The influence of the college environment and student involvement on first-year academic self-concept

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A Dissertation

entitled

The Influence of the College Environment and Student Involvement on
First-Year Academic Self-Concept

by

Brent Stocksdale

University of Toledo

Submitted to the Graduate Faculty as partial fulfillment of the
requirements for the Doctor of Philosophy Degree in Higher Education

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Enhancing the self-beliefs of college students—in particular, academic self-concept—has been suggested as one way to enhance college student success. However, the literature on the influence of college often does not clearly identify nor effectively assess the type of self-belief being investigated, and little remains known as to how and when college specifically influences student self-beliefs during different periods of the undergraduate experience. This study used an original survey to investigate what college environmental factors and what types of student involvements, if any, influence academic self-concept during the first-year of college. The survey was developed using Alexander Astin’s theory of student involvement and Input-Environment-Outcome conceptual model as a guideline. The survey also included a pretest of academic self-concept using questions adapted from the Academic Self-Concept Scale. Six significant predictors of academic self-concept were identified, lending both theory and practice recommendations for higher education institutions that seek to improve academic self-concept among first-year students and, by extension, student retention rates.
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Chapter 1

Introduction

Higher education in America is receiving intense scrutiny about the quality of student learning (Arum & Roksa, 2011) and the value of a degree (Peralta, 2011). Graduation rates of 60% or less (American Institutes for Research, 2010) have also proven to be a concern. To alleviate this scrutiny, colleges and universities will need to enhance the quality of undergraduate education. To accomplish this task, institutions will need to improve both the academic factors and what Lotkowski, Robbins, & Noeth (2004) termed the non-academic factors associated with student success.

One area within the non-academic arena that has the potential for improving student success is the enhancement of what can generally be referred to as self-beliefs (Lotkowski et al., 2004). Simply defined, self-beliefs are the beliefs individuals hold about things they can do well (MacMillan, n.d.). While the topics of the self and self-beliefs have been studied since the time of the ancient Greeks, present challenges to simple definitions for many scholarly fields still remain. The field of education is no different. It has long been thought that there is a connection between self-beliefs and academic success. Pajares and Miller (2002), in writing about the history of self-beliefs and their impact on academic success, note that some of the earliest texts in psychology devoted much space to the self and consciousness. The link between self-beliefs and academic achievement received little attention in the past and, as a result, not much was known about the impact of self-beliefs on academic achievement. Recent investigations, however, have shed more light on this subject.
Self-beliefs have been found to be positively associated with academic success in general (Valentine, DuBois, & Cooper, 2004) and with specific, important outcomes in college, including GPA (Choi, 2005; Reynolds, 1988), retention (Lotkowski et al., 2004), self-regulation (Ommundsen, Haugen, & Lund, 2005), and choice of learning strategy (Rodriquez, 2009). Despite the positive relationship between self-beliefs and academic achievement, how specific elements within the college environment influence those beliefs is poorly understood. This may be a result of the numerous terms, constructs, and measurement instruments that appear within the self-belief literature. Terms such as *self-esteem*, *self-worth*, *self-confidence*, *self-concept*, and *self-efficacy* dot the self-belief landscape, with terms such as *self-concept* and *self-efficacy* being used interchangeably by some researchers (Pajares & Schunk, 2001).

Despite the apparent confusion within the self-belief literature, two specific constructs—*self-efficacy* and *self-concept*—have become “especially dominant” within this field (Pajares & Schunk, 2001, p. 239). Self-efficacy and self-concept share a multifaceted, hierarchical structure (Bong & Clark, 1999) and specific aspects of each construct—academic self-efficacy and academic self-concept—have been found to be positively associated with academic achievement (Ferla, Valcke, & Cai, 2009). Although academic self-efficacy and academic self-concept “represent conceptually and empirically different constructs” (Ferla et al., 2009, p. 509), the similar relationship each has on academic outcomes makes it difficult to decide which is more appropriate in a given situation.

Several subtle differences between academic self-efficacy and academic self-concept are noted in the literature, but one critical element to emerge that greatly affects
whether to use academic self-efficacy or academic self-concept in a study is the context of the outcome under consideration. Academic self-efficacy tends to be an effective predictor of academic outcomes when the nature of a particular task is narrow in scope, such as solving a math problem (Pajares & Miller, 1994). Academic self-concept, however, is a better predictor when “the criterion is a relatively global indicator of performance,” such as overall GPA (Lent, Brown, & Gore, 1997, p. 313).

The focus of this study was to investigate the influence of the first year of college on a self-belief related to academic success. Research has shown that the first year of college—indeed, the first few weeks of college—is a crucial time for students and can influence a student’s decision to stay or leave college (Tinto, 1987, 1994). If the assertion that student success can be enhanced by enhancing student self-beliefs then it is important to understand how the first-year of college influences student self-belief.

Academic success, for this study, is broadly defined. That is, it does specify success in a specific major, such as engineering, or political science. It was thus necessary for this study to use a self-belief that has been shown to be an effective predictor of student success broadly defined. Since academic self-efficacy tends to be related to specific outcomes, the decision was made to use academic self-concept as the academic self-belief for this study. The decision to use academic self-concept in this study instead of academic self-efficacy is further justified given that first-year students are not going to be enrolled in classes that cover only one subject. Instead first-year students will be enrolled classes that cover a vast array of subjects. It is also worth noting that the college environment can be vastly different from one campus to another. Additionally, the types of potential student involvements for first-year students could also be vastly different
from one student to the next. Some students may be involved in athletics, while others would be involved in Greek life. First-year students would also differ, sometimes greatly, both in type and frequency, of specific academic involvements. Some students may seek out professors more than others, some may prefer to study alone, while others enjoy studying in a group. When all of these factors were viewed as a whole it became clear that the first-year of college was anything but uniform in nature. Given this condition was imperative to choose an academic self-belief that predicted academic sense in a broad manner. Therefore, academic self-concept was chosen to be the specific self-belief for this study.

**Problem Statement**

While academic self-concept has been found to be positively related to academic achievement in college (Kornilova, Kornilov, & Chumakova, 2009), little is known about how college influences this construct. This research addressed this deficit by investigating what types of college and student involvement variables influence academic self-concept.

**Purpose**

The purpose of this study was to investigate the influence, if any, of the college environment and student involvement on academic self-concept during the first year of college for first-time freshman students.

**Research Questions**

Astin’s (1977, 1993) findings highlight the importance of student involvement in college student development. Even when controlling for a variety of input characteristics, student involvement positively impacts many student outcomes. What
has not been investigated is the impact of student involvement on academic self-confidence, especially during the first semester when students are making crucial adjustments to college. The research questions developed for this study reflect the need to understand what types of college environments and student involvements influence academic self-concept and include:

1. What input characteristics, if any, influence academic self-concept during the first year of college?
2. What, if any, between-college characteristics influence academic self-concept during the first year of college?
3. What, if any, peer-to-peer interactions influence academic self-concept during the first year of college?
4. What, if any, faculty-to-student interactions influence academic self-concept during the first year of college?
5. What types of academic involvements, if any, influence academic self-concept during the first year of college?
6. What types of non-academic involvements, if any, influence academic self-concept during the first year of college?
7. What types of intermediate educational outcomes, if any, influence academic self-concept during the first year of college?

**Theoretical Framework**

The theoretical framework for this study was Alexander Astin’s theory of student involvement. The foundation for this theory was derived from Astin’s findings as reported in *Four Critical Years* (1977) and was further supported in his follow-up book,
What Matters in College (1993). Astin (1984) described student involvement as “the amount of physical and psychological energy that the student devotes to the academic experience” (p. 518). The theory predicts that students who are more involved in college activities, in both the academic and social spheres, have better outcomes than students who are not as involved.

The findings reported in both Four Critical Years (1977) and What Matters in College (1993) reveal how a vast array of college involvement variables, including academic and non-academic involvement, can impact numerous college student outcomes. Some involvement-outcome relationships are self-evident. For example, Astin (1993) found that the development of foreign language skills is positively affected by a student’s involvement in foreign language courses and study abroad programs (pp. 238-239). Other types of involvement-outcome relationships are not as evident, according to Astin’s findings (1993), such as the positive impact student attendance in religious services has on foreign language development.

From Astin’s theory of student involvement, we should expect that students who are more involved with their college experience realize greater gains in academic self-concept than students only marginally involved in the college experience. The important question is what particular types of student involvements, if any, improve academic self-concept the most?

**Conceptual Framework**

Astin’s Inputs-Environment-Outcomes (I-E-O) model (1993) provided the conceptual framework for this study. This model is crucial in determining the impact that the college environment has on academic self-concept. As Astin (1993) noted, “change
or growth in the student during college is determined by comparing outcome characteristics with input characteristics” (p. 37). Thus, input characteristics provide a starting point from where college impacts can be measured. Without such a starting point, it is impossible to determine what impact college has on students. If only outcome characteristics are measured, there is no way to determine what growth occurred at college compared to what growth occurred before college. As Astin (1993) explains

The Graduate Record Examination (GRE) is, by itself, of little value in telling us how that student has been affected by the undergraduate experience [but the] GRE score takes on much greater significance when we can compare it to the student’s performance on a similar measure, such as the SAT [Scholastic Aptitude Test] taken four years earlier. (p. 13)

Using this model with a blocked form of stepwise regression allowed input characteristics to be controlled, so that any impact of college environmental factors and student involvements on academic self-concept, above and beyond input characteristics, could be determined. Figure 1 illustrates the I-E-O framework and how input characteristics can have both direct and indirect impacts on learning outcomes.

Figure 1. I-E-O Framework. Input characteristics affects how students interact with the college environment as well as having direct effects on outcomes after four years of college.
Limitations

There were several limitations to this study, including the sample, the institution, the time span of the study, and the lack of generalizability of the results.

The sample in this study included only first-time freshmen from a relatively narrow range of four-year colleges and universities. Thus, the sample is not a representative sample of all of the students who attend college throughout the United States. Additionally, the colleges and universities in this study were not selected randomly. This may hinder any definitive conclusions as to how a particular type of college (i.e., a four-year liberal arts college) influences academic self-concept during the first semester.

Finally, the study was conducted during only one academic year. As such, the possibility exists that in other years, circumstances at the institutions used in the study could be different, even if all programs and interventions remained the same. The variables that can change from year-to-year could be subtle, yet extensive, and could include new college personnel or personnel that received additional training. Other changes that could possibly influence academic self-concept include the weather, the success of sports teams, or even a new residence hall or student union. Without conducting a multi-year study, it is impossible to control for variables that change over time.

In sum, any collegiate environmental factors found to influence academic self-concept would only apply to the students and institutions used in the study and only during the time frame in which the study was conducted.
Glossary

Academic Self-Concept – Self-concept has been found to be a multidimensional and hierarchical psychological construct (Byrne & Shavelson, 1996). Academic self-concept is a dimension within self-concept that pertains to a person’s beliefs and perceptions about themselves within the academic dimension.

Input-Environment-Outcome – The research method developed by Alexander Astin for investigating the impact the college environment has on student development. Input characteristics are characteristics students bring to college. The environment includes the sum of experiences a student has while attending college. The outcomes can be any variable linked to student development and is measured at the end of college or at some other specified time while in college.

Involvement Theory – A theory developed by Alexander Astin that posits that the more involved a student is with his or her educational experience, both academically and non-academically, the better the outcomes (Astin 1984).

Self-Concept – “A person’s perceptions of him or herself formed through experiences of the individual environment and reinforced by the influence of significant others” (Shavelson, Hubner, & Stanton, 1976).

Summary

Making the adjustment to college can be a difficult task for students. As noted previously in this chapter, research has shown that the first year of college a crucial time for students and can influence a student’s decision to stay or leave college (Tinto, 1994). Moreover, the current scrutiny colleges receive regarding student learning and the value of a college education is challenging colleges and universities to do more to improve
student success. One area that shows promise for improving retention and learning outcomes is the area of self-beliefs.

This study investigated what elements of the crucial first year of college influence a particular type of self-belief, academic self-concept. The significance of this study was that it provided insights about what colleges do, or should be doing, in the first year to develop a stronger academic self-concept for first-year students. Understanding how higher education institutions can influence this important construct can help guide practitioners in developing and instituting interventions to improve the academic self-concept of their students.
Chapter 2

Literature Review

This chapter reviews the literature related to academic self-concept and academic achievement. Although the goal of this research was not to prove a correlation exists between the two concepts, it is nevertheless crucial to show such a linkage exists. After all, if academic self-concept is not positively related to academic achievement, then there would be no reason to conduct this research.

Fortunately, the research establishes a strong, positive link between academic self-concept and academic achievement. Moreover, the research in this area also provides good evidence that academic self-concept has causal predominance over academic achievement. This finding is important, because it provides additional justification for investigating how or if academic self-concept is influenced during the first semester of college. Further, academic self-concept has been found not only to directly impact academic achievement, but to also positively influences such intermediate factors as choice of learning strategy, which has been found to be of great importance in achieving academic success. To understand the importance of academic self-concept it is necessary to review the research regarding the concept. This review includes: a) how academic self-concept is defined and conceptualized; b) the relationship self-concept has with academic achievement, both directly and indirectly; c) the causal ordering between academic self-concept and academic achievement; and, d) threats to the development of a strong academic self-concept.

In addition to reviewing the literature regarding academic self-concept and its relationship with academic achievement, this chapter provides a discussion of Astin’s
student involvement theory and the I-E-O model. A summary concludes the chapter.

Before delving into the literature regarding academic self-concept and its relationship with academic achievement, the question “Why study only how or if academic self-concept is influenced during the first year of college?” must be answered. It is, after all, vital to justifying the need for the research conducted here.

Pascarella and Terenzini (1991, 2005) found that although academic self-concept increases during the whole of college, it actually declines during the freshman year. This finding is troubling due to the link between academic self-concept levels and college student persistence (Bennett, 2009; House, 1992). Many student departures occur during the first year of college, often during the first six weeks of entering college (Blanc, DeBuhr, & Martin, 1983). Additionally, Tinto’s (1987, 1994) theory of student departure—that students who do not make an early intellectual or social connection to an institution are more likely to depart from that institution—provides yet another reason to study what happens during the first year with respect to academic self-concept.

Academic self-concept appears to increase toward the later years in college (Pascarella & Terenzini, 1991, 2005), but the subjects of that increase are, of course, students who have persisted in their college careers. Moreover, Pascarella and Terenzini offer no factors that influence academic self-concept.

This chapter covers research that shows the positive relationships between academic self-concept and a variety of outcomes, including the most important: Those that keep a student enrolled in college. This fact establishes the need to investigate how the college environment and student involvements influence academic self-concept during the first year of college.
Self-Concept

Although the perceptions individuals have about themselves and how those perceptions influence behavior have long been a subject of interest, sound models that provide a way to understand self-perceptions have proven to be difficult and inconsistent. This study investigated the impact of the college environment and student involvements during the first year of college on a particular self-perception, academic self-concept. To understand academic self-concept, it is first necessary to understand self-concept, since academic self-concept is a part of this larger, more global, psychological construct.

As with other models of self-perception, self-concept long suffered from definitional and measurement problems (Byrne, 1984; Hansford & Hattie, 1982; Hughes, 1984; Shavelson et al., 1976; West, Fish, & Stevens, 1980; Wylie, 1974, 1979). To correct these deficiencies, Shavelson and colleagues developed a definition and a testable model for self-concept. The definition provided was simple and straightforward: “Self-concept is a person’s perception of himself” (Shavelson et al., 1976, p. 411). Beyond this definition, however, seven different features were identified as critical to this new self-concept construct. Those features were: organized; multifaceted; hierarchical; stable; developmental; evaluative; and, differentiable (Shavelson et al., 1976, p. 411). The design of this new model for self-concept, referred to as the Shavelson Model, can be seen in Figure 2. At the top of the model is general self-concept. General self-concept is then divided into two separate domains, non-academic self-concept and academic self-concept. These domains are then divided into more distinct domains, such as math and science self-concepts in the academic self-concept realm, and social and emotional self-concepts in the non-academic portion. This early model was not supported by empirical
evidence. Of particular concern was how each sub-domain related to general self-concept, as well as to other sub-domains.

If the model was to be considered hierarchical, it required sub-domains to have a stronger correlation with the domains above than the sub-domains listed below. For example, if math self-concept was more strongly correlated with general self-concept than academic self-concept was with general self-concept, then the model would not be hierarchical. Additionally, for the model to be considered multifaceted, each sub-domain had to be found to have its own distinct characteristics. Early research on the model found evidence to support a hierarchical and multifaceted structure for self-concept (Fleming & Watts, 1980; Harter, 1982; Shavelson & Bolus, 1982; Marsh, Parker, & Smith, 1983; Marsh, Relich, & Smith, 1983; Marsh, Smith, Barnes, & Butler, 1983; Fleming & Courtney, 1984).

A finding by Marsh (1986) that the sub-domains of math self-concept, and English self-concept were not related to a higher, general academic self-concept domain led Marsh to propose a revision to the Shavelson Model. This new model established two first-order domains (math and verbal) and eliminated the first order domain of general academic self-concept suggested in the Shavelson Model (Shavelson et. al., 1976). Subsequent research using confirmatory factor analysis, however, has been able to establish the existence of a first-order general academic domain that has an influence on second order academic self-concept domains (Brunner, Keller, Hornung, Reichert, & Martin, 2009).
The general academic self-concept domain was also found to be more closely related to general academic achievement than achievement in subject-specific domains (Brunner, et. al., 2009). This finding is important as it provides a sound rationale for investigating how general academic self-concept is influenced in an academic environment, including higher education.

Establishing self-concept to be multifaceted and hierarchical was important since it gave researchers a more precise framework to use when investigating relationships between self-concept sub-domains and a given outcome. Before the Shavelson Model, research investigating the link between self-concept and academic achievement was either inconclusive or inconsistent. Calsyn and Kenny (1977) found no relationship between self-concept and academic achievement, and a meta-analysis of early research on this subject found associations to range from strongly positive to strongly negative (Hansford & Hattie, 1982).

Additional research involving self-concept has added to Shavelson’s original findings. Bong and Clark (1999) found that self-concept, especially academic self-concept, involves both cognitive and affective elements. It is this characteristic that sets self-concept apart from other self-belief constructs, such as self-efficacy, which is concerned with only cognitive judgments about one’s capacity to successfully complete a task (Bandura, 1997). It should be noted that one of the factors that influenced the decision to use academic self-concept in this study is that it is comprised of both cognitive and affective qualities. The research regarding student departure has found that students leave college not only because of real or perceived deficiencies in cognitive skills, but for emotional reasons as well (Tinto, 1987). Thus, it stands to reason that for
practitioners in higher education who are concerned about student outcomes such as persistence, knowledge of how the college environment and student involvements influence academic self-concept can help them to design more effective programs.

**Academic Self-Concept**

Although Shavelson identified academic self-concept to be a sub-domain of general self-concept, academic self-concept was poorly understood. Since the introduction of the Shavelson Model, academic self-concept has been the subject of considerable research. The result has been a deeper understanding of the concept.

For example, Bennett (2009) reviewed the available literature on academic self-concept and produced a three-dimensional view of academic self-concept, which includes: a) “An evaluative component concerning self-belief in one’s academic ability and competence”; b) “Self-appreciation of one’s capacity to cope with academic life in general (independently of one’s level of academic ability)”; and, c) “Feelings of ‘belongingness’ and being able to fit into university environments” (p. 50). While sound conceptualizations of academic self-concept are important in and of themselves, they also serve as a gateway to further research investigating the relationship between academic self-concept and academic success. As will be discussed later in this chapter, research about this topic has found strong support for a positive relationship between academic self-concept and academic achievement. It is important, though, to understand the causal ordering between academic self-concept and academic achievement. If a rise in the level of academic self-concept flows only from previous academic achievement, then raising academic self-concept will necessarily always depend on achieving academic success first. If, however, academic self-concept raises subsequent academic achievement, then a
valid reason exists to make the effort to raise academic self-concept levels. The research regarding the causal ordering between academic self-concept and academic achievement offers some interesting insights.

