student persistence. The researchers found that for all students, course self-efficacy (one of the subscales) was a significant predictor of the student's persistence intentions. Roommate self-efficacy significantly predicted intent to return for the following term. Social self-efficacy did not predict any measure of academic success. However, as with the previous study, students were asked to self-report their perceived likelihood to complete the current term and to return for the following term which was how persistence was measured.

As cited previously, in their meta-analysis, Robbins et al. (2004), found academic self-concept had a strong relationship to persistence, but the relationship between general self-concept and retention was determined to be weak. As with all the previous studies, they did not differentiate between voluntary and involuntary withdrawal.

By examining the relationship between students' academic self-concept and social self-concept and voluntary student withdrawal, this study will address two gaps in the current literature. As noted previously, few studies have examined self-concept as a predictor in student withdrawal and no studies have examined the predictive value of self-concept in voluntary student withdrawal specifically. Further, the studies which have

been conducted have used a self-reported persistence measure which may not be accurate.

Summary

This chapter provided an in-depth analysis of the literature including, a brief description of early student departure theories, an overview of Tinto's (1975) Interactionist Theory of Student Departure, and a discussion of the relationship between self-concept and retention. In this chapter, it was revealed that this study integrates Tinto's Student Integration Model with the psychological constructs of academic self-concept and social self-concept to strengthen the model as it is currently solely sociological in nature. In addition, this study addressed two gaps in the literature by adding a psychosocial component to a predictive retention model and by differentiating between varying levels of academic performance when exploring the relationship between self-concept and student withdrawal.

In this study, the researcher sought advance the literature by exploring the impact of students' self-reported, pre-college academic self-concept and students' self-reported, pre-college social self-concept on the likelihood of student withdrawal prior to their second year. Additionally, the interaction between self-concept and first-year academic performance was examined. If these self-concept variables are found to be statistically significant, they should be considered as additional pre-college entry characteristics.

CHAPTER THREE: RESEARCH METHODS

In an effort to expand the current body of research on student persistence, this study examined the relationship between students' pre-college, self-reported academic self-concept and social self-concept and the likelihood of withdrawal from their first postsecondary institution. Additionally, the way in which academic self-concept and social self-concept interact with students' first-year academic performance and their decision to withdraw was explored. In addition to self-concept variables, academic, financial and demographic variables, which have been shown to be significant predictors of student withdrawal, were included in the predictive models. Through this study, the researcher explored whether the level of academic and/or social self-concept impacts the likelihood of student withdrawal for students with varying levels of first-year academic performance. As outlined in chapter one, three research questions were addressed. These included:

- 1) What is the effect of students' self-reported, pre-college academic self-concept and social self-concept on the likelihood of withdrawal, after controlling for selected academic, financial and demographic pre-college attributes and first-year academic performance?
- 2) Does the effect of students' self-reported, pre-college academic self-concept moderate the relationship between students' first-year academic performance and student withdrawal

- 3) Does the effect of students' self-reported, pre-college social self-concept moderate the relationship between students' first-year academic performance and student withdrawal?

Statistical Methods

A series of binary logistic regression models were used to determine the relationship between academic self-concept and social self-concept and the criterion variable of student withdrawal. Logistic regression is a statistical model used to predict the probability of an event by using independent variables as predictors. In this case, Ordinary Least Squares (OLS) linear regression was not used because the dependent variable in each model is dichotomous. When using a dichotomous variable in linear regression, the assumptions of homoscedasticity and normality of the residuals are violated (Allison, 2012). Logistic regression, discriminant function analysis, log-linear models and linear probability models are all alternative statistical techniques to overcome the limitations of OLS (Peng, So, Stage & St. John, 2002). According to Flury (1997) "logistic regression is superior because it (a) can accept both continuous and discrete predictors, (b) is not constrained by normality or equal variance/covariance assumptions for the residuals, and (c) is related to the discriminant function analysis through the Bayes theorem (as cited in Peng, So, Stage & St. John, 2002, p. 262). It is for these reasons that logistic regression was used in this study.

Pre-college attributes that have been shown to be significant predictors of first-to-second year retention were selected as predictor variables to be included in the regression models (Astin & Oseguera, 2003, 2005; Lotkowski, Robbins & Noeth, 2004). These included: high school grade point average, standardized test scores, state residency,

academic major declaration, first-year academic performance, pre-enrollment campus visit, Free Application for Federal Student Aid (FAFSA) completion, expected family contribution (EFC), gender and race/ethnicity. In addition to these predictor variables, students' self-reported, pre-college academic self-concept and social self-concept were measured and used as predictor variables. Self-concept data were collected from the Cooperative Institutional Research Program (CIRP) Freshman Survey that is administered to the incoming freshman cohort prior to enrollment. Self-concept was chosen as the psychosocial variable to be studied because similar constructs have been shown to have a significant effect on student's academic performance (Multon, Brown & Lent, 1991; Robbins et al., 2006; Torres & Solberg, 2001). Students' first-year, cumulative grade point average (GPA) was also collected to explore the interaction between first-year academic performance and self-reported academic and social self-concept.

Data Sample and Collection Procedures

This study was conducted at the University of South Carolina, a large flagship university in the southeast. The institution is classified by the Carnegie Foundation for the Advancement of Teaching as having "very high research activity" and has been designated by the College Board as having somewhat selective admission based on a 65 percent acceptance rate. An undergraduate population of more than 24,000 students comprise more than 90 undergraduate majors on the main campus. Enrolled students come from all 50 states and more than 100 countries. While the university system also has seven satellite campuses, only students from the main campus were included in this study.

Data were collected on all first-time, first-year students who enrolled at the main campus during the fall 2010, fall 2011, and fall 2012 semesters and completed the Cooperative Institutional Research Program (CIRP) Freshman Survey. All entering first-year students are encouraged to complete the survey, so only those who self-selected to participate were included in this study. In fall 2010, 22.8 percent of the freshman class completed the CIRP. In fall 2011, 21.1 percent of the freshman class completed the CIRP. In fall 2012, 28.6 percent of the freshman class completed the CIRP. In total, CIRP data were collected on 3,841 students including: 1,009 from the fall 2010 cohort, 1,239 from the fall 2011 cohort, and 1,593 from the fall 2012 cohort. Students in these cohorts had an average SAT (critical reading and math) of 1185, 1199, and 1199 respectively, and each cohort had an average weighted high school GPA above 3.75. Using three years of student data ensured the sample was large enough to analyze various demographic groups that have fewer numbers of students while making sure the student data were recent enough to be representative of students who enroll in future terms. In order to determine if the sample is consistent with the overall population a chi-square goodness-of-fit test was run for each categorical variable used in the study.

Student data were only collected at a single institution for several reasons. In order to develop the strongest model for institutional intervention, it was best to use single institutional data to build the most accurate model. Significant predictor variables are likely to remain similar at other four-year, public flagship institutions, but the variable coefficients can differ depending on the institution's student demographics. If academic self-concept and/or social self-concept significantly predict student withdrawal, future

researchers and practitioners can replicate the model using the same statistical methods to develop a predictive equation to use for intervention efforts at their institutions.

Further, the University of South Carolina has similar enrollment and demographic characteristics as the other 12 flagship institutions in the southeast (College Board, 2014). Secondly, the data collection and cleansing process was rigorous and needed to be done at the institutional level by those who had extensive knowledge of the data reporting and formatting. Therefore, the researcher identified a single institution in which she was familiar with the data structure and coding to ensure accuracy in data collection. Once the project was approved by the institution's Institutional Review Board, data for each student were collected from four institutional offices. A separate data file which included records for all students in the fall 2010, fall 2011 and fall 2012 cohorts was obtained from each office and the researcher merged all records using a unique student identifier used by all offices on campus. All data were stored in a secure Access database designed specifically for this study. Additionally, the data were cleaned in this database and then transferred to SAS 9.4 for analysis.

First, the CIRP Freshman Survey data with students' self-reported academic self-concept and social self-concept was collected from the Planning and Assessment Office in the Division of Student Affairs. Individual files for each cohort included in the study were collected. Each file contained a unique student identifier, basic student demographic data, and the students' responses from the CIRP Freshman Survey, including academic self-concept and social self-concept scores. Any record that was missing the unique identifier and/or either of the self-concept scores were removed from the dataset. The

initial dataset had 3,841 students, 561 were missing necessary information, so a total of 3,281 students from the fall 2010, fall 2011, and fall 2012 cohorts remained.

All CIRP Freshman Survey data not being used in this study were deleted from the file, so the remaining data columns included the student's unique identifier and each student's self-reported academic self-concept and social self-concept scores.

The researcher then used the unique school identifier for each student to match the student's academic self-concept and social self-concept with an institutional dataset provided by the Office of Undergraduate Admissions. If any student's unique identifier did not provide a match with the file obtained from the Office of Undergraduate Admissions, that record was removed from the dataset. A total of 182 records were not able to be matched at this stage.

The dataset provided by the Office of Undergraduate Admissions included student's average SAT score (critical reading and math), high school GPA, residency status at time of admission, major declaration at time of admission, pre-enrollment campus visit status, gender, and race/ethnicity. The admissions file did not contain any missing data as all first-time, full-time students are required to submit standardized test scores and high school transcripts. Students are also required to report gender and race/ethnicity on the admissions application, as well as primary state of residence. In addition, all students must either declare a major or select undeclared on the application. Lastly, all students who did not have a campus visit recorded with the admissions office were presumed to not have had an official campus visit prior to enrollment as the admissions office tracks all visitors.

Next, using the secure Access database, the researcher merged the CIRP data and the admissions data with a dataset that was provided by the Office of Student Financial Aid and Scholarships. The financial aid dataset included each student's unique ID as well as an indicator of whether the student completed the Free Application for Federal Student Aid (FAFSA) and the resulting Expected Family Contribution (EFC). All records in the original dataset had a matching record in the financial dataset.

