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AN INTEGRATIVE PSYCHOLOGICAL MODEL OF STUDENT WITHDRAWAL

By

Mark C. Zorzie

A THESIS

**Submitted to
Michigan State University
in partial fulfillment of the requirements
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ABSTRACT

AN INTEGRATIVE PSYCHOLOGICAL MODEL OF STUDENT WITHDRAWAL

By

Mark C. Zorzie

College student withdrawal rates have remained relatively consistent despite decades of attention to the issue. While turnover in the organizational context and student withdrawal in the university context are typically considered conceptually distinct, the two contexts have much in common. In this study, findings from these literatures are integrated to create a model of college student withdrawal. In general, it is hypothesized that students come to college with varying background characteristics that affect integration into the university environment. This integration affects satisfaction and commitment, which in turn affect withdrawal cognitions and behaviors. These antecedents ultimately lead to a decision to withdraw. Findings from this longitudinal study demonstrate that the general progression outlined in the model is supported. Theoretical and practical implications are discussed.

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INTRODUCTION

Turnover is a widespread problem among organizations of all types, and increased turnover has been found to relate to a variety of negative outcomes for organizations (Zimmerman, 2008). Universities are no exception. Attrition rates of college students have been of interest for at least 80 years (Summerskill, 1962). Despite decades of research on the issue, however, these rates have remained relatively consistent in the educational setting (Tinto, 2006; Kalsner, 1991). In the last 25 years, persistence rates have remained around 40% for four-year public institutions and around 56% for four-year private institutions within five years after entry (ACT, 2008). This is a concern to universities because of the potential revenue lost, but also in the attraction of new students; a low retention rate weighs against a university as a prospective student views quality rankings in deciding which institution to attend (Tinto, 2005). Many universities have implemented programs and developed strategies to reduce withdrawal, but these have met differing levels of success (Tinto, 2006).

While “turnover” is the term commonly used in the organizational literature to refer to the departure of an individual from his or her job (e.g. Youngblood, Mobley, & Meglino, 1983; Lee, Mitchell, Wise, & Fireman, 1996; Harman, Lee, Mitchell, Felps, & Owens, 2007), a variety of terms have been used in the past few decades to describe the same phenomenon in the university setting. Consistent with Berger & Lyon’s (2005) description of the terminology, in this article I will refer to the departure of students as “withdrawal” or “dropout” and the overall failure of reenrollment from one semester to the next as “attrition.” Withdrawal intentions represent a planned course of action to

drop out, while actual withdrawal refers to whether or not a student reenrolled at the university he or she had been attending. Although Berger and Lyon (2005) use “persistence” to refer to simply continuing one’s education *somewhere*, including transferring from one institution to another, I will use this term to refer to the continuing one’s education within the university at which a particular student began; that is, I will use persistence to mean the opposite of withdrawal.

Throughout this paper I will attempt to integrate findings from the organizational literature and findings from the literature on the academic arena; this may seem like a stretch at first. Munson and Rubenstein (1992), however, argued that the two are actually quite alike, with similar individual functions and tasks, situations, environmental conditions, and assessment characteristics. Types of schoolwork can be categorized along the same dimensions of data, people and things on which other work is categorized (e.g. O*NET). Students are attracted to and are successful in different areas of schoolwork just as workers outside the classroom are in various careers. As Munson and Rubenstein note, both students and these workers must operate under stressful conditions, perform tasks they would rather not, follow directions, and work with others. While I agree that there are important differences between these two contexts, I believe there are also relevant similarities and that these corollaries are worth discussing.

In the organizational turnover literature, the first significant developments came from March and Simon (1958). They theorized that dissatisfaction resulted from organizational variables such as inadequate pay and few advancement opportunities, and that this dissatisfaction led to a desire to voluntarily leave. Mobley (1977) adapted this idea of dissatisfaction into a larger model. In his conceptualization of this process,

dissatisfaction led to thoughts about quitting, which in turn triggered search and evaluation of the available alternatives to one's current job. If the alternatives were judged as better than the current job, the individual would intend to quit and then follow through with that intention.

In the 16 years following the publication of Mobley's (1977) model, many others were proposed, but these mainly focused on satisfaction, commitment, and turnover intentions (Peterson, 2004). While these variables consistently demonstrated significant relationships with turnover (Tett & Meyer, 1993), Lee and Mitchell (1994) noted that these models typically explained less than 15% of the variance in voluntary turnover. These authors proposed an unfolding model that, in contrast to previous models, was based on significant life events or "shocks". These will be discussed in greater detail later in this paper, but the general idea is that these shocks cause one to leave a job, sometimes with and sometimes without deliberation and a search for alternatives.

Lee and Mitchell's (1994) model remains influential, but more recent work by Hom, Griffeth and colleagues (e.g. Hom & Griffeth, 1995; Griffith, Hom, & Gaertner, 2000; Hom & Kinicki, 2001) has helped identify and summarize the effects of a number of variables on turnover. The roles of stress, leadership, absenteeism, withdrawal cognitions and other factors have been better elucidated. While there does not appear to be consensus on a single model of organizational turnover, many of the elements of this process and the relationships between them are better understood than they were in March and Simon's (1958) day.

In the academic context, two theoretical models of college student departure have garnered the most interest: Tinto's (1975) student integration model and Bean's (1980) model of attrition. Initially these models had many differences, but over time criticism and research have led to revision and some convergence in the models. Many of the propositions in each model have been tested over the years, and a clearer picture of the causes of student withdrawal is emerging.

The most widely cited framework for student departure is Tinto's (1975; 1993) model (Metz, 2002). This model was based on works by Durkheim (1951) and Spady (1971). Durkheim posited that suicide was largely a result of a lack of integration between an individual and society. Spady adapted this theory into the first theoretical model of student departure. He theorized that students who had trouble integrating into the social fabric of a university would be more likely to drop out. Tinto (1975) built upon this model. He theorized that students come to college with differing attributes, including family background, skills, abilities, and some level of initial commitment. At college, students experience academic and social interactions with their faculty and peers as well as differing levels of academic performance. Successful performance and high-quality interactions lead to academic and social integration, which in turn leads to greater commitment and persistence.

Though Tinto's model has received the most attention, Bean's (1980; 1981; 1985) model has also received a great deal of interest. Bean's (1980) initial Causal Model of Student Attrition incorporated background variables and a large number of individual determinants such as goal commitment, GPA, one's major, and the opportunity to get a job or transfer. The interaction between these elements was theorized to lead to

satisfaction, which in turn led to commitment. This ultimately resulted in a decision to withdraw or persist. Bean (1981) later attempted to synthesize elements from different theoretical models into a more unified model; the subsequent model also included background variables' effect on interactions with an organization, but the role of external factors was more pronounced. Intent was also included in this model as a direct precursor to withdrawal.