**Academic Self-Concept and Academic Achievement**

Early investigations into the link between self-concept and academic achievement proved disappointing. The findings from this early research led some to conclude that any efforts to investigate the possible influence of self-concept toward achievement was misguided, even wasteful (Buameister, Campbell, Kruger, & Vohs, 2003). These early investigations, however, used either general self-concept or imprecise definitions of self-concept. Since the inception of the Shavelson Model and the understanding that self-concept is multifaceted and hierarchical, new research involving sub-domains of self-concept has been conducted. Early research that used the domain-specific construct of academic self-concept found a positive association between it and academic achievement (Marsh, 1990; Song & Hattie, 1985). Subsequent research using the academic self-concept dimension found in the multifaceted and hierarchical model of self-concept has produced similar results (Huang, 2011; Skaalvik & Hagtevet, 1990; Valentine et al., 2004). Additionally, it has been found that academic self-concept not only has direct impact on specific measures of academic achievement, such as grades, but indirectly as well, since it influences mediating variables associated with positive academic outcomes. The evidence from a vast array of research provides convincing justification and value to investigating how the college environment and student involvements influence academic self-concept.
**Academic Self-Concept and College**

Attending college appears to have an impact on the development of academic self-concept. As mentioned previously, Pascarella and Terenzini (1991, 2005) have determined that academic self-concept decreases during the first year. They also found that despite the early dip, academic self-concept grows over the whole college experience. Lacking in their assessment, however, are the particular elements of college that influence the development of a strong academic self-concept. Astin (1993) investigated how particular between-college and within-college variables influence intellectual self-confidence, but there are three problems with this analysis. The first is that intellectual self-confidence is a single-item response and, therefore, does not identify in any robust manner what is meant by intellectual self-concept. The second problem, closely related to the first, is that the literature on self-beliefs does not identify intellectual self-confidence as a psychological construct. Since this study is concerned with academic self-concept, a concept that has been thoroughly operationalized, and since intellectual self-confidence is ambiguous, it is not possible to determine if they are comparable enough to use interchangeably. The third problem is that Astin lumps intellectual self-confidence into a four-variable factor labeled “scholarship” (p. 111). By combining intellectual self-confidence with other variables, it is impossible to determine what impact college alone has on the concept.

Pascarella, Terenzini and Astin are noted researchers in the area of college impact. Although their findings regarding how college influences the development of academic self-concept and intellectual self-confidence are interesting and represent the best attempts in this area, it is nevertheless incomplete. If better insights are to be
developed, it is necessary to conduct further research in this area. This study built on what Pascarella, Terenzini, and Astin began and will, hopefully, provide better insights regarding the impact college has on the development of academic self-concept.

The next section reviews the literature that is concerned with how academic self-concept influences important academic outcomes in higher education. Although the literature does not add to our understanding of how college influences academic self-concept, it demonstrates the importance of academic self-concept in helping students achieve important academic goals.

**Persistence.** An important measure of success in college is the rate at which students persist. As mentioned in Chapter One, college graduation rates have become a concern among college administrators and policy-makers alike. Many colleges now have a person designated as the leader of retention efforts, and many programs designed to boost retention rates, especially during the crucial first year, have become a ubiquitous feature in higher education.

Having a high level of academic self-concept appears to be related to a student’s ability to persist in college. House (1992) found a significant relationship between academic self-concept and persistence at both the two- and four-year mark. This finding was replicated in a separate study among students who had reached the four-year mark (House, 1993b). In a 10-year, longitudinal study that followed students in elementary school through to their decision to attend college, Guay, Larose, and Boivin (2004) found a positive relationship between academic self-concept and educational attainment, which can also be considered a measure of persistence. This result shows the long-term impact a solid academic self-concept can have on educational outcomes. It also shows why it is
important to control for academic self-concept in any study investigating how or if college attendance influences academic self-concept.

**Learning strategy.** Research has found that students with higher levels of academic self-concept are more likely to engage in deep-learning strategies as opposed to surface-learning strategies (Drew & Watkins, 1998; Rodriguez, 2009). These differing strategies of learning were first noted by Marton and Saljo (1976), based on their study involving Swedish students. The students were asked to read a selection of prose and then to comment on the meaning of the material and the process they used when reading the text. The researchers found that students who sought deeper meaning and tried to connect the readings to other information had different conceptions of the prose than students who simply tried to remember basic facts of the prose. Later researchers have identified deep learning as involving, “an intention to understand and impose meaning” as opposed to surface learning, which “involves minimum engagement” with the material and “typically focus[es] on memorization or applying procedures that do not involve reflection” (Smith & Colby, 2007, p 206). Other researchers have found that academic self-concept is not only positively associated with the choice of deep-learning strategy, it is also negatively correlated with surface-learning strategies (Wang, Chen, & Chen, 2011).

**College grade point average.** The controversy about grade inflation in college has created some skepticism as to whether or not grades accurately portray student learning. Although college grade point average (GPA) may or may not be an accurate indicator of student learning it is still a commonly recognized indicator of student success. As such, it is important to investigate whether or not academic self-concept
influences grades in college. Research regarding the relationship between academic self-concept and grades indicates a positive relationship between the two (Choi, 2005; Reynolds, 1988). Moreover, academic self-concept has been found to be a better predictor of overall GPA than general self-concept (commonly referred to as self-esteem) or either general or specific self-efficacy (Lent et al., 1997). Other research has also found a strong, positive relationship between academic self-concept and GPA.

There appear to be some exceptions to these findings when special populations are studied. For example, using two different academic self-concept assessment instruments, Rinn and Cunningham (2008), found that, among high achieving college students, academic self-concept was only moderately related to GPA. While it is not entirely certain why this outcome occurred, it may be the result of a restriction of range. The same result would occur if an assessment of productivity among left tackles in the National Football League were to be undertaken. Most likely, there would be little correlation between a lineman’s weight and his performance. This probable outcome would occur since the heaviest lineman would not be the best, and the lightest lineman would not be the worst. However, all of the lineman in the study would weigh more than 300 pounds. Thus, a study involving only high-achieving students would be similar to studying left tackles: All students in the study, in an intellectual and motivation sense, would weigh more than 300 pounds.

Cokley (2000) studied the relationship between academic self-concept and grades among African American males, some of whom were attending a predominantly white college or university (PWCU), and some of whom were attending an historically black college or university (HBCU). Interestingly, among those attending a PWCU, there was
a strong relationship between academic self-concept and grades. For those students who were attending an HBCU, however, the relationship between academic self-concept and GPA was not strong. Instead, for these students, student-faculty interaction had a stronger relationship.

In a study of Malaysian college students, Tang (2011) found academic self-concept to be significantly correlated to college grades. While the results of this study have not been replicated, and other studies of international students at the collegiate level are not available, Tang’s results indicate that there is a strong relationship between academic self-concept and college grades for students who do not attend college in the U.S.

In sum, the evidence, in many cases, points to a strong relationship between academic self-concept and overall GPA. Other constructs, such as self-efficacy, may be more accurate in predicting how students will handle specific problems, such as solving a specific type of math problem. In instances where a narrowly defined educational outcome is desired, assessing something other than academic self-concept may be more appropriate. However, assessing academic self-concept of an entire entering class would be more effective, since it cannot be known exactly which classes students may take in the future, and because providing an array of different assessments of all possible psychological constructs that may predict student outcomes would be too costly and a logistical nightmare for college staff and administration.

Causal Ordering

An interesting dilemma in determining the causal relationship between academic self-concept and academic achievement is that many students have had some measure of
academic success prior to a measurement of their academic self-concept. Even after measuring academic self-concept and observing later academic achievement, it is difficult to determine if the achievement is influenced by a strong academic self-concept or by previous success. This is important because, if an increase in academic self-concept always follows or is dependent upon academic achievement, then interventions not related to direct improvement in academic skills would, most likely, be of little benefit in improving academic self-concept levels.

The literature on this topic mirrors, to some degree, the literature on the relationship between academic outcomes and academic self-concept. Early studies found mixed and contradictory results regarding the causal ordering of academic achievement and academic self-concept (Byrne, 1984). In reviewing the results of these studies, Byrne (1996) found that many of the studies were cross-sectional and, therefore, lacked the “necessary criterion of temporal precedence” needed to determine the direction of causal predominance (p. 302). Still, early studies using longitudinal as opposed to cross-sectional methodology and other more sophisticated statistical techniques produced mixed result. Shavelson and Bolus (1982) found a causal predominance of academic self-concept over academic achievement, while Newman (1984) and Byrne (1986) were unable to find definitive evidence of causal predominance of either academic self-concept or academic achievement. In reviewing these studies, Marsh (1990a) found that the particular type of measurement of academic achievement influenced predominance with school grades, providing the strongest achievement measure in establishing predominance of academic self-concept. This conclusion, however, was rejected by Helmke and van Aken (1995). In another reanalysis of Newman, some support was
found for the notion that prior academic self-concept does influence subsequent academic achievement, but the opposite may also be true (Marsh, Byrne, & Yeung, 1999). Subsequent studies (i.e., Marsh, Koller, Trautwein, Ludtke, & Baumert, 2005; Pinxten, De Fraine, van Damme, & D’Haenens, 2010) have also found evidence for the causal predominance of academic self-concept. Despite the emerging evidence of the causal predominance of prior academic self-concept over academic achievement, questions still remained about the relationship between the two. One reason for this skepticism was that some studies regarding this question found the direction of causality between academic self-concept and academic achievement to go in both directions. Skaalvik and Hagvet (1990), in studying two different cohorts of students, found that in one of the cohorts, there was a reciprocal effect between academic achievement and academic self-concept. In other words, the two were mutually reinforcing. Other research had also begun to find a similar pattern of reciprocal effects between academic self-concept and academic achievement (Guay et al., 2004; Marsh, 1990; Marsh et al., 1999). In analyzing a large number of studies concerned with this issue, Valentine et al. (2004) found support for a reciprocal relationship. In another meta-analytical study, Marsh and Martin (2011) also found support for the reciprocal effects model, confirming a reciprocal effects relationship.

Of particular importance regarding the meta analyses conducted by Valentine et al. and Marsh and Martin is that both found prior academic self-concept to influence subsequent academic achievement, even when controlling for prior academic achievement. The findings by Marsh and Martin (2011) led them to conclude that “not
only is academic self-concept an important outcome, but it also plays a central role in mediating the effects of other desirable educational outcomes” (2011, p. 72).

**Threats to Academic Self-Concept**

The literature identifies two main threats to the positive development of academic self-concept. Both threats stem from the frame of reference a student uses in developing his or her academic self-concept. The first threat is a result of using an internal framework and is identified as the internal/external (I/E) model. The second threat is identified as the big-fish-little-pond effect (BFLPE) and is developed through the use of external frames of reference. The following discussion describes characteristics of each threat and how they may influence the findings of this research.

**I/E model.** Originally, the Shavelson Model suggested that the academic portion of global self-concept consisted of a first-order domain called general academic self-concept, with second-order domains relating to specific academic subjects (Shavelson et al., 1976). Further research on the Shavelson Model brought into question the validity of the hierarchical nature of academic self-concept. In fact a new model, the Marsh/Shavelson Model, was proposed that eliminated general academic self-concept as a first-order domain (Marsh, Byrne, & Shavelson, 1988). This model is also referred to as a first-order factor model and is depicted in Figure 3. In Figure 4, the first order domains of math and verbal self-concepts are listed at the top. School self-concept, which is the same as general academic self-concept, is displayed in the second tier of domains. Thus, academic self-concept shares equal footing as a second-order domain along with other specific school subjects such as biological science. In regards to the development of domain-specific self-concepts, Marsh (1986) found math and verbal self
concepts to be distinct from each other and found only weak links between math and verbal self-concepts and general academic self-concept. More specifically, he found that achievement in mathematics had a negative impact on verbal self-concept. Likewise, achievement in verbal pursuits had a negative influence on math self-concept.

This held true even if achievements in the weaker domain were still notable. For example, a student who was particularly gifted in math and yet experienced solid achievement in the verbal realm would have a lower verbal self-concept than would be expected. This finding led Marsh (1986) to propose the I/E Frame of Reference Model or I/E model. The foundation of this model is that when students use an internal frame of reference when developing respective domain-specific self-concepts, they will undervalue ability domains that are not their strongest. The I/E model has been confirmed by other researchers (Brunner, Ludtke, & Trautwein, 2008; Chanal, Sarrazin, Guay, & Boiche, 2009; Dickhauser, 2005; Skaalvik & Skaalvik, 2004; Skaalvik & Rankin, 1995). The model has also been found to exist in a multitude of settings, thus providing broad support that the use internal frames of references when forming domain-specific self-concepts can have a negative impact in other cultures (Bong, 1998; Chen, Hwang, Yeh, & Lin, 2012; Dai, 2002; Marsh, & Hau, 2004; Moller & Koller, 2001).

This study investigated how the first semester of college influences general academic self-concept. As such, the I/E Model and the Marsh/Shavelson Model must be addressed. Regarding the Marsh/Shavelson Model, it is worth noting that were this model used for this study, it would require assessing both math and verbal self-concepts and not general academic self-concept. This is because the Marsh/Shavelson Model does not have a general academic self-concept domain at the apex of academic self-concept.
Findings from research conducted since the foundation of the Marsh/Shavelson Model has reestablished general academic self-concept as an overarching and governing aspect of academic self-concept. Using confirmatory factor analysis, Brunner, Keller, Hornung, Reichert, and Martin (2009) developed the nested-factor model of academic self-concept (Figure 4). This model consists of three different orders. One order contains both math-specific and verbal-specific domains. Another order contains self-concepts within a specific domain, as well as academic self-concept (listed as MSC1, ASC1, VSC 1, etc., in Figure 3). Finally, the model also accounts for general academic self-concept (gASC), which influences primarily self-concepts within a domain. Brunner et al. (2009) also found math- and verbal-specific self-concepts to be negatively correlated, as would be predicted in the Marsh/Shavelson Model. Using a new statistical model, it was possible to confirm that math specific self-concepts are positively correlated to general math self-concept and general academic self-concept to be positively correlated to general math self-concept. This artifact held true for verbal domains as well. Moreover, the nested-factor model of academic self-concept has also established a positive relationship between general academic self-concept and general academic achievement (Brunner, Keller, Dierendonck, Reichert, Ugen, Fischbach, & Martin, 2010; Brunner, Keller, Hornung, Reichert, & Martin, 2009).
Even though this study did not investigate how domain-specific self-concepts are influenced during the first semester, it is still important to recognize how different frames of reference can impact academic self-concept development. The I/E model suggests that, if internal frames of reference are used, the domain in which a student has experienced the most success can have a negative impact on the self-concept in other domains, even if the student is capable in those other domains. For example, the I/E model would predict that if a particular student enters college with high math ability, he or she will also have a high math self-concept. However, high ability and high self-concept in math will negatively impact self-concept in other domains, even if the student has strong ability within those domains. If this student takes only classes that are related to the use of verbal skills during the first semester, that student may erroneously conclude that he or she is not cut out for college. This could lead to a lower general academic self-concept than should be expected. To account for this possibility, students in this study were asked to list the types of classes they took during the first semester. The academic self-concept scale used for this study did not include questions regarding domain specific self-concepts. Instead, it included items that required students to tap both external and internal frames of reference. This may allow some insights about how different frames of reference impact the development of academic self-concept during the first semester. For the most part, the I/E model addresses how internal frames of reference impact the development of domain-specific self-concepts. External frames of references have also been found to influence the development of academic self-concept. In the next section, external sources of reference involved in the development of academic self-concept will be reviewed.
Big fish in the little pond effect. While the I/E framework describes how internal frames of reference impact academic self-concept, the big-fish-little-pond effect (BFLPE) addresses how external frames of reference can impact academic self-concept. The BFLPE negatively impacts academic self-concept. It occurs most notably when a student of high academic ability is grouped with other students with high academic ability (Marsh, 1987). The result of such a grouping leads to lower levels of academic self-concept, levels that would not be expected from high-ability students. The BFLPE was originally formulated by Marsh to explain why academic self-concept levels were lower than expected for high ability students (Marsh, 1984a, 1984b, 1990; Marsh & Parker, 1984). According to Marsh et al. (2008), the formulation for the BFLPE drew upon constructs in other fields, including: adaptation level (Helson, 1964); psychophysical judgment (Marsh, 1974; Parducci, 1995; Parducci, Perrett, & Marsh, 1969; Rogers, 1941; Wedell, & Parducci, 2000); social psychology (Morse & Gergen, 1970; Sherif, 1935; Sherif & Sherif, 1969; Upshaw, 1969; Volkman, 1951); sociology (Alwin & Otto, 1977; Hyman, 1942; Meyer, 1970); social comparison theory (Diener & Fujita, 1997; Festinger, 1954; Suls, 1977; Suls & Wheeler, 2000); and, the theory of relative deprivation (Davis, 1966; Stouffer, Suchman, DeVinney, Star, & Williams, 1949).

Since the earliest investigations into this phenomenon, other researchers have found support for the existence of the BFLPE (Huguet et al., 2009; Preckel, Gotz, & Frenzel, 2010; Seaton, Marsh, Yeung, & Craven, 2011; Thijs, Verkuyten, & Helmond, 2010; Zeidner & Schleyer, 1998). Not only has it been found that students who move from regular classes to high ability classes suffer a decline in academic self-concept, it
has also been found that when students move from a high-track class into a lower-track class, academic self-concept levels improve (Wouters, DeFraine, Colpin, Van Damme, & Veschuren, 2012). Additionally, Marsh and Hau (2003) and Marsh, Kong, and Hau (2000) found cross-cultural support for the BFLPE, which indicates the phenomenon is not dependent on cultural peculiarities. The BFLPE has also been found to be stronger than any counterbalancing effects that might positively influence academic self-concept.

Seaton, Marsh, Yeung, and Craven (2011) investigated the potential influence of 67 possible moderators of BFLPE (e.g., study methods, ability) and found that none of the moderators had a significant impact on reducing BFLPE. Positive influences, such as reflected glory where students receive a psychological boost from just being associated with a talented group, have also been found not to reduce the impact of the BFLPE (Marsh et al., 2000).

Conversely, very few studies have found evidence against the BFLPE. Preckel and Brull (2010) compared high-ability students in a gifted math class with high-ability students in regular math classes and found no difference in academic self-concept levels. The study, however, included only students who attended the highest tracked schools (gymnasiums) in Germany. It is possible that the impact of being in a gifted class as opposed to a regular math class was negated since all students would have known they were selected to be in the school based on academic ability. In a study of high school students who attended a summer-enrichment program for gifted students, Makel, Lee, Olszewski-Kubilus, and Putallaz (2012) found no change in the academic self-concepts of the students after they completed the program. Why the BFLPE did not lower academic self-concept levels in this situation is open to conjecture, but possible
explanations could rest with the duration of the program or the fact that it was not an environment conducive to external comparisons on the part of the students.

The literature regarding the BFLPE does not address in any specific manner how it manifests itself in college; the research has almost solely been directed toward K-12 students. Interesting findings from the research, however, provide insight into how attendance might impact how the BFLPE operates on college students. In one study involving high school students, it was found that while school average ability had no impact on student academic self-concept, class average ability negatively impacted academic self-concept levels (Wouters et al., 2012). If this finding is replicated at the college level, then the most likely source of BFLPE will be those with whom a student has close contact. It is conceivable, then, that students enrolled in an honors program would be more influenced by other students in the program than by the student body as a whole. It has also been found that even when students choose their own comparison group, the BFLPE still occurs (Marsh, Trautwein, Ludtke, & Kohler, 2008). In college, students have much more freedom to choose the group to which they will associate with the most. This study did not measure the academic ability of subgroups, so it is not possible to definitively determine if subgroups negatively impact self-concept levels via the BFLPE. In light of this research, however, if it is discovered that academic self-concept levels decline for students who are in groups that are traditionally comprised of high-ability students, then sound justification would exist for further investigation.