Lastly, the researcher requested a dataset from the Office of Retention and Planning which contained records for all students in the fall 2010, fall 2011 and fall 2012 first-time, freshman cohorts. The data items included each student's unique identifier, a first-to-second year retention indicator and institutional GPA at the end of the spring term for each student. This dataset was imported to the secure Access database and merged with the existing data. All records in the original dataset had a matching record in the retention dataset.

Once the data were in a single dataset, all variables were coded, and individual identifiers were removed from the dataset so individual students could not be identified. All data was stored on a password protected computer, encrypted with university security settings so nobody had access to the dataset other than the researcher. A description of the variables is provided below and summarized in table 3.1.

Cooperative Institution Research Program (CIRP) Freshman Survey

This study used two constructs from the CIRP Freshman Survey to measure students' self-reported, pre-college academic self-concept and self-reported, pre-college social self-concept. Previous research has examined self-confidence, self-efficacy, and self-concept using different instruments and methods. Inventories that have been used

Table 3.1

Variables by Definition and Source

Variable	Operational Definition	Source
<i>Academic Variables</i>		
SAT Score	Standardized test score used in admissions decision	ADM
High School GPA	Weighted grade point average based on 19 core high school courses used in admissions decision	ADM
Major Declaration	Whether the student had a major declared at the time of enrollment, or was undeclared	ADM
First-Year Academic Performance	Based on first-year grade point average on grades received in institutional coursework completed in the fall and spring semesters	REG
<i>Demographic Variables</i>		
Gender	Gender as reported by student on admissions application	ADM
Race/Ethnicity	Race/ethnicity as reported by student on admissions application	ADM
Residency	Whether student is a resident of same state as institution, or an out-of-state student	ADM
Campus Visit	Whether student conducted official campus visit prior to enrollment, or did not visit	ADM
<i>Financial Variables</i>		
Completion of FAFSA	Whether student completed the FAFSA prior to enrollment, or not	FIN
Expected Family Contribution	Federally determined amount student's family is expected to contribute to education of student based on completion of FAFSA prior to enrollment	FIN
<i>Self-Concept Variables</i>		
Academic Self-Concept	Student's beliefs about his/her abilities and confidence in academic environments	CIRP
Social Self-Concept	Student's beliefs about his/her abilities and confidence in social situations	CIRP

Variable	Operational Definition	Source
<i>Outcome Variables</i>		

Withdrawal	Whether student returns to institution for the second year, or not	REG
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ADM = Undergraduate Admissions Institutional Database; FIN = Financial Aid Institutional Database; CIRP = Cooperative Institution Research Program Freshman Survey results; REG = Registrar Institutional Database

include the College Self-Efficacy Inventory (Solberg, O'Brian, Villareal, Kennel & David, 1993; Torres & Solberg, 2001), the Student Readiness Inventory (Le, Casillas, Robbins & Langley, 2005), and institutional questionnaires (Chemers, Hu & Garcia, 2001; Lent, 1991). No research has been previously published using the self-concept constructs from the CIRP Freshman Survey as variables in predicting student withdrawal.

The instrument was developed in 1965 and first administered in 1966 when 15 percent of the United States' institutions were invited to participate. Since 1971, all institutions have been invited to participate as long as they are "admitting first-time, full-time students and granting a baccalaureate-level degree or higher listed in the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS)" (Pryor et al., 2012, p.49). In 2012, 236,937 first-time, full-time students at 389 colleges and universities completed the survey. The data are collected prior to enrollment or within the first weeks of classes before the students have substantial college experiences. The instrument is reviewed annually by researchers at the Higher Education Research Institute at UCLA to ensure continued reliability and validity (Pryor et al., 2012). The instrument is comprised of 43 questions and takes approximately 25 minutes to complete.

Students were told about the CIRP Freshman Survey when they attended orientation in June. Prior to enrollment, they were emailed a link to complete the web-based version of the instrument in July. Subsequent email reminders encouraging students to complete the survey were sent to students throughout July and August. Students received no incentive for participation. At the time they were asked to complete the survey, students were provided with an information sheet that outlined the instrument's purpose, procedure, benefits, risks, and confidentiality. Students were also assured their responses would be used for research purposes only and would be kept strictly confidential. As mentioned previously, the average response rate for fall 2010, fall 2011, and fall 2012 was 22.8 percent, 27.0 percent and 34.8 percent respectively.

In 2010, researchers used Item Response Theory (IRT) to create constructs which “represent sets of related survey items that measure an underlying trait or aspect of a student's life” (Sharkness, DeAngelo, & Pryor, 2010, p.1). At this time, the constructs of academic self-concept and social self-concept were introduced. Three steps were used during construct development to ensure reliability and validity of the items. First, researchers conducted exploratory factor analyses for item selection and assumption checking. Next, they used a graded response model for parameter estimation. Finally, the researchers used MULTILOG to score students on each construct. Students' scores are rescaled from z-scores to have a mean of approximately 50 and a standard deviation of approximately 10 (Sharkness, DeAngelo, & Pryor). By recoding original scores according to observed distributions, students' scores are categorized using a three-category variable of “low,” “medium,” or “high.” Students with scores of 0.5 standard deviations above the mean or higher are categorized as “high.” Those with scores within

0.5 standard deviations of the mean are categorized as “medium.” Students with scores of 0.5 standard deviations below the mean are categorized as “low” (Sharkness, DeAngelo, & Pryor).

Academic self-concept was defined as “a unified measure of students’ beliefs about their abilities and confidence in academic environments” (Pryor et al., 2012, p. 54). The construct is based on students’ responses to the statement “Rate yourself on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself” (Pryor et al., 2012, p. 54). The rating scale is comprised of five options including Highest 10%, Above Average, Average, Below Average, and Lowest 10%. The traits students rate themselves on include: academic ability, drive to achieve, mathematical ability and self-confidence (intellectual).

Social self-concept was defined as “a unified measure of students’ beliefs about their abilities and confidence in social situations” (Pryor et al., 2012, p. 54). The construct is based on students’ responses to the statement “Rate yourself on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself” (Pryor et al., 2012, p. 54). The rating scale is comprised of five options including Highest 10%, Above Average, Average, Below Average, and Lowest 10%. The traits students rate themselves on include: leadership ability, public speaking ability, self- confidence (social), and popularity.

Academic Predictor Variables

SAT Score. Standardized test scores were collected from the Office of Undergraduate Admissions. The critical reading and math sections were combined for an SAT total score. SAT scores ranged from 830-1600. All students

were required to submit official test scores as part of the admissions process. Students had the option of submitting either an ACT or SAT score. For students who only submitted an ACT score, it was converted to the SAT scale using the SAT-ACT concordance scale developed by the College Board and ACT.

Weighted High School Grade Point Average (GPA). A calculated weighted core GPA was collected from the Office of Undergraduate Admissions. This GPA is on a 5.0 weighted scale and was derived from the 19 core academic courses required for admission to the institution. Students were awarded one additional point for honors, AP, IB, and dual enrollment courses. The weighted core GPA ranged from 2.24 – 5.0.

Major Declaration. Major selection was collected from the Office of Undergraduate Admissions. Students who declared a major prior to enrollment were categorized as declared. Students who were undecided about their major during their first semester were categorized as undeclared. Since major selection is a categorical variable, it was dummy-coded with declared equal to 0 and undeclared equal to 1.

First-Year Academic Performance. Students' first-year institutional GPA was collected from the Retention and Planning Office. First-year GPA is calculated from grades earned in institutional coursework taken during the fall and spring semesters. Based on their GPA, students were assigned to one of the three academic performance categories. Students with a GPA of 0.0 to 1.9 were categorized as low academic performance. Students with a GPA of 2.0 to 2.9 were

categorized as medium academic performance. Students with a GPA of 3.0 to 4.0 were categorized as high academic performance.

Demographic Predictor Variables

Gender. Gender was collected from the Office of Undergraduate Admissions based on students' response to the gender question on the admissions application. Students were required to select either male or female. Since gender is a categorical variable, it was dummy-coded with male equal to 0 and female equal to 1.

Race/Ethnicity. Race/ethnicity was collected from the Office of Undergraduate Admission and was based on students' responses to two race/ethnicity questions on the admissions application. Based on federal reporting standards, race and ethnicity data were reported according to the following seven mutually exclusive ethnicity and race categories: (1) Hispanic or Latino (of any race); (2) American Indian or Alaska Native; (3) Asian; (4) Black or African American; (5) Native Hawaiian or Other Pacific Islander; (6) White; (7) Two or more races. Since there were not enough students in each of the race/ethnicity categories, students were categorized as being either white or non-white. Since race/ethnicity is a categorical variable, it was dummy-coded with white equal to 0 and non-white equal to 1.

Residency. Residency status was collected from the Office of Undergraduate Admissions based on students' residency selection on the admissions application. Students who were residents in the same state as the institution were categorized as resident and students who were from any other state were categorized as non-

resident. Since residency is a categorical variable, it was dummy-coded with resident equal to 0 and non-resident equal to 1.

Campus Visit. Pre-enrollment campus visit status was collected from the Office of Undergraduate Admissions. Students who had an official campus visit through the visitor center or attended an on-campus admissions event prior to enrolling were categorized as visitors. Students who did not have an official campus visit were categorized as non-visitors. Since campus visit status is a categorical variable, it was dummy-coded with visitors equal to 0 and non-visitors equal to 1.

Financial Variables

Completion of FAFSA. Completion of the FAFSA denotes whether or not a student filed a Free Application for Federal Student Aid (FAFSA) with the institution. Since this is a categorical variable, it was dummy-coded with completed equal to 0 and not completed equal to 1.

Expected Family Contribution (EFC). Expected Family Contribution was derived as a result of completion of the FAFSA. The federal formula for EFC is a measure of the family's financial strength and is the amount the family is expected to contribute to the student's cost of attendance. Zero is the lowest possible value and 99,000 is the highest. Students were divided into 10 EFC groups with one being students who have the most need and 10 being the students who have the least amount of need.

Self-Concept Predictor Variables

Academic Self-Concept. Based on students' individual construct scores, they were categorized as having "low," "medium," or "high" academic self-concept. Scores and categories were collected from the CIRP Freshman Survey data file.