Just as Bean has attempted to synthesize aspects of several models into his own, Tinto (1993) modified his model based on criticism it had received. He included external factors affecting one's goals and commitments, and also included one's intentions as a direct precursor to dropping out. Tinto's and Bean's models are similar in that they both account for the effects of precollege characteristics, commitment, and the match or fit between students and colleges on degree attainment. They are different in that Tinto's model places greater emphasis on academic and social integration and institutional and goal commitment, whereas Bean's model focuses on the effects of persistence intentions, attitudes, and factors external to the institution (Cabrera, Nora, & Castaneda, 1992).

Empirical research exploring these models has supported many of the propositions in each. Among the findings in support of Tinto's model, student entry characteristics have been found to affect withdrawal (Pascarella & Terenzini, 1980; Braxton, Sullivan, & Johnson, 1997) and academic integration has been found to affect commitment to graduating. Among the findings regarding Bean's model, institutional fit has been found to affect intent to persist (Cabrera, Castaneda, Nora, & Hengstler, 1992) and personal and organizational variables have been found to affect attitudes and intents (Bean & Vesper, 1990).

Given the interest in both models, it is not surprising that attempts have been made to combine them into a single model. Cabrera, Nora, & Castaneda (1992) used structural equation modeling to test a model that combined the two. In the resulting model, external factors were found to affect both academic and social integration. This integration led to institutional and goal commitment, which led to intent to persist and ultimately to persistence. Academic integration also affected GPA, which had a direct effect on persistence. Subsequent models in this line of research have incorporated such findings into a more unified theory on persistence. Bean and Eaton (2000) developed a psychological model of student retention that includes entry characteristics, elements of the institutional environment including academic and social interactions, integration, fit, commitment, and persistence intentions.

To my knowledge, only one author has attempted to bridge the research from both the collegiate and organizational contexts into a unified model. Peterson (2004) combined elements from Tinto's model and from various turnover models into the Organizational Model of Employee Persistence. In this model, pre-entry attributes affect employee characteristics such as goals, commitment, and satisfaction. These latter elements affect a host of organizational experiences, which are framed as different facets of integration. These integrational characteristics affect subsequent goals, commitment and satisfaction (all of which have appeared previously in the model), which eventually lead to a decision to stay with or leave an organization. In a subsequent test of this model, Peterson (2007) found support for the hypotheses that initial goals, commitment, satisfaction, and career decision-making self-efficacy affect employee integration. This integration explained 25% of the variance in subsequent goals, commitment, and

satisfaction, though actual turnover was only weakly predicted by the variables in this model. Though this model combined elements from these two areas of research, it was designed to describe turnover and has not been applied to an undergraduate sample.

One of the common and generally supported elements of these models is background or entry characteristics (e.g., Braxton, Sullivan, & Johnson, 1997). Students come from unique backgrounds, so it should be expected that they bring with them different experiences, skills, abilities, and personalities. These factors will influence the various interactions and outcomes of the college experience.

Though this broad category of precollege characteristics has garnered support as a whole, the specific elements that compose it have been varied and inconsistently employed. Braxton, Sullivan and Johnson (1997) found support for the inclusion of prematriculation characteristics in Tinto's model, but they looked at effects across multiple studies that included different characteristics. Some elements that have been mentioned by Tinto and Bean have not received much attention. For example, Tinto (1993) specifically discussed the hypothesized but largely untested effects of personality on attrition, and Bean (1981) incorporated Pascarella's (1980) model (which includes personality orientations) into a synthesized model of student departure. Despite this theorization, personality has been largely ignored by researchers. Cabrera, Nora, and Castaneda (1992) attempted to integrate Tinto's and Bean's models into a unified model of attrition, but they only included Financial Attitudes and Approval by Family and Friends as precollege characteristics. An attempt to bring consistency and to integrate these background characteristics is needed.

Through a review of the literature, I identified 10 prematriculation characteristics that could affect student attrition: Motivation, Social/cultural involvement, Support and Encouragement, Initial Self-Efficacy, Career Orientation, Locus of Control, Coping Strategies, Knowledge, Perseverance, and Personality. Seven of these variables were present in the archival data set I plan to use, and as will be discussed, six were deemed appropriate for inclusion in the first stage of a new model of student withdrawal. In an effort to both investigate the effects of these variables and to provide an integration of the organizational and educational literature on turnover/withdrawal, I developed Figure 1, which represents a general heuristic model of the factors that may lead to withdrawal. In the following pages, I provide theoretical arguments for each of the stages of withdrawal that are implicit in this figure. Also provided is rationale for hypotheses related to each of these stages.

A few basic ideas outline one's progression through this model. First, a student enters a university with the aforementioned entry characteristics. These entry characteristics affect the manner in which a student integrates with the university environment. Greater integration leads to satisfaction and commitment. Increased satisfaction leads to reduced thoughts and behaviors related to withdrawal, and these reduced thoughts and behaviors ultimately reduce actual withdrawal.

This general progression is represented by the variables in this model, which are divided into stages. The entry characteristics appear in the first stage. These entry characteristics lead to the second stage variables of academic and social integration, and academic integration leads to GPA; financial integration and family support also appear as exogenous variables in this stage. The variables in stage 2 lead to the intermediate

outcomes of academic, social, and financial satisfaction and institutional and degree commitment in stage 3. The stage 3 variables reduce one's activities regarding withdrawal cognitions and behaviors (represented by the stage 4 variables of thoughts of leaving, intent to withdraw, and search behaviors), which ultimately result in reduced likelihood of withdrawing.

Entry Characteristics

Personality.

Personality is one of the entry characteristics that has been included in theoretical models of student withdrawal. Early investigation of the role of personality in student withdrawal lacked both a model of withdrawal and a commonly accepted framework for personality. Grace (1957) found that independent and responsible students were less likely to withdraw and that anxious students were more likely to withdraw. Dropouts have been shown to be lower on abasement, achievement, order, and endurance, higher on autonomy, exhibition, and aggression (Heilbrun, 1965), higher on impulsivity and change (Maudal et. al., 1974), and higher on assertiveness, stubbornness, and independence (Pandey, 1973).

Though Tinto (1993) recognized the difficulty of utilizing such findings without a good framework for personality, he nevertheless theorized that personality affected dropout decisions, saying, "... though we sense that personality must play a part in student departure, we are thus far unable to say just how different elements of personality affect student leaving in different institutional settings" (p. 45). The Big 5 framework of

personality has provided a useful structure for studying withdrawal. The Big 5 consists of openness to experience, conscientiousness, extraversion, agreeableness, and emotional stability. Barrick and Mount (1991) describe openness to experience as “being imaginative, cultured, curious... [and] broad minded,” conscientiousness as “being careful, thorough, responsible, organized... hardworking, [and] achievement-oriented,” extraversion as “being sociable, gregarious, assertive, talkative, and active,” agreeableness as “being courteous, flexible,... cooperative... and tolerant,” and emotional stability as a lack of “being anxious, depressed, angry,... worried, and insecure.”

Since the advent of the Big 5 personality factors, some researchers have begun investigating the relationship between personality and student withdrawal. Tross, Harper, Osher, and Kneidinger (2002) studied conscientiousness (along with achievement and resiliency) and found that it predicted persistence among college students both directly and indirectly through GPA. Lounsbury, Saudargas, and Gibson (2004) examined the Big Five as a predictor of withdrawal intention in first-year students and found that conscientiousness, extraversion, agreeableness, and emotional stability were significantly related to withdrawal intention, with conscientiousness and emotional stability accounting for 17% of the variance.