**Student Involvement Theory**

The student involvement theory developed by Astin (1984, 1999) predicts that the more involved a student is in the college experience, the greater the impact college will
have on that student. Conversely, non-academic involvements, such as working off campus, negatively impact college outcomes. Additionally, different types of involvement will result in different types of outcomes. For example, Astin found the belief that the “chief benefit of college is making money” was positively affected by majoring in engineering and was negatively influenced by student participation in a work-study program (Astin, 1993, p. 160). This example demonstrates how a non-academic outcome (belief) is differentially affected, depending upon the type of activity (involvement) in which a student engages. Since the purpose of this study was to investigate what influences a change in student academic self-concept, choosing Astin’s student involvement theory as the theoretical framework makes sense as it accounts for both positive and negative influences. This is important as involvements that influence a negative change in academic self-concept can then be addressed by policy makers and practitioners.

### I-E-O Model

The Input-Environment-Outcome (I-E-O) model developed by Alexander Astin (1993a, 1993b) served as the conceptual framework for this study. Figure 1 shows how the three different variables interact, with input variables, having a direct impact on both the environment and outcomes. Understanding the characteristics of each of the variables is important to understanding why the framework was chosen for this study. Input variables are variables students bring with them to college (Astin, 1993b). Environmental variables “refer to the various programs, policies, faculty, peers and educational experiences to which the student is exposed” (Astin, 1993b, p. 7). Outcomes “refer to the student’s characteristics after exposure to the environment” (Astin, 1993b, p. 7, emphasis...
original). Astin noted, “The basic purpose of the I-E-O design is to allow us to correct or adjust for such input differences in order to get a less biased estimate of the comparative effects of different environments on outputs” (Astin, 1993a, p. 19). To better understand why adjusting for input differences is important to the goal of determining the impact the college environment has on student outcomes, it is important to know what prompted Astin to design this framework.

Early in his career, Astin worked as a clinical psychologist. Over time, he came to realize that measuring only outcomes can lead to a misunderstanding of how effective a particular treatment’s efficacy because “some clients are in much worse shape than others when you first see them” (Astin, 1993a, p. 16). To determine a treatment’s impact, he reasoned, “the effectiveness of treatment has to be judged in terms of how much improvement takes place” (Astin, 1993a, p. 16). To gauge the amount of improvement, it is necessary to establish a baseline from which to measure improvement. Astin would later become a research associate at the National Merit Scholarship Corporation (NMSC). It was at NMSC that he came to realize that the principles used to determine effectiveness in psychology could be used to determine the impact college has on students.

The first research project Astin undertook at NMSC involved investigating PhD productivity. Astin found that earlier research on this topic concluded that elements of the college environment, such as faculty-to-student ratios, influenced PhD productivity. In reviewing this research, he noted that “highly productive colleges tended to be the ones…Merit Scholars preferred to attend” (Astin, 1993a, p. 17). From this observation and from his experience as a clinical psychologist, he began to suspect that input variables influenced college outcomes. Astin and his colleague, John Holland, tested this
theory on PhD productivity. They found that the most important variable related to PhD productivity was the student’s characteristics at the time he or she began undergraduate studies (Astin, 1962, 1963).

The importance of controlling for input characteristics to determine the true impact of college is demonstrated in the case of an end-of-college assessment of intellectual ability, the Graduate Record Examination (GRE). In Chapter One, it was noted that GRE scores, by themselves, reveal very little about how the college environment influences intellectual development. To gauge the impact college has on GRE scores, it is necessary to establish a baseline via a pretest. In the case of GRE scores, Astin (1993b) used scores from two common pre-college assessments, the Scholastic Aptitude Test (SAT) and the American College Testing (ACT) exam. The importance of controlling for input characteristics is demonstrated by the strong correlation \( r = .88 \) Astin (1993b) found between composite SAT and ACT scores and composite GRE scores. This relationship reveals that roughly 77% of the variance on GRE scores can be directly attributed to a student’s SAT or ACT scores. If, in the case of the GRE, only outcome measures were used to judge the effectiveness of college, it would be wrong to conclude that colleges with students who have the highest GRE scores are the best at developing a student’s intellectual skills.

In addition to input variables and outcomes, the I-E-O model includes environmental variables. Environment “refers to the various programs, policies, faculty, peers, and educational experiences to which the student is exposed” (Astin, 1993b, p. 7). Astin identifies two different types of environmental variables, between-college and within-college (Astin, 1993a). Between-college characteristics are structural in nature
and include such variables as size, selectivity, and geographic region (Astin, 1993a). The second type of environmental variable, within-college variables, are those “particular educational experiences within the institution” (Astin, 1993a, p 85). They include subdivisions within a college, and thus not all students are exposed to the same environment at a given college. Determining exactly where one subdivision ends and another begins is a guessing game at best. Natural barriers, such as academic departments, may offer effective areas for investigation for the last two-years of college when students are taking classes mostly within their major.

Finally, the third dimension of the I-E-O model is outcomes. Astin noted that outcome variables can accurately be identified as dependent variables (Astin, 1993a). As Figure 1 shows, outcomes can be influenced by the environment or directly by input characteristics.

Since those early studies, Astin has used the I-E-O framework to investigate the impact of college on students. The most notable findings of his ongoing large-scale research are reported in two texts, *Four Critical Years* (1977) and *What Matters in College* (1993b). The framework has gained acceptance in this field, and other researchers have used the framework when investigating the impact college has had on students (See Campbell & Blakey, 1996; Kelly, 1996; Knight, 1994; Long, 1993).

The task of including all possible influences on the development of academic self-concept during the first-year of college would be difficult if not impossible to accomplish. By relying on previous research regarding the development of academic self-concept and research concerned with the influence of the college environment on
other types of student outcomes it was possible to compile a collection of variables most likely to influence academic self-concept during the first year of college.

**Summary**

Self-beliefs have long been thought to influence human achievement in a broad array of human endeavors. Accordingly, it has been suspected that if two equally capable people had different levels of self-beliefs, the one with the higher or more positive self-beliefs would achieve more within a given setting. Many educators have at least suspected that self-beliefs also influenced academic outcomes. In this chapter, a background on self-beliefs and their relationship with academic outcomes was presented. While early investigations into the relationship to self-beliefs and academic outcomes found inconsistent evidence for a relationship, more recent studies, using better, operationalized self-belief concepts, have found a positive relationship between self-beliefs and academic outcomes. An overview of the literature pertaining to one particular type of self-belief, self-concept, was presented. This literature established self-concept as a multifaceted, hierarchical construct. It is comprised of two first-order sub-domains, non-academic self-concept and academic self-concept. Moreover, the literature showed that the academic self-concept portion of overall self-concept has a positive relationship with several important academic outcomes. It was also noted that, even though academic self-concept has a reciprocal relationship with academic achievement, prior academic self-concept still influences subsequent academic achievement.

Although several studies have found academic self-concept to be positively related to important academic outcomes in higher education, little is known about how specific variables within the college environment influence academic self-concept.
Studies that examined how college influences academic self-concept suffer from poorly designed assessments of self-beliefs, especially academic self-concept (Astin, 1993b), or do not investigate in detail what particular aspects of the college environment and what particular types of student involvements influence academic self-concept (Pascarella & Terenzini, 1991; Reynolds, 1988). This study addressed that deficit within the theoretical framework of Astin’s student involvement theory and by using Astin’s I-E-O model to control for input characteristics that may directly influence academic self-concept during the first year of college.

The methodology, survey instrument, data collection procedures, assumptions, and limitation for this dissertation are discussed in Chapter Three. Chapter Four discusses the results, and Chapter Five offers recommendations for further study and advice for practitioner.
Chapter 3
Methodology

In order to effectively investigate how, or if, college environmental factors and student involvements influence academic self-concept during the first year of college, a sound research method is required. To meet this requirement, the researcher conducted a blocked form of stepwise multivariate regression analysis on data collected from student surveys. Furthermore, the research was guided by both a theoretical framework and a data analysis framework so as to provide a context for the raw, statistical analysis. These frameworks and the methodology used in this dissertation are provided in this chapter. The sections of this chapter include: Theoretical Framework; Data Analysis Framework; Research Design; Population and Sample of Interest; Data Collection Procedures; Survey Instrument; Data Analysis Procedures; Assumptions; and, Limitations.

Theoretical Framework

The theoretical framework for this dissertation was Astin’s student involvement theory (1984, 1999). As noted in Chapter Two, Astin’s involvement theory predicts that the more involved a student is with the college experience, the greater the impact college will have on that student. This impact is measured in numerous ways by Astin, including both cognitive and affective outcomes (for a review, see Astin, 1993b). Involvement, according to Astin (1999), includes not only the amount of time a student spends on various college-related activities (i.e., studying, attending class, working on campus), but also the amount of “physical and psychological energy a student devotes to the academic experience” (p. 518). Using involvement theory in conjunction with Astin’s I-E-O model as the data analysis framework made it possible to organize the survey data into blocks to
measure what influence, if any, the college environment and student involvement variables have on academic self-concept during the first year of college.

Data Analysis Framework

The data analysis framework for this dissertation was Astin’s (1993a), I-E-O model. This model, represented visually in Figure 1, provides a method for determining how both input characteristics and college environmental variables can directly influence an outcome. This is important since Astin found that some input characteristics have a direct and significant impact on student outcomes. As discussed in Chapter Two, Astin found a strong correlation \((r = .88)\) between SAT scores and GRE scores. While it is unusual to find that 77% of the variance on any outcome is capable of being explained by just one independent variable, this example demonstrates the need to control for input characteristics in determining the true impact of environmental variables on college outcomes. A complete list of all variables used in this study appears in Appendix A by category (e.g., input, peer-to-peer, faculty-to-student). To better understand how the model was used in this study, a brief discussion of each category of variables is provided here.

**Input variables.** For the purposes of this dissertation, input characteristics were any cognitive, demographic, or psychological variables students bring with them to college. Included in this category were pre-college academic self-concept levels, which were measured in a series of questions that asked students to rate their perceptions of themselves before they attended college. Other variables in this category included high school GPA, high school curriculum completed, family income, and prior military service. A full listing of the input variables appears in Appendix A.
Environmental variables. Environmental variables used in this study included both between-college and within college-variables. Between-college variables are described by Astin (1993) as “environmental measures that are the same for all students at a particular college, but which can vary among student bodies from one college to another” (p. 91). For this dissertation, the between-college variables were size, control, selectivity, and region. Additionally, demographic data concerning gender and minority representation in the undergraduate population were also included as between-college variables. Data from the Carnegie Foundation for the Advancement of Teaching (Carnegie, n.d.) were used to determine the selectivity of respective institutions while data for size, control, region, and undergraduate student demographic variables were ascertained through information listed on the Integrated Postsecondary Education Data System website maintained by The National Center for Educational Statistics.

Within-college variables, as mentioned in Chapter Two, are “particular educational experiences within the institution” (Astin, 1993a, p. 85). In the case of within-college experiences, two students attending the same college could be exposed to different types of environments. For example, one student could commute to the institution while another could live in a residence hall. Although both students in this example attend the same institution, they experience the institution in different ways based upon where they reside. Within-college variables in this dissertation included peer-to-peer involvements, faculty-to-student involvements, and academic involvements.

Two other types of environmental variables were used in this study, non-academic involvements and intermediate educational outcomes. Non-academic involvements are a special type of environmental variable. These variables are concerned with the types of
involvements a student engages in that are not directly related to the college experience. These involvements include activities such as living at home and working off-campus. In the case of working off-campus, Astin (1993b) found it has a negative impact on attainment of a bachelor’s degree and satisfaction with support services and facilities. These findings establish the need to include non-academic involvements in this dissertation since they could also influence academic self-concept.

Intermediate outcomes are described by Astin (1993a) as an event “that occurs somewhere between initial entry to the college and assessment of outcome performance” (p. 304). They represent a special problem because of temporal sequencing issues. In discussing the problems associated with intermediate outcomes, Astin (1993a) provides an example of a student with a low GPA who drops out of college. In this example, Astin points out that the student’s unsatisfactory experience (an intermediate outcome) led the student to decide to drop out at the end of the semester. As a result, the student neglected to attend to studies, which resulted in a low GPA. Thus, in this example, a low GPA was not the cause of the student’s decision to leave college, but instead it was the student’s decision to leave college, based on an unsatisfactory college experience, that led to the low GPA.

To address problems associated with intermediate outcomes, this dissertation followed Astin’s recommendations by controlling first for input variables, followed by controlling for between-college variables, then student involvement variables (Astin, 1993b, p. 80-81).

Outcomes. This study was concerned with only one outcome variable, academic self-concept, as assessed using the Academic Self-Concept Scale (See Appendix B,
Reynolds, 1988). It should be noted that because the outcome is measured at the end of the first year, Astin would classify it as an intermediate outcome. While it would be interesting to discover how academic self-concept is influenced after the entire college experience, investigating changes at certain points during the college career can help identify when, exactly, given changes take place. The first year is a time of great adjustment for students and a crucial time in making a decision whether to stay enrolled in college or leave (Tinto, 1984, 1994). The literature reviewed in Chapter 2 shows that important relationships between academic self-concept and several educational outcomes have been established. Establishing strong academic self-concepts among students early in the college experience can help in making the transition easier and lay a foundation for continued student success beyond the first year.

**Research Design**

The ideal research design to use in measuring a change in a variable over time is a longitudinal design. For this dissertation, that would have required conducting at least two different surveys at two different points in time. Moreover, a longitudinal design requires that research subjects be identified in some fashion, because the change being studied must be assigned to a particular individual. The requirements of conducting a longitudinal study are difficult to meet. The biggest obstacle in carrying out a longitudinal design for this dissertation was obtaining student contact information. Preliminary discussions with prospective colleges revealed a reluctance on their part to provide student email addresses. Without a reliable way to match responses from an initial survey with responses from a follow-up survey, it was necessary to employ a cross-sectional research design.
One of the biggest disadvantages with cross-sectional research is that it captures only what is occurring at one moment in time, making it difficult to investigate how previous conditions may have influenced a currently observed outcome. To address this deficit, it was necessary to construct a survey for this study in a manner that allowed information from a previous point in time to be generated. Of the types of variables used in this study, the input variables are the most sensitive to temporal sequencing. Fortunately, most of the input variables either would not change during the course of the study or would change infrequently and most likely would not change dramatically. Input variables that would not change include characteristics such as the type of high school a student attended and a student’s high school GPA. Other variables, such as family income or parent’s education level, may be different at the end of a student’s first year of college, but it is unlikely that it would change with much frequency or change dramatically. The most pressing challenge in adopting a cross-sectional design for this research was in establishing academic self-concept levels with which the students entered college. To address this challenge, a set of pretest questions were included in this study’s survey that gauged pre-college levels of academic self-concept.

**Population and Sample of Interest**

The population for this study was any college student who was a first-year student at a four-year institution in the U.S. during the 2012-2013 academic year. The students could be enrolled either full-time or part-time. Except for the requirement that students be at least 18 years old, there were no age restrictions. Further, students who earned prior college credit through high school or via military service were also included in the
population. The sample of interest for this dissertation were any first-year students who completed the survey used for this dissertation.

**Data Collection Procedures**

The data for this dissertation was generated from a survey completed by second-year students who attended a four-year college or university during the 2012-2013 academic year. Thus the students that completed the survey would have completed an entire year of college. The survey was conducted electronically using the Qualtrics survey software program. The Qualtrics system allows survey participants to access the survey through an active link via email. The email could either be sent directly to the participant or forwarded to the participant through a third party. This feature provided colleges and universities who agreed to participate in this study the option of providing the researcher with student email addresses directly or forwarding the email containing the survey link to students without providing student email addresses to this researcher. To obtain the permission and assistance needed to disseminate the survey required the following steps:

1. Identification of an employee at a four-year institution who likely worked with first-year students.
2. Contacting the identified single employee to determine either his or her willingness to assist with the survey, or what protocols needed to be followed to conduct the survey at their institution.
3. Disseminating the email with the survey link either directly to students or through a third party at the respective higher education institution.
Identification of employees was conducted using the First-Year Experience and First-Year Assessment listservs maintained by the University of South Carolina’s First-Year Resource Center. These listservs were “designed to bring together a broad cross section of faculty (and) academic administrators” to discuss issues pertaining to first-year students and are used by more than 7,000 participants (National Resource Center). The rationale for using the listservs to identify employees is twofold. First, the assumption was made that employees who demonstrate professional engagement would be more likely to assist with a study pertaining to their field than employees who were not as engaged. Second, the size and purpose of the listservs provided flexibility in obtaining data from institutions with different between-college characteristics. The selection of institutions was not conducted in a true random fashion, since it was necessary to obtain data from institutions with different between-college characteristics. To ensure that institutions with different between-college characteristics were included in the study, the selection of institutions was conducted according to the following between-college characteristics:

- Governing Control
- Region
- Size

The initial contact was conducted via email by this researcher. This first email explained the purpose of the study and included a description of how surveys could be distributed to students (i.e., directly emailing to students or forwarded through a third party). Employees were asked to respond to the email and to indicate whether or not they would assist with the study. The initial email also inquired about the respective
institution’s research approval process. Additional information, such as contact information, if necessary, was solicited in the email as well.

Priority for inclusion in this study was given to institutions that either did not require approval to include their students in the study, or who accepted the University of Toledo Institutional Review Board’s (IRB’s) approval. If this process produced enough institutions to provide reasonable between-college comparisons, institutions that accepted the University of Toledo IRB approval were not used in this study.

The character of the response to the initial email dictated the next step. If the response included email addresses for students who met the population criteria for the study, these students were sent the introductory email associated with the survey. This email contained the Adult Research Subject – Informed Consent Form (See Appendix C) as well as a link to the survey.

If the contacted employee indicated a willingness to forward the survey email to students, the employee was sent two emails. The first email provided information about the process for forwarding the email. This email also contained the University of Toledo’s IRB approval for the study. The second email contained the Adult Research Subject – Informed Consent Form and a link to the survey. This second email was the one the employee forwarded to students.

If the response from the initial email provided information directing inquiries to another party at the college, that party was contacted. If approval was obtained through this other party, a process for disseminating the emails at that institution was established.

If the response to the first email was negative, a follow-up email thanking the respondent for his or her attention to the request was sent.
The survey was disseminated during the fall semester of 2013 to students who began their first year of college in the fall of 2012. Results of the survey were then transferred to an Excel spreadsheet before the statistical analysis was conducted. This was done so that the summed scores of the self-concept pretest, the summed scores of the ASCS, and college environment variables could be added to the analysis.

**Survey Development**

The development of the survey used in this study was guided by both the theoretical framework and the conceptual/data analysis framework. To comply with these frameworks, survey questions had to fulfill four requirements. The first requirement was that the survey had to ascertain from students their pre-college levels of academic self-concept. The second requirement was that survey had to provide data on the academic self-concept levels of respondents after their first-year of college. The third requirement for the survey instrument was that it had to contain questions that established other pre-college student characteristics. The fourth requirement was that respondents were given an opportunity to indicate the types and levels of involvements in which they were engaged during their first year of college.