Social Self Concept. Based on students' individual construct scores, they were categorized as having "low," "medium," or "high" social self-concept. Scores and categories were collected from the CIRP Freshman Survey data file.

Outcome Variables

Student Withdrawal. Students' first-to-second year retention status was collected from the Retention and Planning Office. Students who were still enrolled at the institution in the fall after they started were categorized as returned. Those who were no longer enrolled were categorized as non-returners. Official enrollment numbers were captured each October during a data freeze process. Since retention status is a categorical variable, it was dummy-coded with withdrawn equal to 0 and retained equal to 1.

Statistical Analysis

Each of the research questions was addressed using logistic regression, a common statistical method used in higher education research (Peng, So, Stage, & St. John, 2002). Student withdrawal status was used as the dependent variable in each regression model. A list of independent variables and coding levels is in table 3.2.

Prior to inclusion in the logistic regression models, all of the variables were tested for multicollinearity. SAS procedure PROG CORR was used to examine bivariate

Table 3.2

Variables, Coding Levels and Abbreviations

Variable	Categories	Coding	Abbreviation
<i>Academic Variables</i>			
SAT Score	SAT score ranging from 830-1600	Continuous	SAT
High School GPA	GPA ranging from 2.4 – 5.0 x 100	Continuous	GPA
Major Declaration	Declared Major (reference)	0 = yes; 1 = no	MAJOR
First-Year Academic Performance	0.0-1.9: Low 2.0-2.9: Medium 3.0-4.0: High (reference)	1 = 1, 0 2 = 0, 1 3 = 0, 0	FYPERM _{low} FYPERM _{medium}
<i>Demographic Variables</i>			
Gender	Male (reference)	0 = yes; 1 = no	GENDER
Race/Ethnicity	White (reference)	0 = yes; 1 = no	RACE
Residency	Resident (reference)	0 = yes; 1 = no	RES
Campus Visit	Visited campus (reference)	0 = yes; 1 = no	VISIT
<i>Financial Variables</i>			
Completion of FAFSA	Completed FAFSA (reference)	0 = yes; 1 = no	FAFSA
Expected Family Contribution	EFC Range 1 -10	Continuous	EFC
<i>Self-Concept Variables</i>			
Academic Self-Concept	Low Medium High (reference)	1 = 1, 0 2 = 0, 1 3 = 0, 0	ACA_SC _{low} ACA_SC _{medium}
Social Self-Concept	Low Medium High (reference)	1 = 1, 0 2 = 0, 1 3 = 0, 0	SOC_SC _{low} SOC_SC _{medium}
<i>Interaction Variables</i>			
FYPERF x ACA_SC	Interaction of first-year academic performance and academic self-concept variables		
FYPERF x SOC_SC	Interaction of first-year academic performance and social self-concept variables		

correlations between independent variables. PROC REG, normally used for linear regression analysis, was used to determine if any of the variables had low levels (< .40) of tolerance, an indication of multicollinearity.

Once multicollinearity was tested, the first research question was examined through a logistic regression model using all variables applied to the entire sample. The logistic regression equation expressed as:

$$\begin{aligned} \log \left[\frac{p_i}{1 - p_i} \right] = & \alpha + \beta_1 SAT + \beta_2 GPA + \beta_3 MAJOR \\ & + \beta_4 FYPERF_{low} + FYPERM_{medium} + \beta_6 GENDER + \beta_7 RACE \\ & + \beta_8 RES + \beta_9 VISIT + \beta_{10} FAFSA + \beta_{11} EFC + \beta_{12} ACA_SC_{low} \\ & + \beta_{13} ACA_SC_{medium} + \beta_{14} SOC_SC_{low} + \beta_{15} SOC_SC_{medium} \end{aligned}$$

where p_i is the probability of withdrawing prior to the second year, was interpreted. In the above equation, β represents the predicted changes in log odds of withdrawal (dependent variable) for every one unit change in the associated independent variable. To answer the first research question, the β coefficients associated with academic self-concept and social self-concept were examined.

Significance of the individual predictors, academic self-concept and social self-concept, were tested using the Wald chi-square statistic ($p < .05$) and odds ratios with a 95% confidence interval.

Since log odds are not easily interpreted, the relationship between the self-concept variables and the dependent variable of withdrawal was based on odds ratios. The odds ratios were used to “measure the relationship between two different dichotomous variables” for each self-concept variable in the model (Allison, 2012, p. 16). Odds ratios

are used because “they are less sensitive to changes in the marginal frequencies than other measures of association” (Allison, p. 17).

The second research question was answered through a second logistic regression model with the addition of interaction terms between first-year academic performance and academic self-concept. The logistic regression equation is expressed as: $\log \left[\frac{p_i}{1-p_i} \right] =$

$$\begin{aligned} & \alpha + \beta_1 SAT + \beta_2 GPA + \beta_3 MAJOR + \beta_4 FYPERF_{low} + \beta_5 FYPERF_{medium} + \\ & \beta_6 GENDER + \beta_7 RACE + \beta_8 RES + \beta_9 VISIT + \beta_{10} FAFSA + \beta_{11} EFC + \\ & \beta_{13} SOC_SC_{low} + \beta_{14} SOC_SC_{med} + \beta_{15} ACA_SC_{low} + \beta_{16} ACA_SC_{medium} + \\ & \beta_{17} FYPERF_{low} * ACA_SC_{low} + \beta_{18} FYPERF_{low} * ACA_SC_{medium} + \\ & \beta_{19} FYPERF_{medium} * ACA_SC_{medium} + \beta_{20} FYPERF_{medium} * ACA_SC_{low} \end{aligned}$$

The third research question was answered through a third logistic regression model with the addition of interaction terms between first-year academic performance and social self-concept. The logistic regression equation is expressed as:

$$\begin{aligned} \log \left[\frac{p_i}{1-p_i} \right] = & \alpha + \beta_1 SAT + \beta_2 GPA + \beta_3 MAJOR \\ & + \beta_4 FYPERF_{low} + \beta_5 FYPERF_{medium} + \beta_6 GENDER + \beta_7 RACE \\ & + \beta_8 RES + \beta_9 VISIT + \beta_{10} FAFSA + \beta_{11} EFC + \beta_{12} ACA_SC_{low} \\ & + \beta_{13} ACA_SC_{med} + \beta_{14} SOC_SC_{low} + \beta_{14} SOC_SC_{medium} \\ & + \beta_{15} FYPERF_{low} * SOC_SC_{low} + \beta_{16} FYPERF_{low} * SOC_SC_{medium} \\ & + \beta_{17} FYPERF_{medium} * SOC_SC_{medium} \\ & + \beta_{18} FYPERF_{medium} * SOC_SC_{low} \end{aligned}$$

To answer research questions two and three, the interaction variables were analyzed. Significance was tested using the Wald chi-square statistic ($p < .05$).

Additionally, goodness-of-fit was examined to determine if the new model, with interactions, fits the data better than the original model from research question one. A significant interaction and a significant change in -2 log likelihood is evidence of a moderating effect. If there is only a significant interaction and no significant change in -2 log likelihood, it will be evidence of a weak moderating effect. There will be no evidence of a moderating effect, if neither the interaction nor the change in -2 log likelihood is significant.

In addition to statistical tests of individual predictors for each self-concept variable and interaction, the researcher also considered an overall model evaluation for each of the three models. The likelihood ratio, score and Wald tests were examined to determine if the logistic model is more effective than the null model. If the logistic model is an improvement over the intercept-only (null) model, it is determined to provide a better fit to the data (Peng, Lee, Ingersoll, 2002). It was also necessary to assess the fit of the logistic model against the actual outcomes. The goodness-of-fit was examined using the Hosmer-Lemeshow (H-L) test ($p > .05$). Finally, validations of predicted probabilities were explored using Somer's *D* statistic and the *c* statistic.

Summary

To answer the three research questions proposed in this study, using data from the University of South Carolina, three binary logistic regression models were run to determine whether academic self-concept and/or social self-concept were significant predictors of student withdrawal. Additionally, the interaction between both self-concept variables and first-year academic performance was explored. Additional academic,

financial, and demographic pre-college attributes were selected as control variables and included in each logistic regression model.

CHAPTER FOUR: FINDINGS

The fall 2010, fall 2011 and fall 2012 freshman class cohorts were comprised of 4,423, 4,569, and 4,580 students respectively, for a combined population of 13,572 students. Of these students, 3,841 (28 percent) completed the CIRP Freshman Survey and were therefore, considered for this study. Students who were missing unique identifiers, self-concept scores and/or did not have at least 24 credit hours were eliminated from the dataset, leaving 3,099 (22.8 percent) students for this study. Students who were missing either the unique identifier, the CIRP self-concept scores, or the required number of hours were eliminated from the study during the first step of the data matching process; therefore, no additional analysis was able to be performed.

Descriptive Statistics

The sample for this study was comprised of 3,099 students. Of these students, 65 percent (2,026) were female. Approximately half, 54 percent (1,657) were South Carolina residents, and 71 percent (2,198) had conducted an official campus visit prior to enrolling. Eight-three percent (2,557) of the students were White, non-Hispanic students. The 17 percent (542) non-White students were either Hispanic or Latino (of any race), American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian/Other Pacific Islander or two or more races.

Academically, the students in this study had a mean SAT of 1224 (*SD* 131) and a mean high school GPA of 4.01 (*SD* .53). Their mean first-year GPA was 3.33 (*SD* .80). In terms of first-year academic performance, six percent (197) of students were categorized as low, 15 percent (469) were categorized as medium and 79 percent (2,433) were categorized as high. Almost all of the students, 92 percent (2,853), had declared a major prior to starting their freshman year. Financially, 83 percent (2,587) of students completed the Free Application for Federal Student Aid (FAFSA). The mean Expected Family Contribution (EFC) was 4.35, which falls in the \$3,000 - \$3,999 category.