In the organizational context, there have been three studies that have aided in understanding the personality-turnover relationship. In Barrick and Mount’s (1991) meta-analysis, they found significant but fairly weak relationships between conscientiousness and openness to experience and a variable similar to turnover. This variable was a combination of turnover and tenure, however, so it is hard to draw

conclusions from these relationships. Salgado (2002) conducted a meta-analysis where he found that persistence in an organization was affected by conscientiousness, agreeableness, and openness to experience. Lastly, Zimmerman (2008) found that emotional stability had a strong association with intentions to quit, while agreeableness and conscientiousness had strong relationships with actual turnover.

These findings are encouraging in the sense that they support a relationship between personality and withdrawal. Despite this, to my knowledge only one study has investigated the role of the Big 5 personality characteristics on college student withdrawal in the context of a larger model. Okun and Finch (1998) incorporated the Big 5 into Tinto's framework and found that conscientiousness had the largest direct effect on student departure (-.29), while neuroticism had the largest effect on social integration (-.48), which led to institutional commitment and resulted in decreased withdrawal. A limitation of the study, however, was that only 14 students out of 240 dropped out. This rate of less than 6% withdrawal is much lower than the near-30% dropout rate at a typical 4-year public institution from the first year of college to the second (ACT, 2008), so the university in the study may not have a student body representative of others. In addition, the low withdrawal rate likely attenuated the observed relationships between personality factors and the outcomes of withdrawal and integration.

These studies have helped to clarify the nature of the relationships between the Big 5 factors and withdrawal. All five studies that included conscientiousness and either turnover/withdrawal or intent to turnover/withdraw found significant relationships (Salgado, 2002; Zimmerman, 2008; Tross, Harper, Osher, and Kneidinger, 2002; Lounsbury, Saudargas, & Gibson, 2004; Okun & Finch, 1998). All four that included

emotional stability and these outcome variables found direct or indirect significant relationships. Three of these four supported relationships between agreeableness and turnover/withdrawal. Only one of the four found such a relationship regarding extraversion, and none found such a relationship regarding openness to experience. Thus, conscientiousness, emotional stability, and agreeableness have the most consistent relationships with turnover and withdrawal and intent to turnover/withdraw when both the employment and academic settings are considered.

While much of the research has assessed direct relationships between personality and withdrawal or withdrawal intent, I believe it is more likely that these relationships are mediated by academic and social integration. For instance, students who are more conscientious students should have higher quality social relationships with other students due to increased dependability, and should also be more meticulous with academic work due to the increased organization, thoroughness, and will to achieve (Barrick & Mount, 1991). Thus, conscientiousness should increase integration into the social and academic environments. The relationships of these personality factors to academic and social integration are hypothesized in the next section of the proposal.

Goal Orientation.

In college, not everything a student must do to succeed is directed and prescribed. Students must practice self-regulation with regard to their learning objectives. Self-regulation is useful as a general skill because it allows one to engage in activities that facilitate the attainment of some sort of goal (Porath & Bateman, 2006). When applied

to the context of academics, this self-regulated learning facilitates success through control of motivation, regulation of affect, and modification of behavior (Schunk & Zimmerman, 2008).

One facet of motivation on which individuals can regulate themselves is goal orientation. Goal orientation (Dweck & Legget, 1988) is a “relatively stable dispositional trait that co-varies with the individual’s implicit theory of ability,” (p. 26, Button & Matthieu, 1998). There are three independent dimensions of goal orientation: mastery goal orientation, performance-approach goal orientation, and performance-avoid goal orientation. According to Ames (1992), mastery-oriented individuals believe the effort they expend will lead to success. Such learners have increased intrinsic motivation and excitement about learning because they desire to understand and internalize information (Elliot & Harackiewicz, 1996). Mastery-orientation has generally been positively related to learning-related outcomes. Individuals high on this motivational factor have been shown to persist when facing challenges (Elliot & Dweck, 1988; Vollmeyer & Rheinberg, 2000), succeed when faced with complex situations (Erez, 2005), have greater persistence in college (Edens, 2006), have greater commitment in high school (Tuominen-Soini, Salmela-Aro, & Niemivirta, 2008), and demonstrate greater motivation to learn (Colquitt & Simmering, 1998).

Performance orientation was originally considered a unitary dimension (Elliot & Harackiewicz, 1996). Individuals with a high performance orientation, it was believed, desire to succeed because they want to outperform others. They see learning as a mechanism for achieving their goals, but they are not too concerned with a deep understanding of the topics they “learn.” Under this original conceptualization of

performance orientation, it was found that individuals with such an orientation generally demonstrate more undesirable behaviors, including a lack of progress in high school and lower self-esteem (Tuominen-Soini, 2008), excessive daytime sleepiness (Edens, 2006), lower motivation to learn (Colquitt & Simmering, 1998) and a “helpless” pattern of response to challenges (Button & Matthieu, 1998).

Despite these findings, there was evidence that performance orientation was not maladaptive under some circumstances. Recognizing inconsistency in the results of a number of studies using a simple performance/mastery dichotomy, Elliot and Harackiewicz (1996) proposed that the dimension of performance orientation be divided into performance-approach and performance-avoid dimensions. Individuals with a performance-approach orientation are said to be motivated to learn by the challenge of a task and adaptive competition with others, and this is believed to increase concentration and excitement. On the other hand, individuals with a high performance-avoid orientation are motivated by a desire to avoid demonstrating incompetence; this is said to decrease intrinsic motivation.

Subsequent findings using this trichotomous framework have found that the main effect of mastery goal orientation holds, and the roles of the two types of performance goals are becoming better understood. Performance approach goals have generally been found to lead to positive outcomes, while performance avoid goals have generally found to lead to negative outcomes. Harackiewicz, Barron, Tauer, Elliot, & Thrash (2002) found that mastery goals lead to higher interest and enjoyment, while performance approach goals lead to higher GPAs both in the course of interest and overall. The authors concluded that “both mastery and performance-approach goals have positive and

complementary consequences for motivation and performance in college courses over the course of students' academic careers" (p. 574). Similarly, Barron and Harackiewicz (2001) found that mastery goals led to higher interest while performance goals led to better performance for college students working on a math task. A meta-analysis on the goal-orientation literature by Payne, Youngcourt & Beaubien (2007) found that both mastery and performance approach goal orientations had positive relationships with learning, while a performance avoid orientation had a negative relationship with learning.

In the organizational context, results have been very similar. This is not surprising, as both students and workers in organizations must set many goals as they progress. While perhaps not shared by workers, the overarching goal of graduation for students is a product of many smaller goals that factor into the success of a student. In their aforementioned meta-analysis, Payne, Youngcourt & Beaubien (2007) found positive relationships between both mastery and performance approach goal orientations and job performance. Turnover, however, has not been a variable of interest in the goal orientation literature when using this three-factor model. To my knowledge, there have also not been any studies examining the direct or indirect effects of these three facets of goal orientation on college student persistence. Despite the lack of research in these specific domains, the findings relating to each of these facets provide reason to believe they might aid in our understanding of the student withdrawal process. Being high on the mastery and performance-approach goal orientations should lead students to engage in behaviors that facilitate persistence. The consequences of these goal orientations, including greater interest, learning, and performance should also lead to greater academic integration.