To meet the first two requirements, a review of available instruments that measure academic self-concept was conducted. From this review, it was decided to use the Academic Self-Concept Scale (Reynolds, 1988). The ASCS was chosen over other self-concept assessment instruments because it was specifically designed to assess academic self-concept among college students, it conformed to the hierarchical and multifaceted structure of self-concept established in the Shavelson Model, and because the ASCS is a
reliable and valid measure of academic self-concept. In discussing the initial development of the ASCS, Reynolds, Ramirez, Magrina, and Allen (1980) noted:

The initial item pool consisted of 59 items worded to conform to a 4-point Likert-type response format. On the basis of responses from 427 college students, the final form of the ASCS was constructed consisting of 40 items with an estimated internal consistency reliability of .91. Validity was established by correlating the ACSC with the grade point averages (GPAs) of students and with their scores on the Rosenberg Self-Esteem Scale. A multiple regression analysis of the ASCS with GPA and Rosenberg scores as predictor variables resulted in a multiple correlation of .64 (p 1013)

Additional support for the reliability of the ASCS was provided by a study comparing how ethnic differences may influence academic self-concept (Cokley, Komarraju, King, & Cunningham, 2003). In this study, the ASCS was found to have an alpha coefficient of .95 among European American students and an alpha coefficient of .91 among African-American students. Although this study found a slightly different factor structure for the ASCS between European Americans and African Americans, the similar alpha coefficients support the ASCS as effective in measuring the academic self-concept of African Americans.

Other studies involving the ASCS have produced support that the ASCS conforms to the structure of self-concept established in the Shavelson Model. In separate studies, Reynolds (1988) and Zorich and Reynolds (1988) found the ASCS to be significantly correlated to both college GPA and general self-concept. The correlation between general self-concept and college GPA in both of these studies, however, was found not to be significant. The correlation patterns found in these studies indicate that the ASCS measures a distinct component of self-concept, academic self-concept.

For insight as to the content and design of student surveys, several sources were consulted, including: *The CIRP Freshman Survey* (Higher Education Research Institute
[HERI], 2013); *Your First College Year Survey* (HERI, 2013); the *College Senior Survey* (HERI, 2013); the *National Survey of Student Engagement* (Indiana University, 2013); and, the *Student Satisfaction Inventory* (Noel Levitz, 1998-2013). After consulting these sources, questions regarding pre-college characteristics and the types and levels of common college student involvements were developed and added to the survey.

Prior to administering the survey, the survey was administered to a focus group comprised of college students outside the population for this study. The purpose of the focus group was to gain feedback about potential difficulties or misunderstandings students may encounter when completing the survey. After students in the focus group completed the survey, they were given an opportunity to discuss any concerns. Once enough information from members of the focus group had been obtained and reviewed, appropriate changes to the survey were made.

**Survey Instrument**

The survey used in this study contained questions that provided information about both the dependent variable and the independent variables so that all research questions from Chapter One were investigated. The dependent variable in this study, academic self-concept, was established by including all 40 items from the Academic Self-Concept Scale (Reynolds, 1988) on the survey (see Appendix B). ASCS items allowed respondents to indicate the perception they had of themselves as students as well as how they thought they were perceived by others as students. Each item offered respondents four different options to indicate their level of agreement or disagreement with the item: “Strongly Disagree”; “Disagree”; “Agree”; and, “Strongly Agree. Items 1, 2, 3, 6, 9, 10, 13, 15, 16, 17, 20, 23, 25, 27, 28, 31, 32, 33, 35, 36, and 37 (as listed in Appendix B)
were scored as, “Strongly Disagree” = 1, “Disagree” = 2, “Agree”= 3, “Strongly Agree” = 4. All other questions were scored in reverse. The items were summed “with a high score indicating a high or strong academic self-concept” (Reynolds, personal communication).

The other questions on the survey represented the independent variables in this study and were categorized under the research questions listed in Chapter One. Input questions provided information about a student’s pre-college preparedness for higher education, as well as family and demographic information that may affect academic self-concept during the first year of college. This category of questions also included a pretest of academic self-concept. This pretest consisted of a set of 10 items from the ASCS (Appendix D). These items were modified to reflect a point in time before college so that pre-college academic self-concept levels could be established. The specific items from the ASCS used for the pretest include 6, 7, 8, 9, 12, 13, 14, 24, 28, and 40. These items were scored and summed in the same manner as the overall ASCS with items 8, 12, 14, 24, and 40 scored in reverse.

Other categories of the survey included questions that determined a student’s peer-to-peer involvements, faculty-to-student involvements, academic involvements, non-academic involvements, and intermediate outcomes. Students were asked to indicate what college or university they attended their first year of college. This information was added to survey data so that the influence of between-college characteristics on academic self-concept could be analyzed.

To illustrate this design, a list of the research questions and the independent variables assigned to it are provided below:
**Research Question One:** What input characteristics, if any, influence academic self-concept during the first year of college?

Independent Variables

- Pre-college academic self-concept level
- Gender
- Race/Ethnicity
- Age
- Prior military service
- Family income
- Father’s level of education
- Mother’s level of education
- Native English
- International student
- High school GPA
- ACT/SAT score
- Type of high school/GED
- Pre-college credit
- Source of educational funding

**Research Question Two:** What if any between-college characteristics influence academic self-concept during the first year of college?

Independent Variables

- Size of institution
- Type of control (private/public)
Selectivity
Region
Percentage of women undergraduates
Percentage of African-American Undergraduates
Percentage of Asians Undergraduates
Percentage of Hispanics Undergraduates

**Research Question Three:** What, if any, peer-to-peer interactions influence academic self-concept during the first year of college?

**Independent Variables**

Did the student live in an apartment within walking distance from campus?

Did the student live on campus in student housing/dormitory?

How many hours per week did the student spend working for wages on campus?

How many hours per week did the student spend socializing in-person or electronically with students/friends attending the same institution?

Did the student perform service/volunteer work assigned by the institution the student attended? (yes/no)

Did the student attend a cultural event at the institution he or she was attending? (yes/no)

Did the student participate in intramural or club sports/activities? (yes/no)

Did the student participate in an intercollegiate sport? (yes/no)

Did the student join a fraternity or sorority? (yes/no)

Did the student join a student group at his or her institution that was not a fraternity or sorority or otherwise associated with Greek life? (yes/no)
**Research Question Four:** What, if any, faculty-to-student interactions influence academic self-concept during the first year of college?

Independent Variables

- How often did the student meet/talk with an advisor?
- How often did the student meet/talk with a faculty member in-person outside of class?
- How often did the student contact a professor through electronic messages?
- Did the student work on a professor’s research project?

**Research Question Five:** What types of academic involvements, if any, influence academic self-concept during the first year of college?

Independent Variables

- Enrollment status (full-time/part-time)
- Did the student take any remedial/developmental courses in English?
- Did the student take any remedial/developmental courses in math?
- How often did the student meet with a tutor?
- How often did the student rewrite or prepare a rough draft of a writing assignment?
- How often did the student write a paper of five or more pages in length?
- How often did the student participate in an assigned group project?
- How often did the student use information from more than one class to complete an assignment?
- How often did the student ask a question in class or participate in class discussion?
How often did the student give a presentation in class?

How often did the student attend a supplemental instruction session?

How often did the student review articles or books to use as possible sources for a research paper (either electronically or in a library)

How many hours a week did the student spend studying alone?

How many hours a week did the student spend studying with a partner or in a group?

How many hours a week did the student spend working on assignments for a math class?

How many hours a week did the student spend reading assigned material?

Did the student attend a class that regularly assigned more than 40 pages of reading a week? (yes/no)

Did the student take an online course at their home institution? (yes/no)

Did the student take an online course offered by another college or university?

Did the student attend a mixed-method course that combined in-person and online interaction? (yes/no)

Did the student attend a workshop to improve your study or time management skills (yes/no)

Did the student participate in a freshman seminar class? (yes/no)

Did the student participate in a learning community? (yes/no)

Research Question Six: What types of non-academic involvements, if any, influence academic self-concept during the first year of college?

Independent Variables
Live at home with parent(s) or other family member(s)

Live in an apartment outside of walking distance to campus

How often did the student come to class unprepared?

How often did the student skip class?

How many hours per week did the student spend working for wages off campus?

How many hours a week did the student spend socializing (in-person or electronically) with friends or family not attending their college?

How many hours a week did the student spend playing electronic/computer games and/or watching TV?

How many hours a week did the student spend exercising?

**Research Question Seven:** What types of intermediate educational outcomes, if any, influence academic self-concept during the first year of college?

Independent Variables

If I had to do it all over again, I would still choose to attend this college or university

Was the student ever placed on academic probation during their first year?

(Yes/No)

College GPA

**Data Analysis Procedures**

Responses from the survey used in this dissertation were analyzed in Statistical Package for the Social Sciences (SPSS) using a blocked form of a stepwise linear multiple regression. The blocking scheme (Figure 5) mirrored the research questions provided in Chapter One. The first block of variables entered into the regression were
input variables. These were followed by between-college variables, peer-to-peer variables, faculty-to-student variables, academic involvement variables, and non-academic variables. The last block to enter the regression, as was previously noted, was the intermediate educational outcome.

The specific method within SPSS used was the causal analytical modeling via blocked regression analysis (CAMBRA). This method has been useful in other similar investigations (Astin, 1993, 2005; Astin & Dey, 2001; Astin, Sax, & Avalos, 1999; Detwiler, 2011). Astin et al. (1999) noted that the power of CAMBRA “resides in its ability to demonstrate how the addition of a new variable (or block of variables) affects the relationship between every other variable—both in and out of the model—and the dependent variable” (p. 193). Thus, CAMBRA allows a researcher to monitor not only how the relationship between a particular predictor variable and the dependent variable changes over the course of the analysis, but also the relationship between other predictor variables, even if the respective predictor variable is not yet entered into the analysis. The importance of this feature, as Astin et al. (1999) pointed out, is that a researcher “can get a comprehensive picture of how multicollinearity is affecting the entire data set” (p. 193).

Astin et al. (1999) noted that another advantage of CAMBRA is that it “allows the investigator to conduct a series of path analyses by observing how the coefficients for variables already entered are changed when later variables are entered” (p. 193). Because of this feature, researchers can determine the indirect influence a particular predictor variable has on the criterion variable. This occurs when a newly entered predictor variable reduces the strength of the relationship between a previously entered predictor
variable and the criterion variable. A direct path can be identified if the relationship between a particular predictor variable and the criterion variable is significant throughout the course of the entire regression analysis.

**Assumptions**

For this study, it was assumed that the sample is representative of first-year college students in the U.S. Great efforts were made to obtain a large number of survey responses from first-year students from all over the U.S. Furthermore, it was assumed that, because of the amount and types of colleges from which the data were drawn, it would be possible to develop reasonable insights into how different college environments influence academic self-concept during the first year of college. It was also assumed that enough responses would be obtained so that omitted survey responses would not affect results.

Another assumption was that students who completed the survey did so accurately and honestly. Some survey questions were personal in nature, such as questions about family income and high school GPA, and, as such, survey respondents could have inflated their responses to avoid embarrassment. Great care was taken to inform students that their responses were anonymous, and it was assumed that this action reduced the likelihood of inaccurate responses.

It was also assumed that survey respondents would accurately remember their perceptions of themselves as students before they entered college. As mentioned, the survey contained a series of pretest questions used to determine academic self-concept levels prior to entering college. Since the survey was taken by students in their first year
of college, it was assumed their perceptions of themselves before entering college would be relatively fresh in their minds.

**Limitations**

The biggest limitation of this research was that it did not include randomized control groups or closely matched comparison groups. As such, this study lacks the degree of confidence that such designs produce in investigating the impact of a given treatment. While randomized control group designs may produce the most reliable information about a given treatment, for this study, using randomized control groups was impractical. The scope of this study was national and, thus, included students from a number colleges and universities. Assigning randomized control groups would be a logistical nightmare. Also, assigning randomized control groups would mean that some students would receive specific treatments (i.e., taking a first-year semester class) while others would be barred from participating. This would be difficult to justify since those students denied a particular treatment could not receive the benefit of the treatment later in college.

**Summary**

This chapter reviewed the methods used in this dissertation to investigate what types of college environment and student involvement variables, if any, influence academic self-concept among first-year college students. This chapter included the following sections: the theoretical framework; the data analysis framework; research design; population and sample of interest; data collection procedures; survey instrument; data analysis procedures; assumptions; and limitations.
This study utilized results from a survey completed by first-year college students attending baccalaureate degree-granting colleges and universities in the U.S. The survey was developed for this dissertation and provided data on student input characteristics (including pre-college academic self-concept levels), student involvement characteristics, and all 40 questions of the ASCS (Reynolds, 1988). Responses from the ASCS were scored to determine the current academic self-concept levels of the survey respondents.

![Diagram]

*Figure 5. The I-E-O Conceptual Model. Conceptual model of how particular types of variables, if any, influence academic self-concept during the first semester of college.*

Information regarding college characteristics was added to individual survey responses according to the college the student indicated he or she attended. This was done in order to control for possible between-college influences.
The predictor variables were grouped into blocks according to the blocking scheme established by Astin (Figure 5) in his study of how various college variables influence different outcomes (1993). The data was then analyzed using the CAMBRA method of entering blocks of data into a stepwise linear multiple regression (Astin et al., 1999).

Results of the dissertation are be analyzed in Chapter Four. Recommendations for further study, and implications for practitioners, are offered in Chapter Five.
Chapter Four

Analysis of Data

Introduction

The purpose of this study, as first noted in Chapter One, was to investigate what college environmental factors and student involvements influence academic self-concept during the first year of college for first-time freshmen students. Academic self-concept has been a thoroughly researched topic. Early research on the topic focused on investigating the characteristics of the concept and how it differed from both general self-concept and other sub-components of self-concept, such as social self-concept or physical self-concept. This early research also investigated how academic self-concept differed from other self-assessment theories, such as academic self-efficacy. Findings from this early research provided strong evidence that academic self-concept is a distinct psychological construct.

The importance of academic self-concept was established by later research that found academic outcomes to be positively influenced by prior levels of academic self-concept. Later research has also investigated how different elements within the educational environment influence academic self-concept. Most of this research has involved itself with students at the primary and secondary grade levels. Although some academic self-concept research involved college students, this is the first known study to investigate how the college environment and student involvement influence academic self-concept during the first year of college.

Following the design established in Chapter Three, a regression analysis was conducted using data generated from the survey developed for this study. This chapter
presents a detailed review of the results of that analysis. The review begins with a
discussion of the piloting of the survey. Second, the research questions for the study are
provided. Third, relevant demographic characteristics of the population and the sample
are offered. Next, the data analysis procedures used in the study are described. Finally,
the results of the analysis are presented. A summary concludes the chapter.

Piloting the Survey

Because parts of this study’s survey were created specifically for this study, it was
necessary to pilot the survey. The survey pilot was conducted at a small liberal arts
college. A professor employed by the college recruited students to participate in the
pilot. The professor was able to secure five undergraduate students to participate in the
piloting session. The group consisted of four females and one male. Two students were
international students who had attended high schools outside the U.S. All students were
White and between the ages of 19 and 23.

The pilot session was held in a computer lab with each student located at an
individual computer. Both the researcher and the professor who had recruited students
for the pilot study were present during testing. Before the pilot began, students were
provided with information regarding the study’s purpose and how the survey would be
administered. Students were asked to provide feedback on any aspect of the survey they
found to be confusing. Prior to the session, two emails were sent to the professor who
had recruited the students and who would be present at the session. The first email
explained the method of electronic distribution for the survey. The second email
contained an invitation to students to participate in the survey, the consent form, and a
link to the survey. The session began with the attending professor forwarding to the
students who attended the session the email containing the invitation, consent form, and survey link. This method replicated the distribution method used in the study. The distribution method worked as planned and there was no negative feedback from students regarding this method.

Student feedback led to changes on two survey questions. The first question changed was the gender question. Two students questioned the efficacy of providing only male, female, and transgendered as possible answers. It was thought that other options, such as transgendered queer, were needed. After discussing several options with students, it was agreed that stating the question as, “Indicate the gender with which you identify” and providing the options of male and female would provide a comprehensive way to indicate gender without omitting important gender options.

The other question that was changed asked respondents to indicate the type of high school they attended. One European student noted that, in many countries outside the U.S., students have the option of earning an International Baccalaureate. In response to this information, the option International Baccalaureate was added.

Students were then asked to provide feedback as to whether the survey’s length or method of distribution would impact response rates. All students agreed that neither the length of the survey nor its distribution method would pose any great threat to the response rate. Students were also asked to comment on the $300 grand prize drawing that survey respondents could register to win. All students agreed it was an appropriate incentive and would improve the survey’s response rate.
**Review of the Research Questions**

The purpose of this study was to investigate what college environmental factors and student involvements influence academic self-concept during the first year of college for first-time freshmen students. The first step in fulfilling this purpose was to compose a set of thoughtful research questions. Once formulated, the research questions served as a guide for the study’s design. In addition to guiding the study’s design, this dissertation’s research questions also provided the context needed to analyze the data. As such, they are restated here for review. In all, seven research questions were posed regarding what influence, if any, the college environment and student involvement has on academic self-concept (the criterion variable) during the first year of college. They include:

1. What input characteristics, if any, influence academic self-concept during the first year of college?
2. What, between-college characteristics, if any, influence academic self-concept during the first year of college?
3. What, if any, peer-to-peer involvements influence academic self-concept during the first year of college?
4. What, if any, faculty-to-student interactions influence academic self-concept during the first year of college?
5. What types of academic involvements, if any, influence academic self-concept during the first year of college?
6. What types of non-academic involvements, if any, influence academic self-concept during the first year of college?
7. What types of intermediate educational outcomes, if any, influence academic self-concept during the first year of college?

Characteristics of the Population, Respondents, and Institutions

The ability to effectively apply the findings of any research depends largely on the characteristics of the subjects who participate in the research project. For this reason, the characteristics of the population, survey respondents, and institutions in this study are provided here.

**Characteristics of the population.** The population for this dissertation was any college student who met all of the following criteria:

1. Completed the student survey created for this dissertation;
2. Attended only one four-year, U.S. institution in the 2012-2013 academic year; and,
3. Attended college for the first time in fall semester of 2012.

The dataset was created using information from completed student surveys. Questions pertaining to the population criteria were included in the survey. Respondents who indicated they did not meet the population criteria were not used in the analysis.

The survey utilized the Qualtrics survey platform and was distributed electronically. Prospective respondents were sent an email that contained a brief explanation of the research, an adult informed consent form, and a link to the survey. Prospective respondents were notified that, upon completion of the survey, they could register for a $300 grand prize drawing.

The selection of institutions was not conducted in a true random fashion since it was necessary to obtain data from institutions with different between-college
characteristics. Thus, some institutions were contacted because of the need to increase the number of responses from a between-college characteristic. This process was successful in securing participation from 16 privately-controlled institutions and 17 publicly-controlled institutions. This method, however, was not effective in producing a uniform distribution of institutions by region (Table 3). One major issue that negatively affected the ability to produce a more even distribution of institutions by region was the number of institutions that declined to participate. At total of 58 institutions were contacted and asked to participate in this research. Of these, 23 declined while 2 institutions that agreed to participate produced no survey responses.

Two procedures for securing permission from colleges and universities to participate in this research were used for this study. The first procedure involved contacting an employee at a college or university who likely worked with first-year students. These individuals were identified through the First-Year Experience and First-Year Assessment listservs maintained by the University of South Carolina’s First-Year Resource Center. This method was effective in securing several private institutions, but the number of surveys disseminated was low, necessitating use of a second method for securing participation.

The second method involved contacting the registrar at an institution to request a list of email addresses from students who met the study’s population requirements. Although only three institutions provided student information through this method, the number of survey responses it produced was vital in securing enough responses to conduct a valid, multivariate regression.
Colleges and universities that agreed to allow their students to participate in the research could choose between two survey distribution methods. The first method required a college or university to provide the researcher with a list of second-year student email addresses. Emails were then sent directly from the researcher to students, inviting them to take the survey. This method was employed only when registrars provided the researcher with student email addresses.

The second method involved sending the email, inviting students to participate in the research, to a designated employee at the participating college or university. Designated employees then forwarded the email to second-year students at their college or university. This was the only method used by college personnel who were identified via the First-Year Resource Center’s listservs. The benefit of this method was that it allowed institutions to avoid providing sensitive student information to a third party, however, there were two drawbacks to this method. The first is that it did not generate many responses per institution. The other drawback is that the number of surveys distributed could not be ascertained. As a result, the number of surveys sent to students for this study is not provided, and it is impossible to calculate a response rate.