In terms of self-concept, 15 percent (462) of students had low academic self-concept, 49 percent (1,510) had medium academic self-concept, and 36 percent (1,127) had high academic self-concept. Twenty-five percent (778) of students had low social self-concept, 40 percent (1,243) had medium social self-concept, and 35 percent (1,078) had high social self-concept. A comparison of demographics between the self-concept categories is presented later in the chapter.

Comparison between Returners and Non-Returners

Nearly 90 percent (2,792) of the students in the study returned to the institution in the fall of their second year and were categorized as returners for this study. This number is slightly higher than the percent (87.4) of the total population (13,730) who returned to the institution for their second year. Several differences existed between the returner and non-returner students.

The 307 students who withdrew prior to starting their second year had a mean first-year GPA of 2.11 (*SD* 1.47). The 2,792 students who did return to the institution for their second year had a mean first-year GPA of 3.46 (*SD* .54). Of those who withdrew, 43

percent (133) were categorized as low academic performance, 19 percent (58) were categorized as medium academic performance, and 38 percent (116) were categorized as high academic performance. The returners had two percent (64) of students in the low academic performance category, 15 percent (411) in the medium academic performance category, and 83 percent (2,317) in the high academic performance category.

Additionally, the students' pre-college academic credentials differed with the non-returners having a mean SAT of 1193 (*SD* 118) and the returners having a mean SAT of 1228 (*SD* 132). The mean high school GPA was 3.78 (*SD* .52) for the non-returners and 4.04 (*SD* .53) for the returners.

While the students EFC was similar, with a mean of 4.55 for non-returners and 4.32 for returners, a higher percentage of returners opted to complete the FAFSA. Seventy-five percent (231) of non-returners completed the FAFSA for their first year, whereas 84 percent (2,356) of returners completed the FAFSA. Non-returners were also less likely to have visited campus prior to enrolling. Sixty percent (187) of non-returners visited campus and 72 percent (2,011) of returners had visited.

In terms of self-concept, academic self-concept differed between the two groups of students, but social self-concept levels were similar. Of the non-returners, 19 percent (57) had low academic self-concept, compared to 15 percent (405) of the returners. Fifty-five percent (168) of the non-returners had medium self-concept, compared to 48 percent (1342) of the returners. Twenty-seven percent (82) of non-returners had high academic self-concept, compared to 37 percent (1045) of returners. Complete descriptive statistics comparing returners and non-returners can be found in table 4.1.

Table 4.1

Descriptive Statistics: Comparison between Returners and Non-Returners

	Overall (n=3099)	Non-Returner (n=307)	Returner (n=2792)
Variable	M (SD)	M (SD)	M (SD)
SAT	1224 (131)	1193 (118)	1228 (132)
HS GPA	400.93(53.12)	377.6 (51.91)	403.5 (52.64)
Expected Family Contribution	4.35 (3.46)	4.55 (3.79)	4.32 (3.43)
Variable	% (n)	% (n)	% (n)
First-Year Academic Performance			
Low	6.36 (197)	43.32 (133)	2.29 (64)
Medium	15.13 (469)	18.89 (58)	14.72 (411)
High	78.51 (2433)	37.79 (116)	82.99 (2317)
Major			
No Major	7.94 (246)	9.77 (30)	7.74 (216)
Major	92.06 (2853)	90.23 (277)	92.26 (2576)
Residency			
Non-Resident	46.53 (1442)	47.56 (146)	46.42 (1296)
In-State	53.57 (1657)	52.44 (161)	53.58 (1496)
Gender			
Female	65.38 (2026)	60.26 (185)	65.94 (1841)
Male	34.62 (1073)	39.74 (122)	34.06 (951)
Race			
Non-White	17.49 (542)	15.31 (47)	17.73 (495)
White	82.51 (2557)	84.69 (260)	82.27 (2297)
Visit			
No Visit	29.07 (901)	39.09 (120)	27.97 (781)
Visit	70.93 (2198)	60.91 (187)	72.03 (2011)
FAFSA			
No FAFSA	16.52 (512)	24.76 (76)	15.62 (436)
FAFSA	83.48 (2587)	75.24 (231)	84.38 (2356)
Academic Self-Concept			
Low	14.91 (462)	18.57 (57)	14.51 (405)
Medium	48.73 (1510)	54.72 (168)	48.07 (1342)
High	36.37 (1127)	26.71 (82)	37.43 (1045)
Social Self-Concept			
Low	25.10 (778)	27.69 (85)	24.82 (693)
Medium	40.11 (1243)	38.11 (117)	40.33 (1126)
High	34.79 (1078)	34.20 (105)	34.85 (973)

Comparison between Self-Concept Categories

Since the primary focus of this study was self-concept, it was also necessary to examine the demographic differences between students with differing levels of academic self-concept and social self-concept. Of the 3,099 students in the study, 15 percent (462) had low academic self-concept, forty-nine percent (1,510) had medium academic self-concept, and 36 percent (1,127) had high academic self-concept. In terms of social self-concept, 25 percent (778) of students had low social self-concept, 40 percent (1,243) had medium social self-concept, and 35 percent (1,078) had high social self-concept. Several notable differences existed between the groups.

Academic self-concept. When examining the different levels of academic self-concept, academic differences among the students were the most apparent differences. Students in the low academic self-concept group had a mean SAT of 1131 (*SD* 97.64), whereas students in the high academic self-concept group had a mean SAT of 1287 (*SD* 133.95). The same trend existed with high school GPA and first-year academic performance. Students in the low academic self-concept group had a mean high school GPA of 3.58 (*SD* .47) and a mean first-year GPA of 3.04 (*SD* .78). Students in the high academic self-concept group had a mean high school GPA of 4.29 (*SD* .47) and a mean first-year GPA of 3.50 (*SD* .75). Further, 87 percent of the students with high academic self-concept also had high first-year academic performance. Whereas, 65 percent of the students with low academic self-concept had high first-year academic performance.

All other categories among the three groups were similar with the exception of gender. Seventy-four percent (344) of the students with low academic self-concept were female, whereas females made up 59 percent (662) of the students with high academic

self-concept. Complete descriptive statistics comparing students in the academic self-concept categories can be found in table 4.2.

Social self-concept. The differences among students with varying levels of social self-concept were not tied to academics. All three social self-concept groups had similar mean SAT scores, high school GPAs and first-year academic performance. The primary differences between the groups were students' residency status and gender. In terms of residency, 60 percent (468) of students with low social self-concept were in-state residents, whereas 50 percent (538) of students with high social self-concept were in-state residents. Additionally, 71 percent (549) of those who had low social self-concept were female, compared to 59 percent (635) of those with high social self-concept. All other categories among the three groups were similar. Complete descriptive statistics comparing students in the social self-concept categories can be found in table 4.3.

Chi-Square Goodness-of-Fit Test

A chi-square test of goodness-to-fit was performed to determine whether the sample of students who completed the CIRP was representative of the population, in terms of FAFSA completion, gender, major declaration, race/ethnicity, residency, visit status and likelihood of withdrawal. Of the seven categorical variables examined, six were not representative of the overall population. Tables 4.4 through 4.9 show the expected frequencies and observed frequencies for each variable in which the sample was not representative of the population. Implications of these results will be discussed in chapter five.

Table 4.2

Descriptive Statistics: Comparison between Academic Self-Concept Categories

		Academic Self-Concept		
		Low	Medium	High
		(n=462)	(n=1510)	(n=1127)
Variable		M (SD)	M (SD)	M (SD)
SAT		1131.49 (97.64)	1206 (114.69)	1287 (133.95)
HS GPA		3.58 (.47)	3.93 (.48)	4.29 (.47)
Expected Family Contribution		4.43 (3.58)	4.34 (3.45)	4.32 (3.43)
Variable		% (n)	% (n)	% (n)
First-Year Academic Performance				
	Low	8.66 (40)	6.75 (102)	4.88 (55)
	Medium	25.97 (120)	16.89 (255)	8.34 (94)
	High	65.37 (302)	76.36 (1153)	86.79 (978)
Major				
	No Major	9.09 (42)	7.95 (120)	7.45 (84)
	Major	90.91 (420)	92.05 (1390)	92.55 (1043)
Residency				
	Non-Resident	41.99 (194)	48.61 (734)	45.61 (514)
	Resident	58.01 (268)	51.39 (776)	54.39 (613)
Gender				
	Female	74.46 (344)	67.55 (1020)	58.74 (662)
	Male	25.54 (118)	32.45 (490)	41.26 (465)
Race				
	Non-White	16.67 (77)	17.42 (263)	17.92 (202)
	White	83.33 (385)	82.58 (1247)	82.08 (925)
Visit				
	No Visit	34.20 (158)	28.68 (433)	27.51 (310)
	Visit	65.80 (304)	71.32 (1077)	72.49 (817)
FAFSA				
	No FAFSA	19.48 (90)	16.29 (246)	15.62 (176)
	FAFSA	80.52 (372)	83.71 (1264)	84.38 (951)
Social Self-Concept				
	Low	39.39 (182)	26.82 (405)	16.95 (191)
	Medium	41.13 (190)	43.84 (662)	34.69 (391)
	High	19.48 (90)	29.34 (443)	48.36 (545)

Table 4.3

Descriptive Statistics: Comparison between Social Self-Concept Categories

Variable	Social Self-Concept		
	Low	Medium	High
	(n=778) M (SD)	(n=1243) M (SD)	(n=1078) M (SD)
SAT	1225 (134)	1227 (132)	1222 (129)
HS GPA	4.03 (.54)	4.02 (.52)	3.99 (.53)
Expected Family Contribution	4.19 (3.39)	4.30 (3.43)	4.52 (3.56)
Variable	% (n)	% (n)	% (n)
First-Year Academic Performance			
Low	7.20 (56)	5.55 (69)	6.68 (72)
Medium	15.04 (117)	14.32 (178)	16.14 (174)
High	77.76 (605)	80.13 (996)	77.18 (832)
Major			
No Major	9.90 (77)	7.48 (93)	7.05 (76)
Major	90.10 (701)	92.52 (1150)	92.95 (1002)
Residency			
Non-Resident	39.85 (310)	47.63 (592)	50.09 (540)
Resident	60.15 (468)	52.37 (651)	49.91 (538)
Gender			
Female	70.57 (549)	67.74 (842)	58.91 (635)
Male	29.43 (229)	32.26 (401)	41.09 (443)
Race			
Non-White	17.10 (133)	17.14 (213)	18.18 (196)
White	82.90 (645)	82.86 (1030)	81.82 (882)
Visit			
No Visit	27.89 (217)	28.24 (351)	30.89 (333)
Visit	72.11 (561)	71.76 (892)	69.11 (745)
FAFSA			
No FAFSA	15.17 (118)	16.17 (201)	17.90 (193)
FAFSA	84.83 (660)	83.83 (1042)	82.10 (885)
Academic Self-Concept			
Low	23.39 (182)	15.29 (190)	8.35 (90)
Medium	52.06 (405)	53.26 (662)	41.09 (443)
High	24.55 (191)	31.46 (391)	50.56 (545)

Table 4.4

Frequencies of Students by FAFSA Completion

	FAFSA Completion	
	Completed	Not Completed
Observed Freq.	2587	512
Expected Freq. (prop.)	2510 (.81)	589 (.19)

Note. $\chi^2 = 12.37^*$, df = 1.