There has been some evidence that the positive effects of performance approach goals are dependent on mastery goal orientation level; for example Pintrich (2000) found that high performance-approach goals led to negative motivational outcomes when they were not accompanied by corresponding mastery goals. However, other studies have found direct, positive effects of performance-approach goals on various outcomes (e.g. Barron & Harackiewicz, 2001). Although the verdict is still out on this matter, in this study I will investigate the independent effects of each.

While the outcomes of goal orientation have largely been related to performance or success, I believe goal orientation should have an effect on academic integration. Mastery-oriented students are intrinsically motivated to learn and believe that their effort can result in positive outcomes. Such students would likely appreciate their classes more and be more genuinely interested in their major, increasing academic integration. Students high on performance-approach goal orientation should be motivated to learn material in order to demonstrate knowledge, also increasing appreciation of classes and their choice of major, which in turn should increase academic integration. Students high on performance-avoid goal orientation, on the other hand, would be less motivated to deeply engage in the academic environment and may only do what is needed to “get by”. This approach would lower academic integration. The effects of these dimensions on academic integration are hypothesized in the next section.

Career Orientation.

The formal purpose of college is to prepare students for life after graduation—mainly, to prepare students for some sort of career. Some students may choose to pursue further schooling to this end, and some may choose alternative routes such as service work, but for the majority of students, a career is the logical next step after graduation. Though this may be a common progression in individuals' lives, there is variability in the importance of career-related goals and the belief that one can attain them. Some students may be at a university due to familial or social pressures rather than a strong desire to pursue a career. Others may appreciate the importance of secondary education in pursuing a career, but they may not expend much effort in deciding upon a particular career to pursue. In either case, career goals are not strong. When a student does not have strong career goals or does not believe he or she can attain them, it is likely that less time will be spent on gathering career-related information. Similarly, degree attainment becomes less important when it does not have a place in one's larger goal framework. A student can still want to obtain a degree for other reasons, but if career goals are absent, many students will have fewer reasons for continuing in college.

Indeed, career goal identification has been shown to lead to persistence (Peterson, 1993; Sprandel, 1986). Kahn, Nauta, Gailbreath, Tipps, & Chartrand (2002) showed that students who were more anxious about choosing a career were more likely to dropout. Hull-Blanks and colleagues (2005) showed that freshmen with well-defined career goals made better persistence decisions than freshmen lacking such goals. Furthermore, there has been a great deal of interest in students' beliefs that they can identify a career. This has been termed career decision-making self-efficacy, and it has demonstrated relationships with persistence (Peterson, 1993; Sandler, 2000). Together, the

identification of career goals and the belief that one can attain them are important elements of student persistence. In this paper, career orientation reflects a combination of these elements and is defined as one's ability to identify career-related goals and one's belief he or she can attain these goals. Accordingly, the items in the career orientation measure refer to both identification of career goals and confidence in attaining them. While career goal identification and career decision-making self-efficacy have demonstrated direct relationships with withdrawal, I believe career orientation is more appropriately conceptualized like the other entry characteristics as being related to academic integration. Students who can identify career goals and believe they can attain them should concentrate more on courses related to those goals, and they should also select a major that is congruent with those goals and have a strong desire to earn a degree in that major. The relationship between career orientation and academic integration is hypothesized in the next section.

Perseverance.

Perseverance is defined as "steady persistence in a course of action, a purpose, a state, etc., esp. in spite of difficulties, obstacles, or discouragement" (Random House, 2009). Essentially, this is what college students do in their pursuit of a degree.

Intuitively, it follows that students with a greater propensity for perseverance would be more likely to overcome obstacles and ultimately obtain a degree. The problem with the current literature is that perseverance is most often treated only as an outcome.

Perseverance, like persistence, is simply treated as continued progress toward a degree; it

is a product of many other factors such as the prematriculation characteristics I have already discussed. It is generally accepted that past behavior is a strong predictor of future behavior (Owens & Schoenfeldt, 1979), so I believe there is reason to believe that past perseverance behaviors should predict positive outcomes even on complex tasks such as college persistence and degree attainment.

In the organizational literature, it seems that a tendency toward perseverance has not been treated as a precursor to turnover. To my knowledge, the only published study that has treated perseverance as an exogenous variable in the collegiate context was a study dealing with racial differences in the effects of noncognitive factors on degree attainment (Tracey & Sedlacek, 1986). In that study, items were factor analyzed and clusters were given labels (such as perseverance). The authors found that this perseverance scale significantly predicted graduation of Black students, but that it did not have any effect among White students. While the research in this area has been limited, I believe there is enough of a theoretical justification to contend that an a-priori perseverance scale may have a more consistent effect for college students on degree completion. Reflecting the definition presented above, the items in the perseverance scale used in this study gauge one's ability to persist in a course of action, generally toward some goal, in spite of difficulties. Students who have done this previously in life should be likely to do this in their courses and in pursuit of a major. Thus, students with greater perseverance should perceive greater academic integration. This is hypothesized in the next section.

Knowledge Acquisition.

It is generally assumed that grade-point average (GPA) is a measure of a student's ability to acquire and demonstrate knowledge, though this assumption has been questioned (Pemberton, 1970). Course selection by students, instructor grading practices, and other between-institution differences can have a large impact on a high school student's GPA (Lei, Bassiri, & Schulz, 2001). Despite this, high school grades (along with SAT scores) continue to demonstrate among the strongest relationships with college success, and thus are a widely used metric in admissions decisions (e.g. Geiser & Santelices, 2007).

If the variables of interest are really those relating to knowledge acquisition and demonstration of abilities, it is possible these can be captured in a manner other than cumulating GPAs across classes. Biographical items can be used to gauge the amount one typically learns in a class, use of effective knowledge-acquiring techniques, and learning and past performance relative to other students—all elements that should theoretically also affect GPA. These should affect success in college and directly or indirectly impact persistence. Other studies have used biographical inventories in predicting college outcomes (e.g. Richards, Holland & Lutz, 1967), but there is only one study potentially relevant to this factor dealing with the biodata constructs and student attrition. Owens & Shoenfeldt (1976) clustered students on factors derived from a biographical inventory, and the results showed that a group labeled “dependent, poorly adjusted dropouts” was lower on past academic achievement (though it is not clear exactly what academic achievement entailed). The dearth of literature in this area only increases the importance and utility of including such a factor in the current study.

In the present study, knowledge acquisition represents a student's ability and desire to learn. The items in this scale reflect past tendencies to learn, learning ability compared to other students, and determination to learn concepts and information in school. Greater knowledge acquisition should result in similar behaviors in college courses, increasing academic integration. This is hypothesized in the next section.