**Characteristics of respondents.** Respondent characteristics include both demographic and academic characteristics. Demographic characteristics involve variables such as age and race. Academic characteristics involve variables such as college GPA and SAT scores. For clarity, these two types of characteristics are discussed separately.

**Demographic characteristics.** As for the demographic makeup of respondents, several items (Table 1) are worth noting. First, the sample was skewed toward females
(73% female, 27% male). Second, the ethnic/racial breakdown of respondents was: 81.7% White/Caucasian; 7.1% African-American; 4.2% Asian-American/Asian; 3.5% more than one race; and, 1.9% other Latino(a). The categories of Mexican-American, Puerto Rican, and Native Hawaiian/Pacific Islander each contained less than one percent of the total responses. Third, the distribution of family income in the dataset was skewed toward higher incomes, with more than 40% of the respondents reporting a family income of $62,000 a year or more.

Finally, respondents’ ages indicated that most attended college immediately after completing high school. Respondents ranged in age from 17 to 28 years old with the majority (67%) indicating they were 18 years old at the end of December 2012.

**Academic characteristics.** Several academic characteristics are worth noting. Table 3 displays the categorical variables discussed in this section, while Table 4 displays the continuous variables. The dataset is dominated by respondents whose high school GPA was 3.5 to 4.0 (74.9%) and by students who attended a public high school (90%). The sample is also dominated by students who attended a public institution of higher learning (89.7%), and attended an institution located in the Midwest (81%) during their first year of college. Forty-two respondents (13.5%) indicated they were required to take remedial/developmental English while 48 respondents (15.4%) were required to take remedial/developmental math (see Table 3 for categorical demographic variables).

The distribution of the SAT/ACT equivalent scores followed a bell-shaped distribution curve with a mean of 1744 and standard deviation of 266. The college GPA for the data was normally distributed with a mean of 3.35 and a standard deviation of .428 (Table 4).
Table 1

**Demographics of Student Sample (Categorical Variables)**

<table>
<thead>
<tr>
<th>Categorical Variable</th>
<th>n</th>
<th>Percent of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>311</td>
<td>100.0</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>84</td>
<td>27.1</td>
</tr>
<tr>
<td>Female</td>
<td>227</td>
<td>72.9</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>255</td>
<td>81.9</td>
</tr>
<tr>
<td>African American</td>
<td>21</td>
<td>6.8</td>
</tr>
<tr>
<td>Asian American/Asian</td>
<td>13</td>
<td>4.2</td>
</tr>
<tr>
<td>Mexican American</td>
<td>2</td>
<td>.6</td>
</tr>
<tr>
<td>Puerto Rican</td>
<td>2</td>
<td>.6</td>
</tr>
<tr>
<td>Other Latino(a)</td>
<td>6</td>
<td>1.9</td>
</tr>
<tr>
<td>Native Hawaiian/Pacific Islander</td>
<td>1</td>
<td>.3</td>
</tr>
<tr>
<td>More Than One Race</td>
<td>11</td>
<td>3.5</td>
</tr>
<tr>
<td>Family Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$19,999 or less</td>
<td>29</td>
<td>9.4</td>
</tr>
<tr>
<td>$20,000 to $37,999</td>
<td>37</td>
<td>11.6</td>
</tr>
<tr>
<td>$38,000 to $61,999</td>
<td>45</td>
<td>14.5</td>
</tr>
<tr>
<td>$62,000 to $99,999</td>
<td>57</td>
<td>18.4</td>
</tr>
<tr>
<td>$100,000 or more</td>
<td>83</td>
<td>26.8</td>
</tr>
<tr>
<td>Don't Know</td>
<td>59</td>
<td>19.0</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>.3</td>
</tr>
</tbody>
</table>

Table 2

**Demographic Characteristics of the Student Sample (Continuous Variable)**

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>n</th>
<th>Range</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Age on December 31, 2012</td>
<td>308</td>
<td>17</td>
<td>28</td>
</tr>
<tr>
<td>Academic Variable</td>
<td>n</td>
<td>Percent of Sample</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td>----</td>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>311</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td><strong>High School GPA</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0-2.4</td>
<td>1</td>
<td>.3</td>
<td></td>
</tr>
<tr>
<td>2.5-2.9</td>
<td>12</td>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>3.0-3.4</td>
<td>65</td>
<td>20.9</td>
<td></td>
</tr>
<tr>
<td>3.5 to 4.0</td>
<td>233</td>
<td>75.2</td>
<td></td>
</tr>
<tr>
<td><strong>High School Type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>280</td>
<td>90.0</td>
<td></td>
</tr>
<tr>
<td>Non-Public</td>
<td>31</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td><strong>Students by Type of Control of College/University Attended</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>248</td>
<td>79.7</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>63</td>
<td>20.3</td>
<td></td>
</tr>
<tr>
<td><strong>Students by Region of College/University Attended</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>20</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>South</td>
<td>36</td>
<td>11.6</td>
<td></td>
</tr>
<tr>
<td>Midwest</td>
<td>252</td>
<td>81.0</td>
<td></td>
</tr>
<tr>
<td>West</td>
<td>3</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td><strong>Required to Take Remedial/ Developmental English?</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>42</td>
<td>13.5</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>269</td>
<td>86.5</td>
<td></td>
</tr>
<tr>
<td><strong>Required to Take Remedial/Developmental Math?</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>48</td>
<td>15.4</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>263</td>
<td>84.6</td>
<td></td>
</tr>
</tbody>
</table>
Table 4

**Academic Characteristics of the Student Sample (Continuous Data)**

<table>
<thead>
<tr>
<th>Academic Variable</th>
<th>n</th>
<th>Range Low</th>
<th>Range High</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT (ACT Equivalent)</td>
<td>284</td>
<td>900</td>
<td>2330</td>
<td>1745.47</td>
<td>265.77</td>
</tr>
<tr>
<td>College GPA</td>
<td>301</td>
<td>2.0</td>
<td>4.0</td>
<td>3.35</td>
<td>.42</td>
</tr>
</tbody>
</table>

**Characteristics of the institutions.** The dataset contains student responses from 33 different U.S. colleges and universities. To protect the identity of institutions with students participating in the study, specific undergraduate and graduate enrollments of the schools are not listed. Tables 5 and 6, however, provide categorical data regarding the undergraduate and graduate enrollment figures of the institutions represented in the study.

Table 5

**Institutional Characteristics – Undergraduate Enrollment Size (Categorical Data)**

<table>
<thead>
<tr>
<th>Undergraduate Enrollment</th>
<th>Number of Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2500 or less</td>
<td>9</td>
</tr>
<tr>
<td>2501 to 9999</td>
<td>8</td>
</tr>
<tr>
<td>10000 to 19999</td>
<td>12</td>
</tr>
<tr>
<td>20000 or more</td>
<td>4</td>
</tr>
</tbody>
</table>
Table 6

Institutional Characteristics – Undergraduate and Graduate Enrollment (Categorical Data)

<table>
<thead>
<tr>
<th>Institutional Characteristic</th>
<th>n</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate Enrollment</td>
<td>33</td>
<td>22,341.32</td>
</tr>
<tr>
<td>Graduate Enrollment</td>
<td>33</td>
<td>9,697.52</td>
</tr>
</tbody>
</table>

Table 7

Institutional Characteristics – Graduate Enrollment as a Percentage of Total Enrollment (Continuous Data)

<table>
<thead>
<tr>
<th>Graduate Enrollment as a Percentage of Total Enrollment</th>
<th>Number of Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0% - 9%</td>
<td>8</td>
</tr>
<tr>
<td>10% - 19%</td>
<td>10</td>
</tr>
<tr>
<td>20% - 29%</td>
<td>6</td>
</tr>
<tr>
<td>30% or more</td>
<td>9</td>
</tr>
</tbody>
</table>
The breakdown between publicly-controlled institutions and privately controlled institutions represented in the data set was close to even (17 versus 16 respectively). Despite this evenness, 248 of the 310 responses (79.7%) were from students attending institutions under public control. The larger enrollments of public institutions and the difficulty in gaining access to large numbers of students at private institutions played a role in the disparity in responses.

Participating institutions were assigned to one of four regions. Data from the U.S. Census Bureau was used to identify appropriate regions (U.S. Census Bureau, n.d.). Table 8 lists the states by region.

Table 8

Geographic Regions by States

<table>
<thead>
<tr>
<th>Region</th>
<th>States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast</td>
<td>CT, MA, ME, NH, NJ, NY, PA, RI, VT</td>
</tr>
<tr>
<td>South</td>
<td>AL, AR, DC, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV</td>
</tr>
<tr>
<td>Midwest</td>
<td>IA, IL, IN, KS, MI, MN, MO, NE, ND, OH, SD, WI</td>
</tr>
<tr>
<td>West</td>
<td>AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY</td>
</tr>
</tbody>
</table>

Five of the institutions represented in the dataset are located in the Northeast, 5 are located in the South, 20 are located in the Midwest, and 3 are located in the West. The breakdown of responses by region was dominated by students attending college in the Midwest (81 percent), followed by the Northeast (6.4%), South (4.6%), and West (1%). The breakdown of institutions by control and region is displayed in Table 9.
Table 9

*Institutional Characteristics (Categorical Data)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>Percent of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>17</td>
<td>51.51</td>
</tr>
<tr>
<td>Private</td>
<td>16</td>
<td>48.48</td>
</tr>
<tr>
<td>Region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>5</td>
<td>15.15</td>
</tr>
<tr>
<td>South</td>
<td>5</td>
<td>15.15</td>
</tr>
<tr>
<td>Midwest</td>
<td>20</td>
<td>60.61</td>
</tr>
<tr>
<td>West</td>
<td>3</td>
<td>.09</td>
</tr>
</tbody>
</table>

In sum, the typical respondent in the dataset used for this analysis was female, White, attended a public college in the Midwest, and came from a family with an income above $62,000. Academically, the typical respondent maintained a high school and college GPA above 3.0 and had an average SAT score of 1744.

Data Analysis Procedures

A review of the data analysis procedures used in this study follows, beginning with how the data were prepared and followed by a detailed discussion of the specific analytical method used to conduct the analysis. Results and a discussion of the analysis and a summary form the concluding sections of this chapter.

**Preparing the data.** To analyze the data, it was first necessary to prepare the data. This involved four different actions, which are described here.

*Data cleansing.* In total, the dataset contained 414 survey responses. It was necessary to eliminate 104 of these responses because of issues related to either the
population criteria or the assessment of academic self-concept levels. The specific reasons for completely eliminating survey responses included:

- Respondent indicated, or failed to indicate, that the fall semester 2012 was his or her first semester in college
- Respondent did not indicate a gender
- Respondent attended a two-year college in the 2012-2013 academic year
- Respondent did not indicate what college or university he or she attended in the 2012-2013 academic year
- Respondent indicated he or she attended more than one college or university in the 2012-2013 academic year
- Respondent failed to answer all questions in the pre-college academic self-concept assessment
- Respondent did not answer two or more items from the Academic Self-Concept Scale

**Missing data.** After eliminating surveys that contained missing data related to population parameters and academic self-concept assessment, 310 responses remained. It should be noted that some of the remaining surveys also contained missing data. The decision to include these responses was influenced by three factors. First, the amount of missing data was minimal. Second, the missing data were not related to the population parameters or the assessment of academic self-concept levels. Third, the loss of good data would occur because of the listwise elimination method SPSS uses when conducting a regression analysis. This is because the listwise method eliminates all data from a response that is missing data in even one cell. In this study, there were several instances
where respondents failed to indicate a response for only one or two items. If the missing data were not replaced, all of the data from the other completed questions would be lost.

For this study, the missing values were replaced with the mean of the response. In the case of the predictor variables, replacing missing values with the mean was accomplished using the “replace missing with the mean” function provided by SPSS. Since the criterion variable was the sum of the responses on a 40-item scale, a different technique was used to replace missing data with the mean. As noted previously, responses that contained two or more missing values on the ASCS were eliminated from analysis. This left 25 respondents who answered all but 1 of the 40 questions in the scale. In those cases, the mean for each item was calculated in Excel. The missing values within a particular item were then replaced with the mean for the item. It should be noted that the ASCS has only four possible responses, which were scored in a Likert-type fashion of one, two, three, and four. Additionally, the academic self-concept level is the sum of all 40 questions on the ASCS. Given these conditions, replacing just one missing response with the mean would not greatly alter the respondent’s total score on the ASCS.

**ACT conversion.** To determine if the level of college preparedness had any influence on academic self-concept during the first year of college, survey respondents were asked to indicate their ACT or SAT scores. To create one variable regarding pre-college academic preparedness, it was necessary to create a common score from the ACT and SAT responses. This was done by converting ACT scores into SAT scores using data provided by ACT (ACT, 2013).

**Dummy coding.** The responses of six survey items were dummy coded. This was done because it is difficult to conduct a regression analysis if categorical data is
polychotomous (i.e., more than two response items exist). The dummy coding process is used to create dichotomous categorical data that can be effectively used in regression. Using the Region item as an example can provide clarity. The Region item contains four possible responses (Northeast, South, Midwest, and West) and is therefore not dichotomous. To overcome this hurdle, Northeast was coded as one, and all other options were coded as zero.

This process is repeated until all of the possible responses have been coded as one with the other responses coded as zero. This process, then, creates four responses from just one question. The dummy coding for Race/Ethnicity and Type of High School was conducted somewhat differently due to low numbers in some categories. Low numbers of responses involving two variables required some categories to be combined. In Race/Ethnicity, all of the types of Latino(a) choices were grouped into one variable. All non-public high schools were coded together. Thus, only two dummy variables populated this category. The items that were dummy coded include:

1. Region
2. Race/Ethnicity
3. Type of High School
4. Primary Funding Source
5. Living Arrangement
6. Enrollment Status

**Blocked form of stepwise regression.** The blocked form of stepwise regression was used as it allows a researcher to monitor the relationship between any given predictor variable and the criterion variable over the course of the analysis. This is accomplished
by testing the significance of the predictor variable when it enters the analysis and at the final step when all predictor variables have entered into analysis. Predictor variables were allowed to enter the regression if they had a p-value of .05 or less and were allowed to stay in the regression until its p-value exceeded .10. Successive rounds of regression were conducted until a model containing only predictor variables with a p-value of .05 or less was established.

To fully understand the advantages the blocked form of stepwise regression has over the other stepwise methods offered in SPSS, a brief discussion of these methods follows.

The other stepwise regression methods available in SPSS include the enter method, the forward method, and the backward method. Although each method uses different procedures in regards to how predictor variables are entered and analyzed, they all suffer from a similar weakness. Specifically, none of these methods considers how the relationship among the predictor variables influences the relationship between any given predictor variable and the criterion variable. As such, it is impossible to monitor how the relationship between a given predictor variable and the criterion variable is influenced by other predictor variables over the course of the analysis using any of these three methods.

In contrast to the enter, forward, and backward methods, the stepwise method continually analyzes how the relationship between predictor variables influences the relationship between any given predictor variable and the criterion variable. This difference gives the stepwise method several distinct advantages over the other three methods.
The first advantage is that, in the stepwise method, the significance of the relationship between a predictor variable and the criterion variable is tested when it first enters the analysis. The relationship is again tested whenever new predictor variables are entered into the analysis and continues until the final step when all predictor variables have been entered into the analysis. By conducting the analysis in this manner, it is possible to identify the unique contribution, if any, of a particular predictor variable on the criterion variable.

The second advantage the stepwise method has over the other three methods is that the issue of multicollinearity is more effectively addressed. Since the enter, forward, and backward methods do not account for the influence any predictor variable has on any other predictor variable, it is difficult to determine the separate influence two highly correlated predictor variables have on the criterion variable.

The third advantage the stepwise method has over the other three methods is that a path analysis can be conducted. Predictor variables that enter the analysis as a significant predictor of the criterion variable remain significant throughout the analysis, and can be said to have a direct influence on the criterion variable. Predictor variables that enter as significant, but become insignificant when other predictor variables enter the analysis, can be identified as having an indirect influence on the predictor variable.

The results from the survey were used to create a data set of 95 predictor variables. The predictor variables were then organized into seven blocks, including: 1) input measures; 2) between-college characteristics; 3) peer-to-peer interactions; 4) faculty-to-student interactions; 5) academic involvement; 6) non-academic involvement;
and, 7) intermediate outcomes. Finally, all of the blocks were entered, in the order presented above, into a stepwise regression analysis.

**Results**

The regression analysis produced six significant predictors of academic self-concept during the first-year of college. Table 10 lists the significant variables according to the block in which they entered the analysis. The zero r was calculated using a bivariate correlation analysis. The zero r indicates the direct relationship between the predictor variable and the criterion variable. As such, the influence that other predictor variables may have on that relationship is not calculated. Step β displays the beta weight of the variables as it entered the regression analysis. The beta weight of the variable at the conclusion of the analysis is displayed in the Final Step β column. The F value at the final step of the regression analysis was 39.16. The adjusted $R^2$ for the model at the final step was .426. This indicated that almost 43% of the variance in the criterion variable can be explained by the predictor variables.

**Block one – Inputs.** The first research question asked what input characteristics, if any, influence academic self-concept during the first-year of college. Input characteristics are variables students bring with them to college (Astin, 1993b) and include characteristics such as race/ethnicity and gender. For this study, 15 input characteristics were identified on the student survey (see Appendix A for a complete list of the independent variables, by block, used in this analysis). Of these 15 variables, only *pre-college academic self-concept* ($\beta = .40$ $p< .001$) emerged as a significant predictor of academic self-concept during the first year of college.
Block two – Between-college characteristics. The second research question involved investigating what types of between-college characteristics influenced, if at all, academic self-concept during the first year of college. Of the nine between-college characteristics analyzed in this study, two variables emerged as significant predictors of academic self-concept during the first year of college. The first was size of undergraduate enrollment ($\beta = -0.40, p < 0.001$). This relationship was negative, which means that as the size of the graduate enrollment at an institution increased, the level of academic self-concept among first-year students decreased. The second significant predictor was type of governing control ($\beta = 0.18, p < 0.05$). The positive beta correlation means that public institutions have a significant and positive influence on academic self-concept during the first year of college. This conclusion can be made because of the character of the variable and the way it was coded for analysis. This variable has only two possible outcomes—private control or public control—and, as such, it can be identified as a dichotomous variable. The variable also represents nominal data, which is a type of data where the categories cannot be ranked (in this case, private control is not better or worse than public control, just different). Despite being dichotomous and nominal, this variable had to be coded with numerical values in order to properly conduct the regression analysis. This variable was coded 1 for private control and 2 for public control. Bear in mind, the higher value for public institutions is not a ranking (i.e., public institutions are not better than private institutions). The positive beta weight ($\beta = 0.18, p < 0.05$) is the effect of moving from category 1 (private institutions) to category 2 (public institutions). This movement, along with a p-value of less than 0.05, indicates that attending a publicly controlled college or university during the first year of college is a
significant and positive predictor of academic self-concept during the first year of college.

**Block three – Peer-to-peer interactions.** Research question three sought to determine what types of peer-to-peer interactions, if any, influenced academic self-concept during the first year of college. In all, 15 types of peer-to-peer interactions were entered into the analysis and of these, only living arrangement: student housing/dorm ($\beta = -.13 p < .01$) emerged as a significant predictor of the criterion variable. As with size of the graduate enrollment in block two, living in student housing was a negative predictor of academic self-concept during the first-year of college. Thus, those who lived in student housing tended to have a lower academic self-concept than did those living in other types of housing.

**Block four – Faculty-to-student interactions.** Question four asked what faculty-to-student interactions, if any, influenced academic self-concept during the first year of college. None of the interactions that were entered into the regression (a total of four) emerged as a significant predictor of the criterion variable.