*p < .01

Table 4.5

Frequencies of Students by Gender

	Gender	
	Male	Female
Observed Freq.	1073	2026
Expected Freq. (prop.)	1395 (.45)	1704 (.55)

Note. $\chi^2 = 134.80^*$, df = 1.

*p < .01

Table 4.6

Frequencies of Students by Major Declaration

	Major Declaration	
	Declared	Not Declared
Observed Freq.	2853	246
Expected Freq. (prop.)	2913 (.94)	186 (.06)

Note. $\chi^2 = 20.64^*$, df = 1.

*p < .01

Table 4.7

Frequencies of Students by Race/Ethnicity

	Race/Ethnicity	
	White	Non-White
Observed Freq.	2557	542
Expected Freq. (prop.)	2417 (.78)	682 (.22)

Note. $\chi^2 = 36.74^*$, df = 1.

*p < .01

Table 4.8

Frequencies of Students by Residency Status

	Residency Status	
	In-State	Out-of-State
Observed Freq.	1657	1442
Expected Freq. (prop.)	1735(.56)	1364 (.44)

Note. $\chi^2 = 8.06^*$, df = 1.

*p < .01

Table 4.9

Frequencies of Students by Withdrawal Status

	Withdrawal Status	
	Return	Withdraw
Observed Freq.	2792	307
Expected Freq. (prop.)	2696 (.87)	403 (.13)

Note. $\chi^2 = 26.22^*$, df = 1.

*p < .01

Bivariate Analysis

While logistic regression does not require testing for assumptions of linearity, normality or homoscedasticity, it was necessary to examine the variables for multicollinearity. Bivariate correlations among the independent variables were examined. Pearson correlation coefficients ranged from .004 (SSC and FYPERF) to .73 (EFC and FAFSA). There were seven correlations greater than .30. The tolerance of each variable was also examined. None of the variables had a tolerance value less than .40, so all variables were retained in the model. After examining bivariate correlations and tolerance, there was no indication that multicollinearity was a significant issue.

Logistic Regression Analysis: Research Question One

What is the effect of students' self-reported, pre-college academic self-concept and social self-concept on the likelihood of withdrawal, after controlling for selected academic, financial and demographic pre-college attributes and first-year academic performance.

To answer the first research question, the significance of the relationship between self-reported, pre-college, academic self-concept and self-reported pre-college, social self-concept and a student's likelihood of withdrawal was examined. Academic self-concept and social self-concept were added to the base regression model along with the demographic, academic, and financial control variables outlined in chapter three. Significance of the individual predictors, academic self-concept and social self-concept, were tested using the Wald chi-square statistic ($p < .05$) and odds ratios with a 95 percent confidence interval. An overall model evaluation was also considered. The likelihood ratio, score and Wald tests were examined to determine if the logistic model is more effective than the null model ($p < .05$).

The overall model, including academic self-concept and social self-concept, was significant ($p < .0001$), and the Hosmer-Lemeshow (H-L) statistic ($p = .21$) is evidence of overall model fit. Additionally, Somer's D (.60) and the c statistic (.80) are evidence of a strong association between predicted and observed values. However, there was no evidence of a significant relationship between the individual predictors of academic self-concept ($p = .347$) or social self-concept ($p = .661$) and a student's decision to withdraw. Students with low academic self-concept and high academic self-concept were equally as likely to withdraw from the institution (OR 1.07, 95% CI: 0.65, 1.78). Additionally, students with medium academic self-concept and high academic self-concept were

equally as likely to withdraw (OR 1.26, 95% CI: 0.89, 1.81). The same result was true when comparing social self-concept categories. Students with low social self-concept and high social self-concept had the same likelihood of withdrawal (OR 1.19, 95 CI: 0.82, 1.74) and those with medium social self-concept and high social self-concept were equally as likely to withdraw from the institution (OR 1.07, 95% CI: 0.77, 1.50).

Additionally, by examining the change in the -2 log likelihood, the goodness-of-fit of the academic self-concept and social self-concept model was examined in relation to the base model. Based on the change in the -2 log likelihood (3.37) there was no evidence of significance. Therefore, the addition of academic self-concept and social self-concept do not appear to significantly improve the model fit compared to the base model. Table 4.10 shows all variables in the model and related statistics.

Logistic Regression Analysis: Research Question Two

Does the effect of students' self-reported, pre-college academic self-concept moderate the relationship between students' first-year academic performance and student withdrawal?

The second research question was addressed through a second logistic regression model with the addition of an interaction term between first-year academic performance and academic self-concept. The significance of the interaction and a student's likelihood of withdrawal was tested using the Wald chi-square statistic ($p < .05$) and odds ratios with a 95 percent confidence interval. Additionally, goodness-of-fit was examined to determine if the new model, with the interaction, fits the data better than the original

Table 4.10

Comparison of Base Regression Model with Academic Self-Concept (ASC) and Social Self-Concept (SSC) Regression Model

Variable	Base Model				SSC and ASC Model			
	Est.	SE	OR	95% CI	Est.	SE	OR	95% CI
SAT	0.00	0.00	1.00	1.00-1.00	0.00	0.00	1.00	1.00-1.00
High School GPA	0.00	0.00	1.00	1.00-1.00	0.00	0.00	1.00	1.00-1.00
Major (reference: declared)	0.47	0.24	1.61	1.01-2.56	0.47	0.24	1.60	1.01-2.55
First-Year Performance								
FYP: low vs. high	3.79	0.21	44.07	29.46-65.94	3.79	0.21	44.39	29.62-66.54
FYP: mid vs. high	1.08	0.19	2.95	2.03-4.28	1.08	0.19	2.94	2.03-4.27
Gender (reference: male)	0.14	0.15	1.15	0.85-1.55	0.11	0.16	1.12	0.83-1.52
Race (reference: white)	-0.28	0.20	0.75	0.51-1.12	-0.28	0.20	0.76	0.51-1.13
Residency (reference: in-state)	0.58	0.17	1.79	1.29-2.45	0.58	0.17	1.79	1.28-2.49
Campus Visit (reference: visited)	0.13	0.15	1.14	0.84-1.54	0.13	0.15	1.14	0.85-1.55
FAFSA (reference: complete)	0.69	0.29	1.99	1.12-3.53	0.71	0.29	2.03	1.14-3.61
EFC	-0.05	0.04	0.95	0.89-1.02	-0.05	0.04	0.95	0.89-1.02
Academic Self-Concept								
ASC low vs. high					0.07	0.26	1.07	0.65-1.78
ASC med vs. high					0.23	0.18	1.26	0.89-1.81
Social Self-Concept								
SSC low vs. high					0.17	0.19	1.19	0.82-1.74
SSC med vs. high					0.07	0.17	1.07	0.77-1.50
-2LL	1502.74				1499.37			
Δ -2LL					3.37			
Somer's <i>D</i>	0.59				0.60			
C	0.80				0.80			

p < .05

model from research question one. While the overall model was significant ($p < .0001$), the interaction between academic self-concept and first-year academic performance was not significant. Additionally, the change in -2 log likelihood (5.08) did not appear to be significant. Therefore, there was no evidence to support a moderating relationship between self-reported, pre-college academic self-concept and students' first-year academic performance and student withdrawal. All variables in the model and relevant statistics can be found in table 4.11.

Logistic Regression Analysis: Research Question Three

Does the effect of students' self-reported, pre-college social self-concept moderate the relationship between students' first-year academic performance and student withdrawal?