Social/Cultural Involvement.

Just as students participate in social and cultural activities in college, they also participate to varying degrees in these types of activities in high school. Such activities may be formal extracurriculars, such as belonging to a sports team or a debate club, or informal activities, such as hosting social gatherings, volunteering in the community, or visiting museums and festivals. Participating in these activities in either the high school or college context contributes to integration into the social fabric of one's surroundings. As I will later discuss, this social integration is important for success and persistence in college.

Hossler and Stage (1992) found that participation in high school activities does have an impact on the student's aspirations in college. Other researchers have found that involvement in these sorts of activities have a positive impact on educational attainment (Spady, 1975; Hearn, 1984), and both the time a student spends in clubs or groups and the time he or she plans to spend volunteering in college have been found to relate directly to student persistence (Astin & Oseguera, 2005). Essentially, the integration a

student experiences in high school reflects an ability to achieve similar integration in a different surrounding.

While these studies have mainly been concerned with social rather than cultural activities, cultural activities are theoretically relevant. The items in the social fit scale refer to shared ideas of fun with other students, as well as a campus having social activities one enjoys. These could easily be cultural activities. Students in universities come from a variety of backgrounds and cultures, and the university environment commonly provide opportunities for students to attend art museums, ethnically-related events, or other cultural events. Increased participation in these events in high school, then, should facilitate integration into the social environment of college. In the present study, the social/cultural involvement scale reflects involvement in both social and cultural activities, including involvement in clubs, volunteering, and attending museums and theatrical performances. Because of the nature of social/cultural involvement, it is hypothesized (in the next section) that it will affect social integration.

Academic Self-Efficacy.

Another component of self-regulated learning is self-efficacy, which Zimmerman and Shunk (2008) describe as “judgments of personal capabilities to organize and execute courses of action required to attain designed types of goals.” When a student has success in academic pursuits, it increases aspirations in future academic pursuits (Bean & Eaton, 2000). If an individual believes he or she can attain a goal, he or she will be more likely to engage in the activities that facilitate success. For instance, in theory a student who is

getting a C or considering dropping out but believes he or she is actually capable of succeeding if they make some changes and perhaps increase effort might seek out a TA's office hours or end up studying more, whereas a student low in self-efficacy may not engage in these behaviors. These behaviors would lead to success and would increase the likelihood that a student would complete a degree.

The performance of both students and workers in organizations relies on self-regulation. Self-efficacy is important for both groups in directing behaviors that accomplish one's goals. The extant literature on self-efficacy in the organizational context provides encouraging results. Stajkovic & Luthans (1998) conducted a meta-analysis in which self-efficacy was found to significantly relate to work performance. Saks (1995) found a positive relationship between initial self-efficacy when workers entered a company and eventual turnover. McNatt and Judge (2008) found that a self-efficacy-raising intervention increased job attitudes and reduced turnover among employees who underwent it.

Findings pertaining to the relationship between self-efficacy and student persistence have been mixed. Haines, McGrath & Pirot (1980) found that self-efficacy does not predict persistence on a lab task. Kahn & Nauta (2001) found that precollege self-efficacy does not predict persistence, but that several social-cognitive factors measured in the second semester including self-efficacy do predict persistence from a student's first year to their second. Multon, Brown & Lent's (1991) meta-analysis revealed that self-efficacy accounts for 14% of the variance in academic performance and 12% of the variance in academic persistence. Robbins, Allen, Casilla, & Peterson (2006)

found that academic self-efficacy predicts GPA and persistence above traditional cognitive predictors.

A study by Gore (2006) may help reconcile these findings. He found that the timing of the measurement of self-efficacy beliefs may be important. Self-efficacy measured at the beginning of college was not a significant predictor of persistence, but self-efficacy measured at the end of the first semester did predict persistence. Students may need feedback in order to develop accurate efficacy beliefs. In light of these findings, I believe that self-efficacy should be included later in the hypothesized model and will redirect attention to this construct in subsequent discussion.

Other Variables.

As was mentioned earlier in this paper, there are other variables that could be relevant prematriculation characteristics. While family support and encouragement was not measured at the beginning of college, it was measured at later time points. It is likely that such support is stable across time points—this can be investigated based on the data in the later time points, and if true, would lend credence to the belief that it would be similar if it had been measured at the beginning of college. Therefore, I do not think its absence at the initial time point will detract from this study.

Locus of control and coping strategies, on the other hand, are variables that were not measured in this data collection. Even so, I do not believe they are completely absent from our data; these constructs have ties to motivation and self-efficacy. Individuals with an internal locus of control believe they have the power to control the events that occur in

their lives, while individuals with an external locus of control believe external forces have a stronger influence on their lives. This has much to do with motivation and self-efficacy; if one does not believe he or she can control the events in his or her life, there will be little belief that one's actions will matter and less motivation to perform those actions. Coping Strategies can be viewed in a similar fashion. The road through college is an often bumpy one, and students need to know how to deal with the problems they encounter. If they believe these problems are solvable and also that they have the ability to deal with the problems, they will be more likely to solve them. Because of these connections to variables that were measured, I do not believe the omission of locus of control and coping strategies will significantly impact the study.

Entry Characteristics' Role in the Model.

Thus far, I have described the nature of a set of pre-entry characteristics. As Figure 1 illustrates, and as was mentioned in the description of each of these variables, it is likely that the relationships between these constructs and withdrawal are mediated by other constructs. The prematriculation characteristics that have been described affect how one integrates into his or her environment. This integration affects the outcomes of commitment, satisfaction, GPA and self-efficacy. These in turn affect intentions and behaviors related to withdrawal, which ultimately lead to a decision to withdraw or continue in college. In the following sections, these relationships are described in detail.

The Effects of Entry Characteristics on Integration

A central component of both Tinto and Bean's models is fit or integration. The interactions that one has in college affect how he or she perceives a "match" with the university environment. As Tinto (1993) explains it, this occurs within two systems: the academic and the social. The academic system is the formal educational structure at a university. Within this system, individuals engage in a number of activities, such as going to class, completing assignments, speaking with teachers, and so on. The social system consists of more informal elements, such as interactions not specifically serving purely academic functions between friends, faculty members, and RAs.

Students can integrate into either of these systems independently of the other. One could enjoy a rich social experience while not really appreciating the academic aspects of a particular university. Conversely, one could thrive academically while failing to engage in adequate social interactions. In addition to these previously-conceptualized facets of fit, I also believe that financial fit could have an impact on attrition. Finances have consistently been shown to be an issue in student dropout decisions (Kalsner, 1991). Cabrera, Nora and Castaneda (1993) found that financial attitudes affect persistence indirectly through GPA. Insufficient finances become a problem when they affect what an individual can or cannot do in the university environment. For instance, if a student's friends are going out to a bar or restaurant but he or she does not have the money to participate in this activity, this might affect later variables in the model such as satisfaction. If this individual had gone to a university that matched his or her financial situation better, this person may not be restricted in the activities in which he or she chooses to engage. This would indicate a better financial fit.

Thus, in addition to the academic and social aspects of fit, financial fit may be an important factor in the process of student withdrawal.