**Block five – Academic involvement.** The purpose of question five was to identify what types of academic involvements influenced academic self-concept in the first year of college. Only one variable, enrollment status: full-time fall/part-time spring ($\beta = -.11 p < .01$), emerged as a significant predictor of the criterion variable. The relationship was negative. Thus, students whose enrollment status was reduced from full-time status in the fall semester to part-time status in the spring semester tended to have a lower academic self-concept than those who remained full-time in the spring semester.
Table 10

**Significant Predictors of Academic Self-Concept in the First Year of College**

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Block</th>
<th>Zero r</th>
<th>Step $\beta$</th>
<th>Final Step $\beta$</th>
<th>$F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-College Academic Self-Concept</td>
<td>Inputs</td>
<td>.45**</td>
<td>.24**</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>Size of Undergraduate Enrollment</td>
<td>Between-College Characteristics</td>
<td>-.40***</td>
<td>-.40***</td>
<td>.40***</td>
<td></td>
</tr>
<tr>
<td>Type of Control</td>
<td>Between-College Characteristics</td>
<td>-.08</td>
<td>.30***</td>
<td>.18*</td>
<td></td>
</tr>
<tr>
<td>Living Arrangement: Dorm</td>
<td>Peer-to-Peer Interactions</td>
<td>-.11*</td>
<td>-.12*</td>
<td>-.13**</td>
<td></td>
</tr>
<tr>
<td>Enrollment Status: Full-Time Fall/Part-Time Spring</td>
<td>Academic Involvement</td>
<td>-.13*</td>
<td>-.11*</td>
<td>-.11**</td>
<td></td>
</tr>
<tr>
<td>College GPA</td>
<td>Intermediate Outcomes</td>
<td>.46**</td>
<td>.33***</td>
<td>.33***</td>
<td></td>
</tr>
</tbody>
</table>

*Note: n=311; $R^2 = .437$; Adjusted $R^2 = .426$. *p< .05; **p<.01, ***p<.001

**Block six – Non-academic involvement.** Question six asked what types of non-academic involvements, if any, influence academic self-concept during the first-year of college. Non-academic involvements, as noted in Chapter Three, are types of involvements a student engages in that are not directly related to the college experience.
None of the variables in this block emerged as significant predictors of the criterion variable.

**Block seven – Intermediate outcomes.** Intermediate outcomes are described by Astin as an event “that occurs somewhere between initial entry to the college and assessment of outcome performance” (1993a, p. 304). Thus, the exact time of when these types of variables influence a student is difficult to ascertain. The one variable from this block that emerged as a significant predictor of academic self-concept during the first year of college was college GPA ($\beta = .33$ $p < .001$). Although the college GPA reported by students would most likely have been the GPA at the end of the first year, it is impossible to determine which semester’s grades (fall or spring) influenced academic self-concept. For this reason, college GPA was identified as an intermediate outcome.

**Model Summary**

The final model for this study, which included all six of the significant predictor variables, explained almost 43% of the variance of academic self-concept during the first year of college (adjusted R square for the model was .426). Considering only the significant predictors the contribution each block made to the total variance reveals some interesting insights. Block One contributed the largest amount of variance (20%) to the final model. Although Block One consisted of only one significant predictor variable—*pre-college academic self-concept*—this result adds further evidence to the notion that pre-college characteristics play a crucial role in college student success.

Two significant predictors from Block Two – Between College Characteristics—*size of undergraduate enrollment* and *type of control*—combined to account for 10.3% of the variance. Blocks Three, Four, and Five, contain variables that represent the most
intimate interactions a student has with the college environment. Despite this intimacy, the combined contribution these blocks make to the overall variance of academic self-concept in the first-year of college was 2.2%. From Block Three - Peer-to-Peer Interactions, *living arrangement dorm* was the only significant predictor variable, contributed 1.1% to the total variance. Block Four, which contained variables related to Faculty-to-Student Interactions, made no contribution to the total variance. Block Five, Academic Involvement, contributed only one percent to the total variance. As noted previously, Block Six – Non-Academic Involvements contained no variables that emerged as significant predictors of academic self-concept during the first year of college. Block Seven – Intermediate Outcomes contributed 10.2% of the variance of academic self-concept during the first year of college.

**Summary**

Results from the regression analysis provide data that deserves further consideration. Of 95 predictor variables entered into regression analysis, only 6 emerged as significant predictors of academic self-concept during the first year of college. Still, the final model, which consisted of all six of the significant predictor variables, explained close to 43% of the variance of academic self-concept during the first-year of college. Interestingly, four of the variables were found to have a negative influence on the criterion variable. This finding is a cause for concern as it suggests the college experience during the first year can harm the academic self-concept of first-year students.

In Chapter Five, the research questions for this study are answered. Additionally, the implications of the findings as they relate to theory, policy, and practice are
discussed. Ideas for further research will be offered, before concluding thoughts are presented.
Chapter 5  
Discussion, Recommendations and Conclusions  

Introduction

The previous chapter presented the findings of the regression analysis according to each of the study’s seven research questions. This chapter begins with a summary of the study, and follows with a discussion of the findings as they relate to each of the study’s research questions. Also included in this chapter is a discussion of the implications of the findings for policy, practice, and theory. The limitations of the study are then presented, before concluding the chapter with recommendations for further research, the study’s contributions to the literature, and the study’s conclusions.

Summary of the Study

The purpose of this study was to investigate the influence, if any, of the college environment and student involvement on academic self-concept during the first year of college for first-time freshman students. From the research, it was noted that the quality of contemporary American undergraduate education is experiencing notable scrutiny. Evidence of limited intellectual gains among American undergraduates from academic studies (Arum & Roksa 2011), and negative perceptions among business leaders (Peralta, 2011), along with graduation rates of 60% or less (American Institutes for Research, 2010), indicate the need for improvement.

A review of the literature suggested that enhancing the self-beliefs of college students has the potential to improve student outcomes (Lotkowski et al., 2004). In addition, the literature review discovered that one particular type of self-belief—academic self-concept—is positively related to overall success in college (Kornilov et al.,
2009), as well as other specific outcomes, such as persistence (House, 1992), choice of learning strategy (Drew & Watkins, 1998; Rodriguez, 2009), and college GPA (Reynolds, 1988; Choi, 2005).

Despite these positive findings, methodological issues in the research regarding this topic make it impossible to accurately identify which elements of the college environment influence academic self-concept. These methodological issues involve ineffective assessment of academic self-concept (i.e., Astin, 1993), using academic self-concept interchangeably with other self-belief constructs (Lotkowski et al., 2004), and the failure to identify specific elements within the college environment that influence academic self-concept (i.e., Pascarella & Ternzini 1991, 2005).

The literature also revealed the research that has been conducted on this topic investigated the influence of the college on self-beliefs across the entire four years of college. Therefore it is difficult to determine when a change in a self-belief occurs and impossible to determine the influence of college on students who have dropped out of school. The literature provided insights that the first year of college was often the most crucial period in time when students make the decision to either continue college or to leave (Tinto, 1987). Based on this information, it was decided to investigate the influence of college on academic self-concept during the first year of college.

To effectively investigate the influence of college on academic self-concept during the first year of college, a student survey was developed. The survey contained four sections, including student input characteristics, between-college variables, types of student involvement, and a vetted assessment of academic self-concept. The design of the survey, as well as this study, was guided by the study’s theoretical and conceptual
framework. The theoretical framework was Astin’s theory of student involvement. This theory predicts that the greater the involvement in a particular activity, the greater the influence that activity will have on college outcomes (Astin, 1993). The study’s conceptual framework was Astin’s Input-Environment-Outcome model (1993). The important element of the model is that it controls for input characteristics, or those characteristics that students bring with them to college, which can have a direct influence on college outcomes.

Before the survey was distributed, a pilot test was conducted with students from a small, liberal arts college. During this phase of the study, it was determined that distributing the survey via email with a link to the survey was effective. Students in the pilot test also recommended changes to two test questions regarding gender and type of high school. These changes were included in the final survey.

The survey was then distributed via email following the protocols described in Chapter Four. In all, 311 responses were deemed to be acceptable to use in the next step of the study. Survey results were then entered into a blocked form of regression analysis. Following Astin’s blocking scheme (1993), the independent variables were grouped into seven blocks with each block representing one of the study’s seven research questions. The blocks were entered into the regression using the following method: Block One: Input Characteristics; Block Two: Between-College Characteristics; Block Three: Peer-to-Peer Involvement; Block Four: Faculty-to-Student Interactions; Block Five: Academic Involvements; Block Six: Non-Academic Involvements; and, Block Seven: Intermediate Outcomes.
Regression analysis was conducted in three rounds. In the first round, all independent variables were entered into the regression. Of the 11 variables that remained after round 1, seven emerged as statistically significant (p<.05) predictors of first-year academic self-concept. These seven variables were entered into the regression in the second round. After the second round, six statistically significant variables remained. These six variables were subjected to a third round of regression. None of these six variables were excluded in the third round, and all variables were found to be significant predictors of academic self-concept during the first year of college.

**Discussion of the Results**

Five of the seven blocks produced variables that were significant predictors of academic self-concept during the first year of college. Blocks four and five—Faculty-to-Student Interactions and Non-Academic Involvements, respectively—produced no significant predictors of academic self-concept during the first year of college.

The first block, Input Characteristics, produced one significant predictor variable, *pre-college academic self-concept*. The relationship was positive and had the strongest positive predictive power of any of the variables.

Block two of the regression, Between-College Characteristics, produced one significant predictor, *size of the undergraduate enrollment*. This variable was a negative predictor, which means that the greater the undergraduate enrollment, the greater the likelihood that first-year students will report lower levels of academic self-concept. Another variable from this block—*type of control: public*—emerged as a positive significant predictor of academic self-concept during the first year of college. However, this result is most likely due to what is known as a *suppressor effect*. A suppressor effect
is the condition where an entering predictor variable strengthens the relationship between another independent variable already in the model, and the dependent variable (Astin, 1991). In the case of public control, the simple correlation between public control and academic self-concept was negative and not significant ($r = -0.08$). When size of undergraduate enrollment entered the regression, the correlation between public control and academic self-concept turned positive and significant ($r = 0.30 \ p<0.001$). Thus, it can be said that the true effect of public control (which has a negative simple correlation with academic self-concept), is being suppressed by the size of undergraduate enrollment.

Because the true effect of public control cannot be accurately gauged, caution should be exercised in making any causal inferences about this finding.

Block three, Peer-to-Peer Involvement, produced one negative predictor, living arrangement: student housing. This finding indicates that living in on-campus student housing reduces academic self-concept among first-year students.

One variable from block five, Academic Involvement, enrollment status: full-time fall semester/part-time spring semester, emerged as a statistically significant predictor of first-year academic self-concept. The relationship was negative, which indicates that first-year students whose enrollment status changed from full-time in the fall semester to part-time student in the spring semester tended to experience reduced levels of academic self-concept. College GPA, an intermediate outcomes variable, emerged as a significant positive predictor of academic self-concept.

**Discussion and Analysis of the Research Questions**

Examining the results of this study as they related to each individual research question is an important element in understanding the overall impact of the college
Research Question 1: What input characteristics, if any, influence academic self-concept during the first year of college?

This study follows the I-E-O data analysis framework, which controls for input characteristics. One input variable emerged as a significant predictor of academic self-concept during the first year of college, pre-college academic self-concept ($\beta = .40$ $p<.001$). It should be noted that this study was not a true longitudinal design. Thus, survey respondents did not complete an academic self-concept assessment prior to enrolling in college. Instead, pre-college academic self-concept levels were determined by a set of 10-pretest survey questions from the Academic Self-Concept Scale that were modified to reflect a time before college started. For example, the Academic Self-Concept question “I do well in my courses given the amount of time I dedicate to studying” was changed to read “I did well in my high school courses given the amount of time I dedicated to studying.” Despite the lack of a true longitudinal design, this finding is in line with research of a similar nature. Astin (1993, p. 201) found a strong correlation ($r = .88$) between SAT composite scores (the pretest), and GRE composite scores (the post-test). This finding involves assessments of an academic characteristic that are at least four years apart and is much stronger than the correlation produced in this study regarding academic self-concept.
Research Question 2: What between-college characteristics, if any, influence academic self-concept during the first year of college?

One between-college variable, *size of undergraduate enrollment*, emerged as a significant predictor of academic self-concept during the first year of college. The relationship was negative ($\beta = -0.40; p<.001$), and therefore indicates the greater the size of the undergraduate enrollment at an institution, the greater the likelihood that academic self-concept among first-year students will decrease.

Although this study did not investigate why this occurs, insights from the literature presented in Chapter Two identify two potential causes. The first is the threat to academic self-concept by Marsh’s (1997) Big Fish Little Pond Effect (BFLPE), which occurs when students are grouped with other students of equal or higher academic ability. For some first-year students, the college setting may be the first time they have had prolonged interaction with other students with higher academic ability. One drawback of implicating the BFLPE as a cause of this finding is that it does not apply to smaller institutions. Smaller institutions may attract students who are somehow more resistant to the BFLPE. It could also be that smaller institutions have a built-in advantage over larger institutions in fostering first-year academic self-concept development. This built-in advantage may be that they are better positioned to promote belongingness. According to Bennett’s (2009) three-dimensional view of academic self-concept at the college level, feelings of belongingness are an essential element regarding academic self-concept development. Students at smaller institutions may have more opportunities for personal interaction with faculty and staff, which may enhance a sense of belonging.
Bennett also notes that college-level academic self-concept has an “evaluative component concerning self-belief in one’s academic ability and competence” (2009, p. 50). If Bennett is correct, it is necessary to consider the different ways in which larger and smaller institutions measure and communicate intellectual development among students. One possible difference is that at smaller colleges, the quantity and quality of feedback regarding intellectual development may be both greater and more informative than feedback students receive at larger institutions. To manage the challenge that comes with significant undergraduate enrollment, large institutions often resort to larger class sizes, use graduate assistants to teach introductory courses, and a may have a less cohesive general education curriculum than smaller institutions. These factors may limit both the quantity and quality of information undergraduates at large institutions receive regarding their intellectual development. Thus, the ability of large institutions to robustly evaluate a student’s academic ability and competence may be hindered and may negatively impact their effectiveness in fostering first-year academic self-concept development.

**Research Question 3: What, if any, peer-to-peer involvements influence academic self-concept during the first year of college?**

*Living arrangement: on-campus student housing/dorm* was the only peer-to-peer interaction variable that emerged as a significant predictor of academic self-concept during the first year of college. The relationship was negative ($\beta = -.13, p< .05$), which means students who lived in student housing during their first year had a greater chance of experiencing a decline in their academic self-concept than students who lived off campus. Again, Marsh’s (1987) BFLPE may be one possible cause for this finding.
BFLPE is influenced by an external frame of reference and most notably occurs when students of high academic achievement are grouped with other students of high academic achievement (Marsh, 1987). What follows is that students of high academic ability report lower than expected levels of academic self-concept (Marsh, 1984a, 1984b, 1990; Marsh & Parker, 1984).

The justification for considering BFLPE as a contributing factor for this finding is two-fold. The first is that BFLPE is influenced by an external frame of reference (Marsh, 1987). The second is that the other types of living arrangements, which involve living off campus, did not significantly influence academic self-concept. The lack of influence on academic self-concept found in off-campus living environments suggests students in this situation construct a different external framework than those living on-campus. No definitive reason as to why this occurs can be drawn from this study. However, it may be the frame of reference of students who live off-campus, is different than students who live on-campus, because they interact more frequently with people who do not attend college. Additionally, the duration of the contact off-campus students have with other students may be brief—only during class, for example—when compared to students who live on-campus. Thus, the quantity and character of the interactions off-campus students have with other students may moderate any effects created by the BFLPE.

Other influences may explain the negative relationship between academic self-concept and living in on-campus housing during the first year of college. For example, students who live off-campus may differ in some important input characteristic, such as age, race, income, or marital status, among others. It may also be that students who live off-campus are more independent minded and are, therefore, better able to use an internal
framework to measure their academic self-concept. It may also be that on-campus housing may offer too many distractions, hindering a good study environment and the development of good study habits. This may negatively impact GPA, which has a strong relationship with academic self-concept.

Exactly why living on-campus negatively influences academic self-concept among first-year students is beyond the scope of this study. Nevertheless, the finding should be a cause for concern among residence hall staff members who work with first-year students. Implementing different interventions, such as increased quiet times, living-learning communities, and providing academic support and tutoring within the resident hall, may help in reducing the negative effect living in on-campus housing has on academic self-concept for first-year students.

Research Question 4: What, if any, faculty-to-student interactions influence academic self-concept during the first year of college?

No faculty-to-student interaction variable emerged as a significant predictor of academic self-concept during the first year of college. While the reason for this finding cannot be ascertained given the design of this study, the outcome may be the result of a lack of full-time faculty who teach introductory courses. While this may not be the case at every institution, the overall trend for faculty is to focus on areas other than first-year students.

As an example, it is not uncommon for first-year students to receive academic advising from advisors who are not part of the faculty. While these advisors may have some type of professional training, it most likely does not match the training completed by PhDs. The potential benefits of closely interacting with professors for first-year
students are numerous. Increased interactions with faculty would provide first-year
students the opportunity to witness the profound commitment most professors give to
scholarship and intellectual growth. The expertise of professors in their respective
discipline may also provide a valuable context for the subject matter covered in first-year
classes, which, in turn, could help first-year students understand the role first-year
courses play in building the knowledge base required for more advanced course work.
This study’s inability to produce evidence of faculty influence on the academic self-
concept of first-year students is disappointing. This is especially true when considering
the potential benefit first-year students could receive from interacting with faculty.

In general, professional incentives for faculty to excel at teaching and advising
has declined over recent decades, and the rewards for activities that take professors away
from student contact, such as publishing, have increased (Schuster & Finkelstein, 2006).
This study’s findings suggest that it may be necessary to modify the current structure of
rewards so as to increase the influence of faculty on the intellectual development and
academic success of first-year students.

**Research Question 5: What types of academic involvements, if any, influence
academic self-concept during the first year of college?**

The only significant variable to emerge in this block was enrollment status: full-
time fall/part-time spring ($\beta = -.11$, $p < .10$). The relationship was a negative predictor of
academic self-concept during the first year of college. Thus, when enrollment status fell
from full-time during the fall semester, to part-time in the spring semester, academic self-
concept declined.
Determining the reasons for this finding is beyond the scope of this study. Still, there are some interesting considerations regarding this finding. First, the finding provides some support for Astin’s Theory of Student Involvement (1984), which postulates that the influence college has on students increases as students become more involved in the college environment. While not always the case, students who attend part-time would most likely not be as involved with the college environment as students who attend full-time. To conclude that reduced involvement is the underlying cause for the decrease in academic self-concept, however, must be tempered by the fact that academic self-concept levels were not impaired for students who attended part-time in the fall and then full-time in the spring, or for students who were enrolled part-time in both fall or spring semesters.

Another possible explanation is that the decrease in enrollment status negatively impacted a sense of belonging to a campus culture. Bennett (2009) states belonging is an important element of academic self-concept, and this may decline for students who drop from full-time in the fall to part-time in the spring. Students who drop to part-time status in the spring may not only experience less time in class, they may also have less contact with the social aspects of college. What is curious is that moving from part-time in the fall to full-time in the spring did not positively influence academic self-concept, making it difficult to concretely assign the decline in academic self-concept solely to a decrease in feelings of belonging.

There may also be an underlying reason for the change in enrollment status, such as academic or economic difficulties, that, by extension, influences the decline in academic self-concept. With regard to this finding, the survey did not ask respondents to
indicate why they reduced their enrollment status in the spring semester. It is therefore impossible to determine the nature of the relationship between the reduced enrollment status and academic self-concept. It could also be that no one cause is more significant in influencing the decline in academic self-concept.

Although further study is needed on this topic, the finding suggests that retention programs should consider efforts that identify and reach out to first-year students whose enrollment status drops from full-time in the fall to part-time in the spring.