The third research question was addressed through a third logistic regression model with the addition of an interaction term between first-year academic performance and social self-concept. The significance of the interaction and a student's likelihood of withdrawal was tested using the Wald chi-square statistic ($p < .05$). Additionally, goodness-of-fit was examined to determine if the new model, with the interaction, fits the data better than the original model from research question one. While the overall model was significant ($p < .0001$), the interaction between social self-concept and first-year academic performance was not significant. Additionally, the change in -2 log likelihood (4.89) did not appear to be significant. Therefore, there was no evidence to support a moderating relationship between self-reported, pre-college social self-concept and

Table 4.11

Comparison of Base Regression Model with Academic Self-Concept (ASC) and First-Year Academic Performance (FYPerf) Interaction Model

Variable	Base Model				ASC and ASC*FYPerf Model			
	Est.	SE	OR	95% CI	Est.	SE	OR	95% CI
SAT	0.00	0.00	1.00	1.00-1.00	0.00	0.00	1.00	1.00-1.00
High School GPA	0.00	0.00	1.00	1.00-1.00	0.00	0.00	1.00	1.00-1.00
Major (reference: declared)	0.47	0.24	1.61	1.01-2.56	0.46	0.24	1.56	1.00-2.50
First-Year Performance								
FYPGA: low vs. high	3.79	0.21	44.07	29.46-65.94	4.12	0.36		
FYGPA: mid vs. high	1.08	0.19	2.95	2.03-4.28	0.98	0.42		
Gender (reference: male)	0.14	0.15	1.15	0.85-1.55	0.10	0.16	1.12	0.82-1.50
Race (reference: white)	-0.28	0.20	0.75	0.51-1.12	-0.28	0.20	0.76	0.51-1.23
Residency (reference: in-state)	0.58	0.17	1.79	1.29-2.45	0.58	0.17	1.78	1.28-2.48
Campus Visit (reference: visited)	0.13	0.15	1.14	0.84-1.54	0.13	0.15	1.12	0.84-1.54
FAFSA (reference: complete)	0.69	0.29	1.99	1.12-3.53	0.70	0.29	2.01	1.13-3.58
EFC	-0.05	0.04	0.95	0.89-1.02	-0.05	0.04	0.95	0.89-1.02
Academic Self-Concept								
ASC low vs. high					0.04	0.36		
ASC medium vs. high					0.34	0.23		
Social Self-Concept								
SSC low vs. high					0.18	0.19	1.20	0.82-1.75
SSC medium vs. high					0.06	0.17	1.06	0.76-1.49
Academic Self-Concept * FY GPA								
ASC (low) * fygpa (low)					-0.46	0.55		
ASC (low) * fygpa (medium)					0.39	0.56		
ASC (medium) * fygpa (low)					-0.45	0.42		
ASC (medium) * fygpa (medium)					-0.02	0.47		
-2LL	1502.74				1496.7			
Δ -2LL					2			
Somer's <i>D</i>	0.59				6.02			
C	0.80				0.60			
					0.80			

p < .05

students' first-year academic performance and student withdrawal. All variables in the model and relevant statistics can be found in table 4.12.

Additional Findings

Conducting analysis related to the three research questions was the primary focus of this study. However, during the course of the analysis, several other significant findings outside of the scope of the research questions were observed. Ten control variables were included in each regression model. Of these variables, four individual predictors were significant using the Wald chi-square statistic ($p < .05$). After controlling for each of the variables in the base model, first-year academic performance ($p < .0001$), major declaration ($p = .046$), student residency ($p < .001$), and completion of the FAFSA ($p = .019$) were the only significant predictors of student withdrawal.

Out-of-state students (OR 1.79, 95% CI 1.29,2.45), students who have not declared a major at the start of their first year (OR 1.61, 95% CI 1.01-2.56), and students who have not completed the FAFSA (OR 1.99, 95% CI 1.12-3.53) all have increased odds of withdrawing prior to their second year, even after controlling for first-year academic performance. The odds of withdrawal for students who have not declared a major prior to beginning their first year are 61 percent higher than the odds for those who declared a major. Additionally, the odds of withdrawal for non-residents are 79 percent higher than the odds for in-state students. Lastly, the odds of withdrawal for those who did not complete the FAFSA are 99 percent higher than the odds for those students who did complete the FAFSA.

Table 4.12

Comparison of Base Regression Model with Social Self-Concept (SSC) and First-Year Academic Performance (FYPerf) Interaction Model

Variable	Base Model				ASC and ASC*FYPerf Model			
	Est.	SE	OR	95% CI	Est.	SE	OR	95% CI
SAT	0.00	0.00	1.00	1.00-1.00	0.00	0.00	1.00	1.00-1.00
High School GPA	0.00	0.00	1.00	1.00-1.00	0.00	0.00	1.00	1.00-1.00
Major (reference: declared)	0.47	0.24	1.61	1.01-2.56	0.46	0.24	1.56	1.00-2.50
First-Year Performance								
FYPGA: low vs. high	3.79	0.21	44.07	29.46-65.94	4.12	0.36		
FYGPA: mid vs. high	1.08	0.19	2.95	2.03-4.28	0.98	0.42		
Gender (reference: male)	0.14	0.15	1.15	0.85-1.55	0.10	0.16	1.12	0.82-1.50
Race (reference: white)	-0.28	0.20	0.75	0.51-1.12	-0.28	0.20	0.76	0.51-1.23
Residency (reference: in-state)	0.58	0.17	1.79	1.29-2.45	0.58	0.17	1.78	1.28-2.48
Campus Visit (reference: visited)	0.13	0.15	1.14	0.84-1.54	0.13	0.15	1.12	0.84-1.54
FAFSA (reference: complete)	0.69	0.29	1.99	1.12-3.53	0.70	0.29	2.01	1.13-3.58
EFC	-0.05	0.04	0.95	0.89-1.02	-0.05	0.04	0.95	0.89-1.02
Academic Self-Concept								
ASC low vs. high					0.07	0.26	1.07	0.65-1.78
ASC medium vs. high					0.23	0.18	1.26	0.88-1.80
Social Self-Concept								
SSC low vs. high					0.29	0.25		
SSC medium vs. high					-0.07	0.23		
Social Self-Concept * FY GPA								
SSC (low) * fygpa (low)					-0.17	0.45		
SSC (low) * fygpa (medium)					-0.39	0.45		
SSC (medium) * fygpa (low)					0.56	0.44		
SSC (medium) * fygpa (medium)					0.10	0.40		
					1495.7			
-2LL	1502.74				8			
Δ -2LL					6.96			
Somer's <i>D</i>	0.59				0.60			
C	0.80				0.80			

p < .05

Summary

After running a series of logistic regression models, it was determined that pre-college, self-reported academic self-concept and pre-college, self-reported social self-concept were not statistically significant predictors of first-year student withdrawal. Additionally, the interactions between academic self-concept and first-year academic performance and between social self-concept and first-year academic performance were not significant. However, several findings outside of the scope of the research questions were significant. The four individual predictor variables that were statistically significant included first-year academic performance, major declaration, student residency, and completion of the FAFSA. In the next chapter, implications of the findings, a discussion of the results and suggestions for future research are presented.

CHAPTER FIVE: DISCUSSION

The results from the study revealed that there is not a statistically significant relationship between academic self-concept and student withdrawal or between social self-concept and student withdrawal. Additionally, neither self-concept variable moderates the relationship between students' first-year academic performance and student withdrawal.

However, there were several significant findings outside the scope of the research questions. While the addition of self-concept variables did not strengthen the model, the base model with the ten control variables was statistically significant in predicting student withdrawal. Of the ten control variables used in this study, four were statistically significant predictors of student withdrawal, after controlling for the other variables in the model. As expected, first-year academic performance was a significant predictor of student withdrawal. Additionally, major declaration, student residency, and completion of the FAFSA were the only other significant predictors of student withdrawal. After controlling for the other variables in the model, neither high school GPA nor standardized test score showed evidence of being a statistically significant predictor of student withdrawal. Since neither self-concept variable moderated the relationship between students' first-year academic performance and withdrawal, there is no evidence that self-concept impacts students who withdraw voluntarily differently than students who withdraw due to substandard academic performance.

Key Findings

Research Question One

What is the effect of students' self-reported, pre-college academic self-concept and social self-concept on the likelihood of withdrawal, after controlling for selected academic, financial and demographic pre-college attributes and first-year academic performance.

The absence of a statistically significant relationship between either academic self-concept or social self-concept and student withdrawal suggests that self-concept does not directly influence student persistence at the University of South Carolina. Therefore, it may not be a relevant pre-entry characteristic in Tinto's Student Integration Model. These results are surprising, particularly regarding academic self-concept, given previous research that suggests a predictive relationship between self-concept and student persistence (Robbins et al., 2004; Torres & Solberg, 2001; Vuong, Brown-Welty & Tracz, 2010). As noted in chapter two, a meta-analysis conducted by Robbins et al (2004), found that academic self-confidence was a strong predictor of both retention and academic performance. However, previous research also found that the strength of the association between students' self-concept and persistence is weaker than between self-concept and college performance (Lokowski, Robbins & Noeth, 2004; Vuong, Brown-Welty, & Tracz, 2010).

While academic self-concept has been shown to have a predictive relationship with academic performance and persistence, social self-concept has not previously been directly linked to student persistence. In fact, the results of this study support Vuong, Brown-Welty, & Tracz, 's (2010) finding that social self-efficacy did not predict any

measure of academic success. In this study, social self-concept did not predict whether or not a student may withdraw from the institution. Social self-concept was selected as a variable for this study because previous research found a relationship between social support and social involvement and academic performance and persistence (Robbins et al., 2004). Additionally, overall self-efficacy has been found to impact persistence (Lent, 1991). The researcher suspected students' social self-concept may impact social involvement and social support and therefore, influence persistence. Also, since Tinto's Student Integration Model focuses on both the academic and social domains of an institution, it was presumed that academic and social self-concept may impact persistence differently.

Since this study contradicted past research, particularly in the area of academic self-concept, the researcher ran an additional model without any control variables to determine if there was any relationship between academic self-concept and student withdrawal or social self-concept and student withdrawal. The results of that model revealed a statistically significant relationship between academic self-concept and student withdrawal. This indicates there is some relationship between academic self-concept and persistence, although not as strong of a relationship as originally suspected. Suggestions for future research to further explore this relationship are discussed later in this chapter.

Research Question Two

Does the effect of students' self-reported, pre-college academic self-concept moderate the relationship between students' first-year academic performance and student withdrawal?

The second logistic regression model revealed that there is not a significant interaction between students' self-reported, pre-college academic self-concept and first-year academic performance when predicting student withdrawal. Given that previous self-concept research suggests a predictive relationship between academic self-concept and academic performance (Brady-Amoon & Fuertes, 2011; Chemers, Hu, Garcia, 2001; Choi, 2005; Elias & Loomis, 2000), it was presumed that academic self-concept would moderate the relationship between first-year academic performance and student withdrawal. The researcher suspected that those students with higher academic self-concept would also have a significantly higher level of first-year academic performance, and therefore, be more likely to persist. Additionally, it was hypothesized that students with low or medium first-year academic performance may be more likely to persist if they had high academic self-concept prior to enrolling in college.