As was mentioned, Tinto (1993) and Bean (1980) assert that the pre-entry variables discussed in the previous section may lead to increased fit. These variables affect how a student interacts with others in his or her environment. For instance, a student who is low on the personality characteristics of agreeableness and emotional stability may have difficulty engaging in productive or successful academic or social interactions because they could be perceived as unfriendly and discourteous (friendliness and courteousness being two components of agreeableness; Barrick & Mount, 1991), leading to lower academic and social integration. A student higher on knowledge acquisition and perseverance may seek out and maintain better academic interactions, leading to higher academic integration. A student who is not socially involved may have worse social interactions, leading to lower social integration. Thus, the following relationships between entry characteristics and integration are hypothesized.

H1a. Conscientiousness will have positive effects on academic integration.

H1b. Agreeableness will have positive effects on academic integration.

H1c. Emotional Stability will have positive effects on academic integration.

H2a. Conscientiousness will have positive effects on social integration.

H2b. Agreeableness will have positive effects on social integration.

H2c. Emotional Stability will have positive effects on social integration.

H3a. Mastery goal orientation will have a positive effect on academic integration.

H3b. Performance approach goal orientation will have a positive effect on academic integration.

H3c. Performance avoid goal orientation will have a negative effect on academic integration.

H4. Career orientation will have a positive effect on academic integration.

H5. Knowledge acquisition will have a positive effect on academic integration.

H6. Perseverance will have a positive effect on academic integration.

H7. Social/cultural involvement will have a positive effect on social integration.

The Effects of Integration on Psychological Outcomes

The path from integration to withdrawal is not hypothesized to be direct. Both the I/O literature and the educational literature have supported mediational effects of the variables of satisfaction, commitment, self-efficacy and GPA. While each of these variables is discussed in greater detail later, the relationships between integration and these variables are discussed below.

Theoretically, integration should affect how satisfied a student is with the university environment (Bean, 1981) and how committed he or she is to the university and graduation (Tinto, 1993). A student who perceives a match with this environment will enjoy being in it and will have a stronger loyalty to the institution and getting a degree from that institution. Indeed, in a review of the literature testing aspects of Tinto's (1993) model, Braxton, Sullivan and Johnson (1997) found moderate support among multi-institutional studies for the propositions that academic integration and social integration affect commitment to graduation and commitment to the institution, respectively. Subsequently, Liu and Liu (2000) found that academic integration affects student retention directly and that academic and social integration influence retention indirectly through satisfaction.

In the organizational context, the concept of person-organization fit (P-O fit) has been thoroughly investigated. This term refers to the compatibility between a person and the organization at which he or she works (Kristof, 1996). It is similar to academic integration in that they both describe the extent to which an individual is compatible with a particular aspect of his or her environment (i.e., school or work). Though P-O fit has been operationalized in different ways, it shares much with the operationalization of integration in the present study. The academic and social integration items address two areas: whether one perceives similar goals and interests with and generally feels comfortable with other students, and whether one feels his or her selected major and courses are suited to academic goals and interests. P-O fit has been operationalized as goal congruence with coworkers and as the extent to which organizational systems are congruent with one's preferences or needs (Sekiguchi, 2004). If coworkers in the

organizational context fulfill a similar role as peers in the university context, and if majors and courses are considered organizational systems that can match a student's preferences or needs, then these conceptualizations are similar.

Theoretically, the antecedents and consequences of P-O fit should be similar to those in this model. Individuals enter an organization with varying individual characteristics that affect how an individual interacts with his or her environment. Indeed, entry characteristics including goals and career decision-making self-efficacy have been found to affect fit with the organizational environment (Peterson, 2007). Increased fit should make one more satisfied with the organization in which he or she works, and also more committed to that organization. This satisfaction and commitment should make one think less about quitting. Results have indicated that P-O fit is related to organizational commitment and turnover intentions (Sekiguchi, 2004) and to satisfaction and turnover (Verquer, Beehr & Wagner, 2003; Kristof-Brown, Zimmerman, & Johnson, 2005). Though they recognized the consistency in the findings regarding satisfaction as an outcome of fit, Wheeler, Coleman, Gallagher, Brouer, and Sablinski (2007) also recognized the problem of only looking at simple relationships between fit and this outcome. They found that satisfaction mediated the relationship between fit and turnover. The current model is similar in that fit is leading to satisfaction, but different in that there are withdrawal cognitions and behaviors mediating the relationship of satisfaction and withdrawal. Though the exact progression of fit to satisfaction, satisfaction to turnover cognitions and behaviors, and turnover cognitions and behaviors to turnover has not been studied in the organizational context, the relationships found among these variables across studies support the placement of fit in the current model.

The evidence presented above supports the contention that academic and social integration should lead to satisfaction and commitment as part of the process leading to withdrawal. More specifically, academic integration is hypothesized to lead to academic satisfaction and both degree and institutional commitment, while social fit is hypothesized to lead to social integration and both degree and institutional commitment. The facets of satisfaction and commitment are explained in greater detail in the next section.

Satisfaction and commitment are not the only variables mediating the relationship between integration and thoughts of withdrawal. When students experience this integration it is likely they will be more efficacious with regard to academics. Gore's (2006) aforementioned study on self-efficacy leads me to believe it can be a product of positive academic interactions that would give a student perceptions of integration. Though he did not test the effect of academic integration on self-efficacy, this theoretical reasoning suggests it exists. Based on the findings and theory pertaining to self-efficacy, I believe academic integration will affect persistence via self-efficacy in the manner specified in the model.

H8a. Academic integration will have positive effects on degree commitment.

H8b. Academic integration will have positive effects on institutional commitment.

H8c. Academic integration will have positive effects on academic satisfaction.

H8d. Academic integration will have positive effects on academic self-efficacy.

H9a. Social integration will have a positive effect on social satisfaction.

H9b. Social integration will have a positive effect on degree commitment.

H9c. Social integration will have a positive effect on institutional commitment.

H10a. Financial integration will have a positive effect on financial satisfaction.

H10b. Financial integration will have a positive effect on degree commitment.

H10c. Financial integration will have a positive effect on institutional commitment.

Family Support.

The support from a student's family is an important factor contributing to success. Students encounter problems as they work toward their degree, and having family members to speak with and receive encouragement from can help them deal with these problems. Family approval, which is similar though not identical to support, was included in Bean's (1981) synthesis of attrition models.

Family support is defined as the motivational, emotional, and financial assistance a student's family provides to encourage success in college. When one's family supports attending college, a student can reaffirm his or her decision to attend college and receive encouragement when obstacles are encountered. The student may feel more satisfied

with academics, social relations, and finances, and feel more committed to his or her institution and obtaining a degree. Support can improve academic satisfaction by improving how one views work and gets through tough assignments. Support can also improve social satisfaction by providing emotional aid and encouraging the development of relationships with peers, or can improve financial satisfaction by providing monetary assistance. Degree and institutional commitment are improved because of encouragement to continue working toward a goal and to remain at an institution.