**Research Question 6: What types of non-academic involvements, if any, influences academic self-concept during the first year of college?**

No non-academic involvement variable emerged as a significant predictor of academic self-concept among first-year students. However, one variable, *skipping class*, indirectly influenced first-year academic self-concept via college GPA. An indirect influence occurs when a variable begins as a significant predictor of the criterion variable, but falls below the significance level when another predictor variable enters the regression.

The *skipping class* item on the survey asked students to indicate the number of times that they had skipped class during their first year of college. The variable entered the first round of regression analysis as a significant negative predictor of academic self-concept \((r = -0.17, p < 0.01)\). When college GPA entered the regression in the first round, the strength of the *skipping class* variable weakened \((r = -0.11, p < 0.05)\). Despite the weakening direct influence of skipping class caused by college GPA entering the regression analysis, it remained as a significant, negative predictor of academic self-concept at the end of the first round of regression. In the second round of regression,
skipping class regained some of the strength of its influence as it entered the second round with a stronger and more significant influence on academic self-concept than when the first round concluded (r = -.14, p < .01). As in the first round, however, the strength of the influence skipping class had on academic self-concept weakened when college GPA entered the regression equation during the second round. This time the influence of skipping class was reduced to the point where it was no longer a statistically significant predictor of first-year academic self-concept.

This result indicates that skipping class has an indirect, negative influence on academic self-concept during the first year of college via college GPA. As will be discussed in the next section regarding intermediate outcomes, college GPA has a strong positive relationship with first-year academic self-concept. Although further study is needed, this finding suggests that tracking class attendance could strengthen first-year retention programs.

**Block Seven – Intermediate Outcomes**

The only intermediate variable outcome to emerge as a significant predictor of academic self-concept during the first year of college was GPA (β = .33, p < .001). This finding contributes to previous research that found a positive relationship between GPA and academic self-concept (Choi, 2005; Reynolds, 1988). It is also interesting to note that this study controlled for pre-college academic self-concept. Thus, the amount of variance that GPA contributed to academic self-concept during the first year of college is separate and additional to pre-college academic self-concept. This conclusion must be tempered somewhat because GPA is an intermediate outcome. Thus, the exact moment when GPA influences academic self-concept is unknown. While previous research has
found academic self-concept to be causally predominant in regards to GPA (Marsh & Martin, 2011; Valentine et al., 2004), other studies have found that the relationship is mutually reinforcing (Guay et al., 2004; Marsh, 1990; Marsh et al., 1999; Skaalvik & Hagvet, 1990).

Previous research provides a basis for speculating on the nature of the development of academic self-concept that occurs in this study. It is possible that pre-college academic self-concept influences fall-semester GPA. Fall GPA then influences spring-semester GPA, which then influences academic self-concept at the end of the first year. To make firmer conclusions about the temporal sequencing of academic self-concept, more research will be needed. This study’s finding, however, gives some indication that college GPA has a distinct influence on the variance of first-year academic self-concept that is separate from pre-college academic self-concept.

**Implications for Practice and Theory**

A review of the literature revealed that much of the research regarding the influence of college on student self-beliefs did not specify or effectively assess the particular self-belief being studied. In response to these limitations, this dissertation clearly identified academic self-concept as the self-belief that was being studied and used a vetted assessment tool, the Academic Self-Concept Scale, to measure academic self-concept levels. As a result, this study produced findings that have notable implications for improving the academic self-concept of first-year students. The findings also have implications for theory as well.

The implications for practice and theory presented in this section are based on this study’s findings. The implications for practice are directed toward college personnel
who work with first-year college students. The implications for theory section reviews the implications of this study for academic self-concept theory, Student Involvement Theory, and the Input-Environment-Outcomes framework.

**Implications for practice.** The finding that pre-college academic self-concept is a significant predictor of academic self-concept during the first year of college suggests that colleges would be wise to formally assess the pre-college academic self-concept levels of first-year students. Once identified, students with lower levels of pre-college academic self-concepts could be assigned to participate in programs designed to address their academic self-concept, such as mandatory advising sessions or seminars that emphasize academic self-concept. Students with lower academic self-concept will most likely need help in navigating the requirements of college and in developing a sense of belonging (Bennett, 2009). Given the positive relationship House (1992) found between academic self-concept and persistence and Tinto’s (1987) findings regarding the crucial time the first year plays in a student’s decision to stay or leave college, a pre-enrollment assessment of academic self-concept would give colleges the ability to address these deficits early on.

Second, this study found college GPA to be a significant predictor of first-year academic self-concept. This finding suggests that it is important for colleges to provide a high level of academic support for first-year students. Most colleges already offer such support through tutoring and supplemental instruction, among other programs. Not only should colleges offer these programs, they should assess their effectiveness in improving student academic performance. It is also worth noting that no academic involvement variable included in this study was found to be a significant predictor of
academic self-concept. This suggests that the importance students place on GPA subsumes any contribution academic involvement may make toward academic self-concept during the first year of college.

The finding that undergraduate enrollment size is a negative predictor of academic self-concept during the first year of college has implications for practitioners at large institutions. Although further research is needed to identify the specific reasons for this finding, Bennett’s (2009) three-dimensional view of academic self-concept provides some insight regarding this finding. In his model, Bennett notes that one dimension of academic self-concept is a “feeling of belongingness” and an ability to fit into a university environment (p. 50). This view, coupled with the negative predictor finding for size of undergraduate enrollment from this study, suggests that large institutions should work to create student environments that mirror that of smaller colleges. This may involve compartmentalizing not only academic communities, but residential and bureaucratic communities as well. Thus, it may be helpful for large institutions to assign cohorts of first-year students to specific areas of financial aid, bursar functions, and even resident life. Providing an environment where first-year students interact repetitively with the same people may enhance a sense of belonging.

The emergence of enrollment status: full-time fall/part-time spring as a negative predictor of academic self-concept during the first year of college should alert colleges to the threat these students face regarding academic success. This finding suggests these students might benefit from special programming to help them cope with the decline in their academic self-concept, such as increased academic support, mandatory advising, or the creation of on-line communities. On-line communities would allow students whose
enrollment status has dropped to consistently interact with the campus community despite the fact that their physical presence on campus has been reduced.

Finally, the variable living on campus in student housing as a negative predictor of academic self-concept suggests more needs to be done within residence halls to improve the relationship between on-campus living and academics. This is especially true in light of the positive relationship this study found to exist between academic self-concept and GPA. Increased quiet times, academic advising in residence halls, living-learning communities and other programs could help to improve the academic environment in residence halls.

**Implications for theory.** Astin’s theory of student involvement (1999) served as the theoretical framework for this study. The theory predicts that the more involved students are in the college academic and social environment, the greater the college environment’s influence on the student. According to this theory, academic self-concept should be more strongly influenced by an increase in academic involvements. Insofar as academic self-concept is concerned, this study indicates academic involvement has only an indirect influence on that construct. A particularly notable example of this indirect path is the academic involvement variable: Reviewing articles or books for a paper. The survey question related to this variable asked to students to indicate how often the reviewed articles and books in preparation for writing a research paper. This variable entered the regression as a significant positive predictor of first-year academic self-concept (r = .10, p < .05), but fell out of significance when GPA entered the regression. Thus, in this example, reviewing articles or books for a paper has a positive influence on first-year academic self-concept, but only through influencing GPA.
The emergence of enrollment status: full-time fall/part-time spring as a negative predictor of academic self-concept provides some validation of a direct influence of student involvement on first-year academic self-concept. This is because students who enrollment status from full-time in the fall, to part-time in the spring, likely had less involvement with college in the spring semester. What is difficult to explain, given only the indirect influence of academic involvement on first-year academic self-concept, is how a reduction in enrollment specifically influences a reduction in first-year academic self-concept. One possible reason is that students who reduced their enrollment status during the first-year also experienced difficulties with their grades. If so, it still must be explained why reducing enrollment status, and in theory reducing the amount of involvement with the institution, has a separate and direct influence on first-year academic self-concept, while academic involvements have only an indirect influence (through GPA), on first-year academic self-concept.

Astin’s I-E-O model was used as the conceptual framework for this dissertation. The decision to use the I-E-O model was made because the model provides a method for controlling for the influence student input characteristics and the effects of the college environment separately. Given the finding of the direct positive influence of pre-college academic self-concept on academic self-concept during the first year of college, Astin’s I-E-O model proved to be an effective conceptual framework for this study.

The multifaceted and hierarchical structure of self-concept suggests a person can have several types of sub self-concepts, such as a social self-concept. Further, the theory posits that sub self-concepts have little or no influence on other sub self-concepts. In this study, student involvements from domains not related to academics, such as social
interaction variables or the athletic participation variables, were found to significantly influence academic self-concept. This finding—or lack of a finding—supports the notion that other types of sub self-concepts do not influence academic self-concept.

**Recommendations for Future Research**

This study is a good first step toward building a better understanding the influence of college on academic self-concept. As such is a solid platform from which to launch further research. The recommendations for future research offered here are identified based upon the weaknesses of previous studies on this topic, this study’s findings, and the limitations of the study.

**Previous studies.** The design of this study was influenced by weaknesses found in previous studies investigating the influence of college on self-belief constructs in general, and academic self-concept in particular. These weaknesses included: 1) ambiguous identification of the self-belief construct being investigated; 2) failure to robustly assess the identified self-belief construct of the study; and, 3) lack of control of student input characteristics.

In response to these weaknesses, the design of this study incorporated several features. First, the study clearly identified academic self-concept as the self-belief construct being studied. Second, it robustly assessed academic self-concept by using the Academic Self-Concept Scale. The study also controlled for numerous student input characteristics, including pre-college academic self-concept levels. Future studies into how college influences any psychological self-construct, including academic self-concept, should include these features in the design.
Recommendations from the study’s findings. The study’s findings provide a good source for recommendations for future research. The finding of a positive significant relationship between pre-college academic self-concept and first-year academic self-concept levels highlights the importance of investigating factors that influence academic self-concept prior to college attendance. Finding specific differences may be easier to do with students who are coming straight from high school to college, since high school students would come from a similar environment, despite qualitative differences that may exist between different types of high schools.

It may be more difficult to study adult learners who do not start college right after high school. Their experiences would likely be more diverse than students who attend straight out of high school. As such, it may be necessary to use a qualitative design to identify groups or types of categories of adult students, such as veterans, unemployed workers returning for training, or adults attending part-time, hoping to advance in their careers or to find a better job. These seem like natural categories, but use of a qualitative design may be helpful in bringing cogency and rationale to the use of particular groups of adult students prior to a quantitative study.

The negative relationship between undergraduate enrollment size and first-year academic self-concept also serves as a catalyst for future research. While this study included a large number of college variables, it is uncertain at a micro level what causes this finding. It may be the result of self-selection, or it may be the result of differences in the quality of the experience. For example, students at both small and large institutions may attend a first-year seminar or be involved in a learning community. It may be that differences in the quality of those types of programs affect the variance. As enrollments
grow, it is likely that college bureaucracies, such as financial aid, advising, and resident life, also grow. This may lead to reduced personal interactions, hindering development of a sense of belonging Bennett (2009) believes is so important in the development of academic self-concept at college.

**Recommendations from the limitations of the study.** The limitations of this study also serve as a source for recommendations for future research. To begin, this study included only 33 different institutions; future research could involve more colleges and universities. Future research could also focus on institutions with specific missions, such as historically black colleges, and universities or two-year colleges.

Future research could also focus on specific student populations. As noted in Chapter Four, there were not enough responses from the respective categories representing different Latino heritages, making it necessary to combine these groups into one category. Thus, from this study, it is impossible to determine whether a Cuban-American heritage has a different influence on academic self-concept than Mexican-American heritage. The types of population would not have to be based on ethnicity alone. Adult students, low-income students, and transfer students would all be worthy of a specific focus.

This study was also limited in that it only measured involvements at the macro-level. For example, the survey used for this study only asked whether or not the student participated in a first-year seminar. It does not ask the student to rate the quality or perceived satisfaction with that program. Future research could focus on whether or not the quality between different types of programs, such as different types of first-year seminars, has any differential impact on academic self-concept.
A final recommendation for future research is the use of a longitudinal design. One limitation of this study is that a pretest was used to measure pre-college academic self-concept. As such, pre-college academic self-concept level was measured only after completion of the first year of college. This study suggests that pre-college academic self-concept levels are a significant positive predictor of first-year academic self-concept (β = .40 p<.001). Although, this finding is in line with other research that found college outcomes to be directly influenced by pre-college characteristics (Astin, 1993), the pretest for this study may not have accurately captured pre-college academic self-concept levels.

In addition to assessing pre-college academic self-concept, future research could measure academic self-concept each year a student is enrolled. Previous research has found that academic self-concept drops during the first year of college and then increases by the end of college (Pascarella & Terrenzini, 1991, 2005). Yet, very little is known about what exactly influences the rise or when it occurs. While this study addressed how specific elements of the college experience influence academic self-concept, it only covered the first year of college. To better understand how college influences academic self-concept during each of the undergraduate years future studies should use a longitudinal design.

**Limitations of the Study**

This dissertation has several limitations that should be taken into consideration before applying the results to policy development or professional practice.

To begin, the study is limited by the character and size of the institutional sample. This study included only four-year colleges located in the United States. Therefore, the
results are not generalizable to two-year colleges or to colleges outside the United States. The institutional sample for this study consisted of 33 four-year colleges and universities, a fraction of the 2,870 four-year colleges and universities in the United States. Thus, generalizability of the results to other four-year colleges is also limited. The institutional sample also lacked enough institutions with a special mission—such as historically black colleges—to determine if colleges with specific missions type are any different from other colleges regarding the development of academic self-concept.

The respondent sample also has limitations in regards to diversity. The low number of respondents of both Asian and Hispanic heritage made it necessary to group respondents from those categories into two umbrella categories, one representing Asians and one representing Hispanics. Future studies could focus on specific sub-categories of ethnic heritage, such as Cuban-Americans, so that more can be learned about how this variable may influence academic self-concept.

Another limitation is that that the results are subject to self-selection bias. The institutions that agreed to allow distribution of the study’s survey may be different in important ways related to academic self-concept development than institutions that declined. It may also be that the students who responded to the survey are different in important ways related to academic self-concept.

Finally, the methodology of this study contains three important limitations. To begin, the study used a self-report survey. While the assumption is made that students answered the questions honestly, this cannot be verified. Second, the quantitative methodology that was used may not have captured subtle differences between types of involvement. For example, the study’s survey did not ask students to identify the
qualities or satisfaction levels with a particular type of student involvement. To understand the influence a particular type of involvement has on academic self-concept may require use of a qualitative methodology. Third, as noted in Chapter Three, the study was not a true longitudinal design in that it used a pretest to determine pre-college academic self-concept levels. It may be that a longitudinal study that assessed academic self-concept at an actual time before college enrollment, and then again at the end of the first year, would produce different results.

Conclusions

The overarching conclusion from this dissertation is that the first year of college is a precarious time for academic self-concept development. This conclusion is similar to the one made by Pascarella and Terrenzini (1991, 2005), who, after reviewing numerous studies on this topic, concluded that although academic self-concept increases during the whole of college, it actually declines during the first year. While Pascarella and Terrenzini’s finding is important, it does not identify potential specific causes for decline of academic self-concept during the first year of college. This dissertation, however, investigated the potential influence of numerous types of student involvements and between-college characteristics on first-year academic self-concept, making it possible to be more specific than Pascarella and Terrenzini in discussing potential reasons as to why the first year of college is a precarious time for academic self-concept development.

First, there is a lack of healthy influences present in the college environment regarding first-year academic self-concept development. Of the 47 types of involvements included in this study, none emerged as significant positive predictors of first-year academic self-concept. The most disconcerting aspect of this result is that it indicates
that neither academic involvements nor faculty-to-student involvements are effective in positively and directly influencing first-year academic self-concept.

Second, there is an unhealthy dependence on GPA in developing a strong academic self-concept during the first year of college. It is unhealthy because of the predominance GPA has over student involvements in directly influencing first-year academic self-concept.

Third, the challenge of addressing the harmful impact of the significant negative predictors of first-year academic self-concept development identified in this study presents a troubling scenario for students who begin college with moderate to weak levels of academic self-concept. In the absence of a positive influence from any student involvements, these students must depend on their GPA to improve their academic self-concepts. Ironically, given the causal predominance of academic self-concept on future academic achievement found in previous studies (Marsh & Martin, 2011; Valentine et al., 2004), students who begin college with moderate to weak academic self-concepts would receive little benefit from prior academic self-concept regarding their college grades.

This scenario grows even more troubling for first-year students who attend an institution with a large undergraduate enrollment or who live on campus in student housing as both variables emerged as significant negative predictors of first-year academic self-concept. What is important to consider is that exposure to negative influence of enrollment size and living on campus would begin the first week of the first semester. The positive benefit of a good GPA, however, may not be realized until the end of the first semester. This sequence of influence suggests that the best time for
colleges to intervene regarding academic self-concept is at the beginning of the first semester.

To address the poor influence of the first year of college, higher education institutions will need to be more intentional in working with first-year students. This may be a burden that colleges may be unwilling to carry. The potential benefit of boosting first-year academic self-concept, however, suggests it is a burden worth enduring. The literature review conducted for this dissertation produced studies that positively link college student academic self-concept to important college outcomes. These outcomes include persistence (Guay et al., 2004; House, 1992, 1993b), college GPA (Reynolds, 1988; Lent et al., 1997; Choi, 2005), and even choice of learning strategy (Drew & Watkins, 1998; Rodriguez, 2009).

**Contributions to the Literature**

This dissertation makes an important contribution to the literature on the development of academic self-concept during college. It does so by addressing weaknesses found to exist in the previous research on this topic. One common weakness in the literature on this topic was that a specific psychological construct under study was not identified. Another common problem is that academic self-concept is not robustly assessed. This study addressed those weaknesses by identifying academic self-concept as the specific construct being investigated and by robustly assessing academic self-concept using a vetted assessment tool, the Academic Self-Concept Scale (Reynolds, 1998).

This dissertation study also contributes to closing a knowledge gap regarding the development of academic self-concept during a specific time during college. Previous research on this topic has primarily only investigated the broad influence of college on
academic self-concept. As such, little is known about how specific elements of the college environment influence academic self-concept. Additionally, little is known about how college influences academic self-concept during a specific time in college. To address these gaps, this dissertation used Astin’s theory of student involvement as the theoretical framework and limited the time span to only the first year.

By addressing the weaknesses and limitations of previous research, this dissertation study provides new insights regarding the influence of the college environment and student involvement upon academic self-concept during the first year of college.
References


Marsh, H. W., & Parker, J. (1984). Determinants of student self-concept: Is it better to be a relatively large fish in a small pond even if you don’t learn to swim as well?


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Appendix A

Variables Arranged by Blocks

Inputs

- Pre-college academic self-concept level (Summed score from questions 5 through 14)
- Gender
- Race/Ethnicity
- Age
- Prior military service (yes/no)
- Family income
- Father’s level of education
- Mother’s level of education
- Native English
- International student (yes/no)
- High school GPA
- ACT/SAT score
- Type of high school
- Pre-college credit
- Source of educational funding

Between-College Characteristics

- Size of undergraduate enrollment
- Size of graduate enrollment
- Type of control (private/public)
- Selectivity
• Region
• Percentage of Women Undergraduates
• Percentage of African-American Undergraduates
• Percentage of Asians Undergraduates
• Percentage of Hispanics Undergraduates

**Peer-to-Peer Interactions**

• Did the student live in an apartment within walking distance from campus?
• Did the student live on campus in student housing/dormitory?
• How many hours per week did the student spend working for wages on campus?
• How many hours per week did the student spend socializing in-person or electronically with students attending the same institution?
• Did the student perform service/volunteer work assigned by the institution the student attended? (yes/no)
• Did the student attend a cultural event at the institution he or she was attending? (yes/no)
• Did the student participate in intramural or club sports/activities? (yes/no)
• Did the student participate in an intercollegiate sport? (yes/no)
• Did the student join a fraternity or sorority? (yes/no)
• Did the student join a student group at his or her institution that was not a fraternity or sorority? (yes/no)

**Faculty-to-Student Interactions**

• How often did the student meet/talk with an advisor?
• How often did the student meet/talk with a faculty member in-person outside of class?