Descriptive statistics revealed that students who had low academic self-concept were more likely to have low first-year academic performance and students with high academic self-concept were more likely to have high first-year academic performance. Descriptive statistics also showed that students who had medium first-year academic performance were more likely to return to the institution if they had high academic self-concept. The descriptive statistics indicate that there may be a relationship between academic self-concept and academic performance; however, there was not a statistically significant interaction between academic self-concept and first-year academic performance, when examining the relationship with student persistence.

Research Question Three

Does the effect of students' self-reported, pre-college social self-concept moderate the relationship between students' first-year academic performance and student withdrawal?

The third logistic regression model revealed that there is not a significant interaction between students' self-reported, pre-college social self-concept and first-year academic performance when predicting student withdrawal. In this study, 10 percent (307) of students did not return to the institution for their second year. More than half withdrew from the institution voluntarily as they were in good academic standing. Thirty-eight percent (116) had between a 3.0 and 4.0 first year grade point average, so they were in the high first-year academic performance category. Another 19 percent had between a 2.0 and 2.9 first year grade point average, so they were in the medium academic performance category. This research question was intended to determine if social self-concept had any influence in predicting which students in good academic standing would leave the institution. Since predictive models rarely differentiate between students who withdraw voluntarily, the researcher hoped to be able to identify a factor that contributes to a student's decision to withdraw even when s/he is in good academic standing. However, the findings revealed that social self-concept does not impact students who are in good academic standing any differently than it impacts those in poor academic standing, in terms of their decision to withdraw.

While previous research has not directly linked social self-concept to student withdrawal, it was presumed that students with higher levels of social self-concept would be more integrated into the institution, and therefore, more likely to persist. Previous

research shows that students who are more involved socially are more likely to return to that institution (Robbins et al., 2004). In addition to the lack of a significant interaction between social self-concept and first-year academic performance when predicting student withdrawal, the descriptive statistics revealed little variation in the percentage of students who were in each social self-concept and first-year performance category. The one slight difference worth noting is that students with medium self-concept were the most likely to have high academic performance and the least likely to have low academic performance. This suggests that high levels of social self-concept may negatively impact first-year academic performance. While the majority of research suggests that social involvement is a positive indicator of academic performance and persistence, there are some studies that have found too much social involvement can negatively impact academic performance and persistence (Baker, 2008; Huang & Chang, 2004). Suggestions for exploring this in the future are discussed later in this chapter.

Additional Findings

Several significant findings outside the scope of the research questions offer noteworthy insights. The results of the chi-square test for goodness-of-fit as it relates to the student withdrawal variable will be explored as an additional finding. Additionally, of the ten control variables included in the model, four were significant predictors of student withdrawal. Each of these control variables along with previous research as it relates to their impact on persistence will be discussed. While the researcher suspects that these variables may impact students who withdraw voluntarily differently from those who withdraw due to substandard academic performance, this model only examined the

relationship between the variables and persistence and did not explore moderating relationships. This topic will be addressed in suggestions for future research.

Major Declaration

Students who declared a major prior to enrollment returned to the institution at a significantly higher rate than those students who enrolled as undeclared. This finding is notable given that previous research on the impact of major declaration on persistence is divided. Some studies support this finding and have shown that students who are undecided about what academic major they want to pursue are less likely to persist and graduate. These studies found that undeclared students are not as committed to a specific major or educational goal and are less likely to be retained (Galotti, 1999; Levitz & Noel, 1989; Legutko, 2007). If this is in fact true, this finding supports Tinto's inclusion of the importance of students' goals and commitments in their decision to remain enrolled at a particular institution.

However, some research also supports the view that it is better for students to enter college undeclared since traditional aged students may not be at the point developmentally where they can make an informed decision about their major (Gordon, 2007; Perry, 1999). In fact, one study found that students who start college undeclared are 15 percent more likely to graduate than those students who declare a major prior to enrollment (Micceri, 2005). Additionally, on average 75 percent of students change their original major at least once (Gordon, 2007; Kramer, Higley & Olsen, 1994).

Tinto (1993) noted that entering college undeclared may be positive for students, if they have the support and guidance to work through the process of becoming committed to an academic major. This may be one reason why studies on the impact of

major declaration on persistence present mixed results, and why it is important to study predictive relationships at the institutional level. The impact of a student's decision to enroll as undeclared may be institution-specific depending on the resources and support provided to students who have not decided on a major. If an institution has adequate support and counseling for undeclared students, it may positively impact their commitment to their degree and the institution. Beggs, Bantham & Taylor (2008) found that students who have a period of time to explore careers and majors, may make a more informed decision when they do decide. On the other hand, undeclared students who are not provided with the opportunities for such exploration may be at more risk to withdraw.

Residency Status

Another control variable that significantly predicted withdrawal was student residency status. Students who were from a state other than that of the institution were more likely to withdraw prior to their second year. While this variable has not been as widely researched as major selection, previous researchers have explored residency status as a predictor in retention and their findings support the results from this study (Murtaugh, Burns & Schuster, 1999; Wohlgmuth, Whalen, Sullival, Nading, Shelley & Wang, 1999; Yu, DiGangi, Jannasch-Pennell, & Kaprolet, 2010). Research suggests that students who are non-residents may have a more difficult time becoming integrated into the social and cultural environment of an institution and therefore, at risk for withdrawal (Murtaugh, Burns & Schuster). These students may also have more of a financial burden than in-state students as they are often paying higher tuition costs and must spend more money on traveling to and from campus (Wohlgmuth et al).

While this study only categorized students as residents and non-residents, other studies have researched students' distance from campus. Interestingly, Yu et al (2010) found that non-resident students were more at risk for withdrawal than resident students; however, of the non-resident students, those who were furthest from campus were least likely to withdraw from the institution. This may suggest that students who are traveling further for college have made more of a commitment to the institution. These students are also less likely to go home frequently which may help as they become integrated socially and academically.

FAFSA Completion

The results from this study found that students who did not complete a FAFSA were significantly more likely to withdraw than students who did complete a FAFSA. This finding is notable because it has not received as much attention in the literature as the use of income or expected family contribution as a predictor of withdrawal. In this study, expected family contribution was not a significant predictor of withdrawal. There has been some research into the characteristics of the students and their reasoning behind not completing the FAFSA (Kantrowitz, 2011; King, 2006). The characteristics of students who do not complete the FAFSA vary widely. King (2006) found that more than 60 percent of the students who do not complete the FAFSA are from the two highest income quintiles. This leaves the remaining 40 percent of students from low to moderate income levels. Many of the students who do not complete the FAFSA, particularly those at the moderate and lower income levels would qualify for financial aid; however, many of them assume they are not eligible for aid or they are not sure how to apply. Kantrowitz (2011) noted that regardless of income level, students "almost all (95.3%) gave at least

one of five reasons for not applying: thought ineligible (60.7%), no financial need (50.6%), did not want to take on the debt (40.2%), no information on how to apply (22.9%) and forms were too much work (18.9%)” (p.1).

In this study, approximately 17 percent of the students did not complete the FAFSA. Because their income data from the FAFSA is not available, it is impossible to know whether or not these students fall into high, moderate or low income bands. However, research has revealed that students who are from higher income backgrounds have more resources and access to school counselors and financial aid staff who are able to help them complete the FAFSA (Perna, 2008; Tierney & Venegas, 2006). Therefore, the researcher suspects that many of the students who did not complete the FAFSA are from moderate to low income backgrounds. A previous study supports this suspicion as the researchers found that filing a FAFSA is associated with higher levels of persistence among low income students (Novak & McKinnney, 2011). Regardless of their income band, it is presumed that finances played in a role in these students’ decision to withdraw from the institution.

First-year academic performance

As expected, the most significant predictor of student withdrawal was first-year academic performance. This result was not surprising as students who fall below a 2.0 are placed on academic probation or suspension and may be forced to withdraw from the institution. Previous research has consistently found first-year academic performance to be a significant predictor of persistence. However, given that more than half of the students from this study who withdrew were in good academic standing, the primary

purpose of this study was to identify variables other than first-year performance which may impact student persistence.

High school grade point average and standardized test scores

In this study, neither high school GPA nor standardized test scores were significant predictors of student withdrawal. This finding contradicts what previous literature has revealed about the significance of high school GPA and standardized tests in persistence (Astin, Korn & Green, 1987; Levitz, Noel & Richter, 1999). The researcher suspects these variables were not significant because of the selectivity required for first-year students to be admitted. All students must meet selective admission requirements and therefore, a minimum high school GPA and standardized test score to be accepted. For this reason, all students are relatively high academic achievers which may eliminate the impact these variables have on predicting retention. It is suspected that high school GPA and standardized test scores would be significant variables in predicting first-year academic performance. This will also be addressed as a limitation of the study.

CIRP Responders vs. CIRP Non-Responders

In order to compare the sample used in this study (CIRP responders) with the general university population, a chi-square test for goodness-of-fit was performed using the variable withdrawal status. The results revealed that students who persisted at the institution were disproportionately over-represented in the sample and students who withdrew were under-represented in the sample. While this is certainly a limitation of self-selection, it also reveals that there is a relationship between those who chose to complete the CIRP and student persistence. The students who take the time to complete

the CIRP may be more motivated and committed to the institution than students who chose not to complete the assessment.

Implications for Practice

In this study, three binary logistic regression models were run to determine whether or not academic self-concept or social self-concept were statistically significant predictors of student withdrawal. While the results from this study revealed that neither self-concept variable was a statistically significant predictor of student withdrawal at the institution in this study, there is still valuable practical information and policy implications that can be gained from this study.

As noted in chapter one, recent state and federal discussions surrounding higher education have brought retention and graduation rates to the forefront of policy discussions. Federal and state legislatures have discussed the need for accountability-based funding with primary measures of success being retention and graduation rates. Additionally, college and university administrators have long understood the societal, institutional, and individual benefits of earning a college degree and have strived to improve retention and graduation rates at their own institutions. In fact, this study was conducted at the University of South Carolina during a time when the University administration had a set a goal of increasing the first-to-second year retention rate from 86.8 percent in 2010 to 90 percent by 2015. Gains in retention rates are difficult to achieve which is why data-driven models and strategies must be used to identify reasons why students are withdrawing, even when they are in good academic standing.