The findings in this area have been very consistent. Bean & Vesper (1990) found support for the inclusion of family support in a model of persistence. Hossler and Stage (1992) found that parental encouragement and expectations positively affected student aspirations. Sandler (2000) found that family encouragement had both an indirect effect on intentions to persist and direct and indirect effects on persistence. Consistent with these findings, Cabrera, Nora, and Castaneda (1993) found that encouragement from family and friends was the single best predictor of institutional commitment, and that it correlated with academic and social integration. Simply put, family support and encouragement is beneficial for students as they work toward a degree. I have no reason to believe that family support would result from the entry characteristics in this model, but the findings pertaining to the relationship between this support and both commitment and integration lead me to believe it should be entered into the model in the same stage as the integration variables. While direct relationships have been found between family support and the outcomes of persistence intentions and actual persistence, this could be because they were not studied in the context of a larger model with the mediating variables of satisfaction and commitment. I hypothesize that family support will be

positively related to the academic, social, and financial facets of satisfaction and to the degree and institutional facets of commitment.

H11a. Family support will have a positive effect on academic satisfaction.

H11b. Family support will have a positive effect on social satisfaction.

H11c. Family support will have a positive effect on financial satisfaction.

H11d. Family support will have a positive effect on institutional commitment.

H11e. Family support will have a positive effect on degree commitment.

Academic Self-Efficacy.

As was previously discussed, self-efficacy has demonstrated a stronger relationship with both performance and persistence (Multon, Brown, & Lent, 1991; Robbins, Allen, Casilla, & Peterson, 2006) when it is measured after a student has been in college for some period of time (Gore, 2006). Consistent with these findings, I hypothesize that academic self-efficacy measured after a student has been in college for some period of time will affect GPA. Self-efficacy was measured at the end of students' first and third semesters in this study, so by the third semester students should have had time to integrate and have received feedback on performance. This should help them develop more accurate self-efficacy beliefs.

H12. Academic self-efficacy will have a positive effect on GPA.

Shocks.

Drawing on Beach's (1990) image theory, Lee and Mitchell (1994) posited that employees make turnover decisions in accordance with four distinct paths. In one of the paths, turnover results from accumulating dissatisfaction rather than a shock. This dissatisfaction leads to a search for alternatives or an automatic decision to quit.

The other three paths involve shocks. Lee and Mitchell (1994) describe shocks as “jarring event[s] that [force] people to notice readily available opportunities” (p.71). The events that fall under this label are quite varied, from random, unexpected, or unlikely events (such as winning the lottery or getting cancer) to more common or expected events (such as getting other job offers or getting married). When one of these shocks occurs, individuals may act upon a pre-set script that results in an automatic decision to quit. For instance, becoming pregnant, whether planned or not, could result in a decision to quit with no deliberation simply because it is the plan one has always had if such an event occurred. Alternatively, a shock could lead to dissatisfaction with one's current job. In this case, either an automatic decision to quit could be made or a search for alternatives could be initiated. Researchers have generally found support for the proposed pathways (Lee, Mitchell, Wise, & Fireman, 1996; Lee, Mitchell, Holtom, McDaniel & Hill, 1999), though the percentage of people who quit who use each path differs by job type (Harman, Lee, Mitchell, Felps, & Owens, 2007).

It is possible that shocks play a similar role in the student withdrawal process. Students encounter similar events (e.g. pregnancy, job offers, disease acquisition), so it is quite possible they would react in a similar manner. To my knowledge, this is a

proposition that has not yet been tested. In the present model, three of the four paths in Lee and Mitchell's model are accounted for. Accumulating dissatisfaction is already present in the model, accounting for the first path. Shocks are hypothesized to lead to decreased satisfaction, but are also directly related to lesser withdrawal, accounting for two other paths. The only path not accounted for is that in which dissatisfaction leads directly to a quitting decision. One of the contributions of this model is the conceptualization of withdrawal cognitions and behaviors; it is expected that these mediate the relationship between satisfaction and withdrawal, so a direct path from satisfaction to withdrawal was not included. Thus, the "shocks" variable, which reflects whether or not a student has experienced at least one of 21 life events, leads both directly to withdrawal and indirectly to withdrawal through the satisfaction-thoughts of quitting pathway.

H13a. Experiencing shocks will negatively affect academic satisfaction.

H13b. Experiencing shocks will positively relate to withdrawal.

Psychological Outcomes

Commitment.

When students integrate into their environment and are efficacious in their ability to get a degree, they are theorized to have increased commitment. There are two kinds of commitment relevant to the college context: goal and institutional. According to Tinto

(1993), goal commitment is a “person’s willingness to work toward the attainment of [personal education and occupational goals]” (p. 43), while institutional commitment is loyalty and a sense of attachment to the particular institution an individual is attending. When a student’s goal is obtaining a degree, goal commitment takes on the more specific form of working toward a degree. This can be termed degree commitment. Degree commitment may arise from various sources, such as an understanding of the impact a degree will have on one’s future earnings and quality of life, or from an intrinsic desire to possess certain knowledge. Similarly, institutional commitment may come about in different ways, such as stemming from parental attendance at a university or a desire to have a recognizable university’s name on one’s degree. These are distinct aspects of commitment; a student with high goal commitment but low institutional commitment may drop out of one university but continue at another.

In the I/O psychology literature, organizational commitment is a construct that is similar to institutional commitment. Organizational commitment is divided into the facets of affective, continuance, and normative commitment (Allen & Meyer, 1990). As Allen & Meyer (1990) explain, affective commitment refers to the extent to which and employee “identifies with, is involved in, and enjoys membership in, the organization” (p. 2). Continuance commitment refers to an employee’s assessment of the costs associated with quitting. Normative commitment refers to perceived obligations an employee has to an organization. Employees are theoretically committed to the organization in which they work by a combination of these three aspects.

In a meta-analysis investigating the antecedents and consequences of these three facets of organizational commitment, Meyer, Stanley, Herscovitch and Topolnytsky

(2002) found that these three facets correlate with both withdrawal cognitions and turnover. Affective commitment demonstrated the strongest relationships with these outcomes, followed by normative and then continuance commitment. When organizational commitment has been investigated as a singular construct, this variable has consistently demonstrated a negative relationship with intent to leave (Williams & Hazer, 1985) and withdrawal cognitions (Cohen & Freund, 2004). In a meta-analysis on organizational commitment and turnover, Cohen (1993) found an average correlation of -.16 to -.33 between the two variables depending on the instrument used to measure commitment. In a meta-analysis on employee turnover, Griffeth, Hom & Gaertner (2000) found a -.23 average correlation across 67 studies between organizational commitment and employee turnover. These relationships lend support for the inclusion of commitment in the current model.

The effects of both degree and institutional commitment are relatively well-established in the student persistence literature. Cope and Hannah (1975) reviewed research in the area and concluded that commitment to graduating is the best predictor of persistence. Cabrera, Nora and Castaneda (1993) found that institutional commitment had the largest effect on intent to persist, while degree commitment was the 3rd highest (after encouragement from friends and family). Braxton, Sullivan and Johnson's (1997) review found strong support for the influence of degree commitment on persistence and moderate support for the effect of institutional commitment on graduation. While direct relationships have been found between commitment and withdrawal, in this study this relationship is hypothesized to be mediated by withdrawal cognitions and behaviors (consistent with Cabrera, Nora, and Castaneda, 1993). That is, it appears more likely that

students think less about leaving when they are committed to their institution and obtaining a degree, rather than making an automatic decision to drop out based upon low commitment.