• How often did the student contact a professor through electronic messages?

• Did the student work on a professor’s research project?

**Academic Involvement**

• Enrollment status (full-time/part-time)

• Did the student take any remedial/developmental courses in English?

• Did the student take any remedial/developmental courses in math?

• How often did the student meet with a tutor?

• How often did the student rewrite or prepare a rough draft of a writing assignment?

• How often did the student write a paper of five or more pages in length?

• How often did the student participate in an assigned group project?

• How often did the student use information from more than one class to complete an assignment?

• How often did the student ask a question in class or participate in class discussion?

• How often did the student review articles or books to use as possible sources for a research paper (either electronically or in a library)

• How often did the student give a presentation in class?

• How often did the student attend a supplemental instruction session?

• How many hours a week did the student spend studying alone?

• How many hours a week did the student spend studying with a partner or in a group?

• How many hours a week did the student spend working on assignments for a math class?
• How many hours a week did the student spend reading assigned material?

• Did the student attend a class that regularly assigned more than 40 pages of reading a week? (yes/no)

• Did the student take an online course at their home institution? (yes/no)

• Did the student take an online course from a different institution (yes/no)

• Did the student attended a mixed-method course that combined in-person and online interaction? (yes/no)

• Did the student attend a workshop to improve their study or time management skills? (yes/no)

• Did the student participate in a freshman seminar class? (yes/no)

• Did the student participate in a learning community? (yes/no)

Non-Academic Involvement

• Live in an apartment outside of walking distance to campus

• Live at home with my parent or other family member(s)

• How often did the student come to class unprepared?

• How often did the student skip class?

• How many hours per week did the student spend working for wages off campus?

• How many hours a week did the student spend socializing in person or electronically with family or friends not attending their college?

• How many hours a week did the student spend playing electronic/computer games and/or watching TV?

• How many hours a week did the student spend exercising?

Intermediate Outcomes
• If I had to do it all over again, I would still choose to attend this college or university?

• College GPA

**Outcome**

• Academic Self-Concept Scale (Summed score from questions 43 through 82)
Appendix B

Academic Self-Concept Scale

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being a student is a very rewarding experience.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>If I try hard enough, I will be able to get good grades.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Most of the time, my efforts in school are rewarded.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>No matter how hard, I try I do not do well in school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I often expect to do poorly on exams.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>All in all, I feel I am a capable student.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I do well in my courses given the amount of time I dedicate to studying.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>My parents are not satisfied with my grades in college.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Others view me as intelligent.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Most courses are very easy for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I sometimes feel like dropping out of school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Most of my classmates do better in school than I do.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Most of my instructors think that I am a good student.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>At times, I feel college is too difficult for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>All in all, I am proud of my grades in college.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Most of the time while taking a test I feel confident.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel capable of helping others with their class work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel teachers’ standards are too high for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>It is hard for me to keep up with my class work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I am satisfied with the class assignments that I turn in.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>At times I feel like a failure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel I do not study enough before a test.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Most exams are easy for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I have doubts that I will do well in my major.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>For me, studying hard pays off.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I have a hard time getting through school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I am good at scheduling my study time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>I have a fairly clear sense of my academic goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I'd like to be a much better student than I am now.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I often get discouraged about school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I enjoy doing my homework.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I consider myself a very good student.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I usually get the grades I deserve in my courses.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I do not study as much as I should.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I usually feel on top of my work by finals week.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Others consider me a good student.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel that I am better than the average college student.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>In most of the courses, I feel that my classmates are better prepared than I am.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel that I do not have the necessary abilities for certain courses in my major.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I have poor study habits.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Appendix C

Institutional Review Board Application

ICRB#_______________________
ICF Version Date: ________________

Adult Research Subject – Informed Consent Form

Principal Investigator: Dr. Ron Opp, Associate Professor, Educational Foundations & Leadership, University of Toledo. Phone: 419-530-2695

Other Investigator: Brent Stocksdale, doctoral candidate, University of Toledo. Phone: 567-712-0299

Purpose: You are being invited to participate in the research project entitled, “First-year College Environment and Student Involvement Influences on Academic Self-Concept. The purpose of this study is to investigate how the college environment and various student involvement activities influence academic self-concept during the first-year of college.

Description of Procedures: This research conducted for this study will take place online during the fall semester of 2013. You will be asked to complete a survey in which you will indicate the college or university you attended last year, various demographic characteristics, the types of activities you were involved in last year, the amount of time you spent engaged in some activities, and to rate your satisfaction with various services at your college. You will also complete a series of questions regarding
your concept of yourself as a student before you started college and a series of questions regarding your current concept of yourself as student.

If, after completing the study you have questions about the data, theory, and research area under study you may contact Brent Stocksdale at 567-712-0299. All students who complete the survey will be eligible to enter a drawing for one $300.00 grand prize. After completing the survey you will be provided a link where you can register for the drawing.

**Potential Risks:** There are minimal risks to participation in this study, including loss of confidentiality. Some of the survey questions might cause you to feel uncomfortable. If so you may stop at any time.

**Potential Benefits:** There are two direct benefits to you if you participate in this research. The first is that you could win $300.00 if you register for the grand prize drawing. The second benefit is that you will learn about how student surveys are conducted and may learn more about academic self-concept. Others may benefit by learning about the results of this research.

**Confidentiality:** The researchers will make every effort to prevent anyone who is not on the research team from knowing that you provided this information, or what that information is. The survey is being conducted anonymously. The survey does not ask you for your name or other information that could be used to personally identify survey respondents. Even the IP address of the computer that respondents use to complete and submit the survey is not available to the researchers. Registering for the $300 grand prize drawing does require personal information to be provided so that the winner can be awarded the money. The information from the grand prize drawing cannot be linked to a
specific survey and the information provided for the drawing will not be made available to any third parties. One the drawing is complete and the winner has received the money all personal information will be destroyed.

Voluntary Participation: Your refusal to participate in this study will involve no penalty or loss of benefits to which you are otherwise entitled and will not affect your relationship with your university or college. In addition, you may discontinue participation at any time without any penalty or loss of benefits.

Contact Information: Before you decide to accept this invitation to take part in this study, you may ask any questions that you might have. If you have any questions at any time before, during or after your participation you should contact a member of the research team:

Principal Investigator: Dr. Ron Opp. Phone: 419-530-2695

If you have questions beyond those of the research team or your rights as a research subject or research-related injuries, please feel free to contact the IRB Chair at 419-530-2844

By clicking on to the next page and beginning the survey, you are stating that you have read and accept the information above and are giving your consent to participate in this research. You are also confirming that you are 18 years old or over.

University of Toledo IRB Approved

Approval Date: ________________

Expiration Date: ________________
Appendix D

Academic Self-Concept Pretest

The original 10 Academic Self-Concept Scale items are listed in italics below the modified item.

1. All in all, I felt I was a capable student in high school.
   
   All in all, I feel I am a capable student.

2. I did well in my high school courses given the amount of time I dedicated to studying.

   I do well in my courses given the amount of time I dedicate to studying.

3. My parents were not satisfied with my grades in high school.

   My parents are not satisfied with my grades in college

4. Before starting college others viewed me as intelligent.

   Others view me as intelligent.

5. Most of my high school classmates did better in school than I did.

   Most of my classmates do better in school than I do.

6. Most of my high school teachers thought I was a good student

   Most of my instructors think that I am a good student.

7. At times, I felt high school was too difficult for me.

   At times I feel college is too difficult for me.

8. Before starting college, I had doubts I would do well in college.

   I have doubts that I will do well in my major.

9. Before starting college, I had a fairly clear sense of my academic goals.
I have a fairly clear sense of my academic goals.

10. Before starting college, I had poor study habits.

I have poor study habits.
Appendix E

First-Year Survey

Q1: To the students taking this survey: Thank you for taking the time and effort to respond to this survey. Please give your most candid and thorough response to the questions below. The information you share on this survey will remain anonymous. At the end of the survey you will be provided a link which you can click on to register for a $300 grand prize which will be awarded to one survey respond.

Q2: Was the fall semester of 2012 your first semester in college (not including courses taken in high school that offered college credit)?
   _____ Yes  _____ No

Q3: What college or university did you attend for the 2012-2013 academic year? Please note that an academic year includes fall and spring semester, or fall, winter, and spring quarters? (Please list the full name of the institution)

Q4: Did you attend the above mentioned college or university for the entire 2012-2013 academic year
   _____ Yes  _____ No

   If No is Selected, Then Skip to End of Block

Q5: Are you 18 years of age or older?
   _____ Yes  _____ No

   If No is Selected, Then Skip to End of Block

Q6: All in all, I felt I was a capable student in high school.
   _____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q7: I did well in my high school courses given the amount of time I dedicated to studying.
   _____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q8: My parents were not satisfied with my grades in high school.
   _____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree
Q9: Before starting college others viewed me as intelligent.
   _____ Strongly Disagree   _____ Disagree   _____ Agree   _____ Strongly Agree

Q10: Most of my high school classmates did better in school than I did.
   _____ Strongly Disagree   _____ Disagree   _____ Agree   _____ Strongly Agree

Q11: Most of my high school teachers thought I was a good student.
   _____ Strongly Disagree   _____ Disagree   _____ Agree   _____ Strongly Agree

Q12: At times I felt high school was too difficult for me.
   _____ Strongly Disagree   _____ Disagree   _____ Agree   _____ Strongly Agree

Q13: Before starting college I had doubts I would do well in college.
   _____ Strongly Disagree   _____ Disagree   _____ Agree   _____ Strongly Agree

Q14: Before starting college I had a fairly clear sense of my academic goals.
   _____ Strongly Disagree   _____ Disagree   _____ Agree   _____ Strongly Agree

Q15: Before starting college I had poor study habits.
   _____ Strongly Disagree   _____ Disagree   _____ Agree   _____ Strongly Agree

Q16: Your sex
   _____ Male   _____ Female   _____ Transgendered

Q17: Are you?
   _____ White/Caucasian
   _____ African American/black
   _____ American Indian/Alaska Native
   _____ Asian American/Asian
   _____ Mexican American
   _____ Puerto Rican
   _____ Other Latino(a)
   _____ Native Hawaiian/Pacific Islander
   _____ More than one race

Q18: How old were you on December 31 of 2012?
Q19: Did you serve in the military before enrolling in college?
_____ Yes  _____ No

Q20: Which of the following items best describes you family's income?
 _____ $19,999 or less
 _____ $20,000 to $37,999
 _____ $38,000 to $61,999
 _____ $62,000 to $99,999
 _____ $100,000 or more
 _____ Don't Know

Q21: What is the highest level of education completed by your...

<table>
<thead>
<tr>
<th></th>
<th>Don't Know</th>
<th>Less Than High School</th>
<th>High School Diploma (Did Not Attend College)</th>
<th>Some College</th>
<th>Associate Degree</th>
<th>Bachelor's Degree</th>
<th>Graduate or Professional Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q22: Is English your native language?
_____ Yes  _____ No

Q23: Are you an international student?
_____ Yes  _____ No

Q24: What was your final high school grade point average?
 _____ 3.5-4.0
 _____ 3.0-3.4
 _____ 2.5-2.9
 _____ 2.0-2.4
 _____ 2.0 or lower

Q25: Did you take the SAT?
_____ Yes  _____ No
If Yes is Selected

Q26: What was your composite score on the SAT? If you took the SAT multiple times please indicate your highest score.

Q27: Did you take the ACT?
   _____ Yes  _____ No

If Yes is Selected

Q28: What was your ACT Composite Score? If you took the ACT multiple times please indicate your highest score.

Q29: Which of the following describes the type of high school from which you graduated?
   _____ Public school
   _____ Private religious/parochial
   _____ Private independent
   _____ Home school
   _____ Online school
   _____ GED
   _____ Did not graduate from high school

Q30: Did you earn college credit before entering college (including AP credit, post-secondary credit from high school, or credits from military service)?
   _____ Yes  _____ No

Q31: Which statement best describes how you paid for your education including tuition, room and board, books, supplies etc., for your first year of college?
   _____ I mostly paid for college with my own savings and working wages
   _____ My parents mostly paid for my college
   _____ I mostly paid for college by using scholarships and grants that don't have to be repaid
   _____ I mostly paid for college using loans that will have to be repaid

Q32: Which statement best describes your living arrangements during your first year of college?
   _____ At home with my parent(s)
   _____ In an apartment within walking distance to campus
   _____ In an apartment outside of walking distance to campus
   _____ On campus in student housing/dormitory
**Q33:** During your first year of college how often did you interact with the following people (include both in-person and electronic interactions):

<table>
<thead>
<tr>
<th>People</th>
<th>Never</th>
<th>Less Than Once A Month</th>
<th>Once a Month</th>
<th>2-3 Times a Month</th>
<th>Once a Week</th>
<th>2-3 Times a Week</th>
<th>Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic advisor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A faculty member, in-person, outside of class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A faculty member via electronic messages (i.e. email, chat, course website)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A tutor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Q34:** Which statement best describes you enrollment status for your first year of college?  
____ Full-time in both fall and spring semesters  
____ Full-time in the fall semester but part-time in the spring semester  
____ Part-time in the fall semester but full-time in the spring semester  
____ Part-time in both the fall and spring semesters

**Q35:** Were you required to take remedial/developmental course(s) in English?  
____ No  ____ Yes

**Q36:** Were you required to take a remedial/developmental course(s) in math?  
____ No  ____ Yes
**Q37** During your first-year of college how often did you engage in the following tasks?

<table>
<thead>
<tr>
<th>Task</th>
<th>Never</th>
<th>1-2 Times</th>
<th>3-4 Times</th>
<th>5-6 Times</th>
<th>7-8 Times</th>
<th>9 or More Times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rewrite or prepare a rough draft of a writing assignment?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write a paper of five or more pages in length</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>An assigned group project</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Came to class unprepared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use information from more than one class to complete an assignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ask a question in class or participate in class discussion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gave a presentation in class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attend a supplemental instruction session or workshop to better understand course material or to improve study skills/ time management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skipped class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Review articles or books to use as possible sources for a research paper (either electronically or in a library)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Q38:** During your first-year of college, how many hours a week, including weekends, did you spend on the following activities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>1-5</td>
</tr>
<tr>
<td></td>
<td>6-10</td>
</tr>
<tr>
<td></td>
<td>11-15</td>
</tr>
<tr>
<td></td>
<td>16-20</td>
</tr>
<tr>
<td></td>
<td>21-25</td>
</tr>
<tr>
<td></td>
<td>26-30</td>
</tr>
<tr>
<td></td>
<td>31+</td>
</tr>
<tr>
<td>Studying alone</td>
<td></td>
</tr>
<tr>
<td>Studying with a partner or group</td>
<td></td>
</tr>
<tr>
<td>Work on assignments for a math class</td>
<td></td>
</tr>
<tr>
<td>Reading assigned material</td>
<td></td>
</tr>
<tr>
<td>Working for wages on campus</td>
<td></td>
</tr>
<tr>
<td>Working for wages off campus</td>
<td></td>
</tr>
<tr>
<td>Socializing with students attending your college or university either in-person or electronically (i.e., email, chatting, Skype, Facebook, Tweeting, texting, phone etc.)</td>
<td></td>
</tr>
<tr>
<td>Socializing with family or friends not attending your college or university either in-person or electronically (i.e. email, chatting, Skype, Facebook, Tweeting, texting, phone etc.)</td>
<td></td>
</tr>
<tr>
<td>Playing electronic/computer games and/or watching TV</td>
<td></td>
</tr>
<tr>
<td>Exercising</td>
<td></td>
</tr>
</tbody>
</table>
**Q39:** During your first year of college, did you do any of the following:

<table>
<thead>
<tr>
<th>Activity</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take an online course at your college or university</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Take an online course offered by another college or university</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended a mixed-method course that combined in-person and online interaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perform service/volunteer work assigned by your college or university</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attend a cultural event (play, concert, art exhibit) at your college or university</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate in intramural or club sports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate in an intercollegiate sport sanctioned by the NCAA or NAIA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Join a fraternity or sorority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Join a student group that was not a fraternity or sorority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate in a freshman seminar class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate in a learning community</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work with a professor on a research project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attend a workshop to improve your study or time management skills</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Q40:** If you had the opportunity to do it all over again would you still attend the institution you attended in your first year of college?  
_____ No  _____ Yes

**Q41:** What is your college GPA?  
_____
Q42: During your first-year of college were you ever placed on academic warning or probation
_____ No  _____ Yes

Q43: Being a student is a very rewarding experience.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q44: If I try hard enough, I will be able to get good grades.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q45: Most of the time my efforts in school are rewarded.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q46: No matter how hard I try I do not do well in school.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q47: I often expect to do poorly on exams.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q48: All in all, I feel I am a capable student.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q49: I do well in my courses given the amount of time I dedicate to studying.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q50: My parents are not satisfied with my grades in college.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q51: Others view me as intelligent.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q52: Most courses are very easy for me.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q53: I sometimes feel like dropping out of school.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree
Q54: Most of my classmates do better in school than I do.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q55: Most of my instructors think that I am a good student.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q56: At times I feel college is too difficult for me.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q57: All in all, I am proud of my grades in college.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q58: Most of the time while taking a test I feel confident.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q59: I feel capable of helping others with their class work.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q60: I feel teachers' standards are too high for me.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q61: It is hard for me to keep up with my classwork.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q62: I am satisfied with the class assignments I turn in.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q63: At times I feel like a failure.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q64: I feel I do not study enough before a test.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q65: Most exams are easy for me.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q66: I have doubts that I will do well in my major.
_____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree
<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q67:</td>
<td>For me, studying hard pays off.</td>
</tr>
<tr>
<td>Q68:</td>
<td>I have a hard time getting through school.</td>
</tr>
<tr>
<td>Q69:</td>
<td>I am good at scheduling my study time.</td>
</tr>
<tr>
<td>Q70:</td>
<td>I have a fairly clear sense of my academic goals.</td>
</tr>
<tr>
<td>Q71:</td>
<td>I’d like to be a much better student than I am now.</td>
</tr>
<tr>
<td>Q72:</td>
<td>I often get discouraged about school.</td>
</tr>
<tr>
<td>Q73:</td>
<td>I enjoy doing my homework.</td>
</tr>
<tr>
<td>Q74:</td>
<td>I consider myself a very good student.</td>
</tr>
<tr>
<td>Q75:</td>
<td>I usually get the grades I deserve in my courses.</td>
</tr>
<tr>
<td>Q76:</td>
<td>I do not study as much as I should.</td>
</tr>
<tr>
<td>Q77:</td>
<td>I usually feel on top of my work by finals week.</td>
</tr>
<tr>
<td>Q78:</td>
<td>Others consider me a good student.</td>
</tr>
</tbody>
</table>
Q79: I feel that I am better than the average college student.
____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q80: In most of the courses, I feel that my classmates are better prepared than I am.
____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q81: I feel that I do not have the necessary abilities for certain courses in my major.
____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

Q82: I have poor study habits.
____ Strongly Disagree  _____ Disagree  _____ Agree  _____ Strongly Agree

This concludes the survey. Thank you for your participation. You have the opportunity to register for a $300 grand prize drawing that will be awarded to one survey respondent. Registering for the drawing requires you to provide your name and contact information. Please note that survey results are anonymous and that the information you provide when registering for the drawing will not be matched to your survey results. Also, the registration information you provide will not be given to any third parties. If "yes," then click the "Yes" button below (You will be directed to a registration page). If "no," click the "No" button below. This will end your participation in the research project.

Yes
No