In 2012, the College Board's Advocacy and Policy Center recommended that institutions implement "data-based strategies to identify retention and dropout challenges" (Hughes, 2012, p. 3). While the model developed in this study uses data from the University of South Carolina, this study also provides colleges and university administrators with a statistical model that can be used to help identify retention challenges at their individual institutions.

It is recommended that practitioners run a similar model, with the exception of first-year academic performance, at the beginning of each semester. This allows them to identify students who have a high probability of withdrawing in hopes of developing early intervention strategies. Logistic regression models are not able to perfectly predict which students are going to withdraw from an institution. However, they are useful in that they are able to predict the probability of an event occurring. In this study, the model was able to significantly predict the probability of a student withdrawing from the institution. Neither self-concept variable strengthened the base model, which only included ten control variables; however, the base model and several of the control variables were statistically significant suggesting that they should remain in future models.

With limited resources, it is difficult to reach out to every student, particularly at large, public institutions. At the University of South Carolina, practitioners can identify first-year students who are undeclared, those who are from out-of-state, and those who have not completed the FAFSA and design early intervention programs designed specifically for these students' needs. Early intervention is often focused on students who are at-risk of doing poorly academically. This allows staff to focus on other non-

academic areas that may put students at-risk of leaving the institution, even if they are performing well academically.

Practitioners can mirror the statistical techniques used in this study with institutional variables that they feel may impact retention at their institution. It is recommended that practitioners focus on institutional data since “national data are often difficult to relate to each individual campus and its unique needs” (Barefoot, 2004). As stated previously, some variables may show significance on one campus, but not another depending on the individual resources and challenges at that school. For this reason, it is recommended that practitioners not eliminate the self-concept variables used in this study, if they have access to their own CIRP data. In fact, the researcher recommends that practitioners use additional CIRP constructs in developing their models to see if other constructs produce statistically significant results.

Although practitioners should continue to use CIRP constructs in the development of predictive models, it is necessary for institutions to find ways to increase the response rate. At the University of South Carolina, only 25 percent of the freshman class completes the CIRP which led to sampling and self-selection bias. Much of the low response rate is due to the fact that it is an online instrument students complete outside of the classroom in the summer prior to enrollment. The researcher recommends that the CIRP be administered as part of a freshman course in the first few weeks of the semester. This will allow researchers and practitioners to utilize a more representative sample.

Even though academic self-concept was not statistically significant in the regression model with the ten control variables, when run with just academic self-concept and social self-concept it did show statistical significance. This may have some practical

implications as institutional administrators implement programs and initiatives to help students succeed academically. Academic self-concept can be measured using the CIRP constructs that were used in this study, or by using one of the other academic self-efficacy inventories available. Identifying students with low academic self-concept early in their college career may allow practitioners to intervene with resources and tools to help those students before they are in danger of substandard first-year academic performance or withdrawal.

Limitations

This study was limited to the University of South Carolina, a selective, public four-year university in the southeast. The first-year students in this study are considered traditional college students who start their freshman year immediately after they graduate from high school. While each student has different pre-college academic preparation, all students must meet selective admissions standards to be admitted to the institution, which contributed to a restriction of the mean for both standardized test scores and high school GPA. Therefore, this predictive model can only determine the predictive value of selected pre-college attributes for students at this institution.

A major limitation of this study is that it only examines data from students who completed the CIRP Freshman survey. The chi-square test of goodness-of-fit revealed that the sample had a disproportionately higher number of students who completed the FAFSA, female students, students with non-declared majors, students who self-identify as white, and out-of-state students than the general university population. Additionally, those students who completed the CIRP returned at a significantly higher rate than the

general student population. This self-selection and sampling bias is a methodological limitation that must be considered when analyzing the results. In addition to self-selection, students' academic self-concept and social self-concept scores are a result of the answers students self-report on the CIRP Freshman Survey. Self-reported scores are another methodological limitation due to possibilities of inadvertent or purposeful reporting errors.

Additionally, this study focuses on student departure from an institutional perspective, which means all students who depart are viewed as a loss to the institution, even if the student goes elsewhere to complete a degree. This study is limited to first-to-second year retention, with the assumption that the majority of student attrition occurs between the first and second years which is the case nationally (Bradburn, 2002).

Another important limitation of this study is that fact that the data is from only one institution. This limits the generalizability of the findings to a single institution. The model will need to be tested and analyzed in order to ascertain applicability at other institutions.

Recommendations for Future Research

College student retention is one of the most widely researched topics in higher education. Even with all of the research, there are still numerous unanswered questions. This study explored the relationship between academic and social self-concept and college student withdrawal, but there is much more that can be researched on this topic. Based on the results of this study, the researcher of this study has identified several areas of future research that should be explored.

Qualitative exploration

Future researchers should continue to explore psychosocial factors that may impact persistence, particularly among students in good academic standing. Early researchers cited the need to focus on voluntary withdrawal (Pascarella & Terenzini, 1983; Tinto, 1993), but recent research has focused much more on students who are in danger of substandard academic performance. Understanding the reasons why students withdraw, when they are successful academically, can help practitioners intervene earlier. Predictive modeling is a good starting point to identify variables that may impact students' withdrawal decisions, but these are complex decisions and many students have complex reasons for departure. For this reason, it is recommended that future researchers explore voluntary student withdrawal using qualitative methodology. It is suggested that future researchers identify students who have withdrawn from their institution voluntarily and conduct interviews focused on their departure decisions. This would allow researchers to hear individual student stories and identify reasons for withdrawal that may not be captured through quantitative analysis.

Self-concept, self-confidence, and self-efficacy

This study did not find academic self-concept or social self-concept to be significant predictors of student withdrawal, after controlling for ten other variables. However, researchers should continue to explore student self-concept, self-confidence, and self-efficacy as they relate to student persistence. Previous research and a secondary model run during the course of this study, do suggest a relationship between academic self-concept, academic performance, and student persistence. That relationship should be explored further as it may help practitioners identify students who are at-risk

academically or of withdrawal. In addition to exploring academic self-concept, it is important to continue to research social self-concept to determine if high social self-concept may impact students negatively. Additionally, due to timing constraints, the researcher was not able to use the College Self-Efficacy Inventory for this study, but recommends future researchers further explore that instrument as a way to measure students' self-efficacy in the college setting.

Voluntary Student Withdrawal

One of the primary focuses of this study was students who withdraw when they are still in good academic standing with the institution. Neither self-concept variable had a moderating effect on the relationship between first-year academic performance and withdrawal. It is necessary to continue to examine other variables that may impact students who are at risk for withdrawal and in good academic standing. Each of the significant variables in this study should be explored along with additional psychosocial factors. Understanding the reasons why students leave an institution when they are doing well academically is one of the missing pieces of retention research that needs to continue to be examined.

Additional psychosocial variables

In addition to self-concept, self-confidence, and self-efficacy, it is recommended that future researchers continue to identify and explore psychosocial variables and their relationship to voluntary student withdrawal. Variables that have been studied, but need more in-depth analysis include academic goals, motivation, perceived social support, and institutional commitment (Friedman & Mandel, 2011; Kahn & Nauta, 2001; Klomegah, 2007; Robbins et al., 2004). As mentioned previously, it is also recommended that

researchers explore additional CIRP constructs to determine if any of those are significant predictors of student withdrawal.

Examining variable combinations

This study specifically looked at single variables and their relationship with student withdrawal. It is recommended that future researchers explore combinations of variables to determine the impact of having more than one risk factor and a student's likelihood of withdrawal. It is hypothesized that students who have multiple variables that put them at risk for withdrawal would be increasingly at risk; however, this hypothesis must be researched further.

Institutional studies

As noted previously, there is value in having institutions conduct research similar to this study with variables that are available to them and most relevant to their institutional culture. It is recommended that variables that have repeatedly shown significance in predicting student withdrawal, such as the control variables included in this study, be included in institutional models. Administrators should also explore other variables that may impact persistence. By conducting institutional level research, practitioners can determine the retention challenges that are specific to their students. One of the challenges with institutional models is that oftentimes they are not published or shared with the public; therefore, the knowledge gained from new findings is not always known. It is important for researchers to share their findings, even at the institutional level, as it will help build upon the existing literature base.

National studies

While institutional studies have value and can help practitioners determine what may impact persistence at their individual institutions, it is also important for researchers to conduct large-scale national studies. Oftentimes, gathering large institutional datasets can be challenging due to proprietary information and different reporting methods. Therefore, there are not many national studies using predictive modelling techniques to determine additional variables that may impact persistence. In an effort to aid in large-scale national research studies, it would be beneficial for standard reporting agencies such as IPEDS and the Department of Education to expand the variables they collect. Currently, the data centers around academic indicators such as standardized test scores and high school grade point average, along with financial indicators. However, having national data on major declaration, student residency status, and psychosocial constructs would allow researchers to expand their scope.

Summary and Conclusion

The purpose of this study was to explore students' self-reported, pre-college academic self-concept and students' self-reported, pre-college social self-concept and the likelihood of student withdrawal. Three binary logistic regression models were run to determine whether academic self-concept and social self-concept were significant predictors of student withdrawal and/or whether or not the self-concept variables moderated the relationship between students' first-year academic performance and student withdrawal. Additional academic, financial, and demographic pre-college attributes were selected as control variables and included in each logistic regression

model. The variables selected for this study reflect each of the three categories (family background, individual attributes, and pre-college schooling) of pre-entry characteristics in Tinto's Student Integration Model, the theoretical framework for this study. As researchers have cited the need to include a psychological component to Tinto's model (Berger & Lyon, 2005; Braxton, 2000; Pascarella & Terenzini, 1991; Robbins & Noeth, 2004), this research sought to advance the literature by determining whether academic self-concept and social self-concept were variables to include as additional pre-college characteristics in the Student Integration Model. While neither self-concept was significant, the overall model did significantly predict student withdrawal and four control variables were statistically significant.

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