It is possible to conceptualize institutional commitment along the three dimensions of organizational commitment. Students can theoretically feel committed to their university because of feelings of identification with the college, costs associated with leaving, or a sense of obligation to stay with the university. The original institutional commitment instrument was developed to reflect these three facets, but the subscales did not actually reflect these distinct dimensions in the data collected for the current study. Because of this, institutional commitment is conceptualized as a unidimensional construct for the purposes of this study. See the “Measures” section for more information regarding this scale.

H14a. Goal (degree) commitment will have a negative effect on thoughts of leaving.

H14b. Institutional commitment will have a negative effect on thoughts of leaving.

Satisfaction.

One of the components that Bean (1980;1981) has included in his models is satisfaction. Bean and Bradley (1986) explain that exogenous variables, such as fit, social life, and extracurricular involvement affect how one perceives their environment. People appraise and attach emotion to such perceptions. Satisfaction is one of these

emotions. When one enjoys or appreciates the various elements of his or her surroundings and the college experience in general, satisfaction will follow.

Satisfaction has a long history in the turnover literature, dating back to March and Simon (1958). Subsequent popular models have also included satisfaction (e.g. Mobley, 1977; Lee & Mitchell, 1994; Hom & Griffeth, 1995). Dissatisfaction can result from a number of elements in the organizational setting, including a lack of opportunity for advancement, poor relations with coworkers, or simply growing tired of one's job. Job satisfaction measures have traditionally been represented by single-faceted measures assessing satisfaction with various job characteristics; for example, Hom & Kinicki's (2001) measure assessed satisfaction with hours worked, team relations, and work duties. The relationship between job satisfaction and turnover has long been hypothesized to be mediated withdrawal cognitions. Mobley (1977) proposed that this dissatisfaction leads to a series of withdrawal cognitions as employees search for and evaluate alternatives, compare options to the current job, and intend to quit or stay. Ultimately a behavioral decision to quit or remain in the current job results from these cognitions. Hom, Caranika-Walker, Prussia, & Griffeth (1992) conducted a meta-analysis on research into Mobley's model, finding support for the idea that dissatisfaction leads to withdrawal cognitions and eventually to turnover. Williams & Hazer (1986) also found that job satisfaction leads to turnover intent. Griffeth, Hom & Gaertner (2000) found in their aforementioned meta-analysis a -.19 sample-size weighted average correlation between satisfaction and turnover. Again, the importance of satisfaction in the current model is enhanced by this literature.

Liu & Liu (2000) found that low satisfaction led to withdrawal intentions. Mashburn (2000) found that student dissatisfaction led to greater dropout intentions, which in turn led to actual dropout. Because of findings such as these, I believe satisfaction is an important psychological consequence of the aforementioned preceding variables and a significant predecessor of withdrawal, and inclusion in a larger model is warranted.

It is possible to conceptualize satisfaction along the same dimensions of fit. Students can be satisfied with some elements of college life and not with others. Great teachers and classroom experiences can positively influence satisfaction in the formal academic area while a lack of quality social experiences can negatively influence satisfaction in the social area, and vice versa. Again, financial situations can lead to financial satisfaction or dissatisfaction. In addition to these facets, one can be happy with life in general. Thus, a measure of satisfaction along academic, social, and financial dimensions was created and validated. The research does not necessarily support relationships with these facets, but it does support a hypothesized relationship between satisfaction and thoughts of leaving. By investigating this established relationship with the addition of these facets, a greater understanding of the nature of satisfaction and its effects can be attained.

H15a. Academic satisfaction will have a negative effect on thoughts of leaving.

H15b. Social satisfaction will have a negative effect on thoughts of leaving.

H15c. Financial satisfaction will have a negative effect on thoughts of leaving.

College Grade Point Average.

As has been discussed, GPA is a combination of knowledge acquisition and performance on tests, projects, papers, etc. While not a purely psychological construct like commitment or satisfaction, college GPA has demonstrated consistently strong relationships with persistence (Cabrera, Nora & Castaneda; Pascarella & Terenzini, 2005; Robbins, Allen, Casillas, Peterson, & Le, 2006). When students do not perform well, they may think they are not “cut out” for college or that getting a job or transferring to another institution are better options than continuing in school. As is the case with commitment and satisfaction, it is likely that students with low GPAs think about leaving prior to making this decision, rather than automatically dropping out. GPA is therefore placed in the model in accordance with this theoretical relationship with thoughts of leaving.

H16. College GPA will have a negative effect on thoughts of leaving.

The Effects of Psychological Outcomes on Withdrawal Cognitions and Behaviors

Two key components of Mobley’s (1977) model were the withdrawal cognitions and associated behaviors that employees possess before they make a turnover decision. Mobley (1977) argued that workers do not move directly from dissatisfaction to quitting, but instead go through intermediary stages before this resultant behavior. When a worker becomes dissatisfied, thoughts of quitting are stimulated and a search for alternatives may begin. Recognizing that different researchers conceptualized these elements a little differently and put them in different orders, Sager, Griffith, & Hom (1998) sought out the

best way to arrange them. These authors found support for a revised model of Mobley's progression in which thoughts of quitting led to intentions to quit. These intentions led to searching intentions, which led to turnover.

This is the basis for the progression of withdrawal cognitions and behaviors in the current model. Thoughts of leaving are at the beginning of stage 4 in the model; when one has these thoughts, he or she simply ponders the idea of dropping out. These thoughts are divided into two items. One reflects thoughts about transferring to another school, while another reflects thoughts about leaving school to obtain employment. Thoughts of leaving lead to withdrawal intentions; with these intentions, one has moved beyond simply thinking about the possibility of dropping out and actually intends to do so. These intentions lead to searching behaviors, in which a student gathers information on possible jobs or possibly transferring to another institution. Like thoughts of leaving, search behaviors are divided into two items. The first reflects a student's search behaviors regarding transfer to another school, while the second reflects search behaviors regarding leaving school to obtain employment. Ultimately, these behaviors result in withdrawal.

These cognitions and behaviors are not as well defined in the student persistence literature. Typically only withdrawal intentions and actual withdrawal are considered as outcomes, and many studies have used only either withdrawal intentions (e.g. Jaros, 1997; Braxton, Milem & Sullivan, 2000) or actual withdrawal (e.g. Kahn & Nauta, 2001; Gore, 2006) as outcome variables. This is somewhat defensible, as there is a strong relationship between these variables. Tett and Meyer (1993) documented the strong relationship between intent to turnover and actual turnover. Many studies (e.g. Bean,

1981; Cabrera, Nora & Castaneda, 1993) have found that withdrawal intentions are the best predictors of student withdrawal.

Even so, it is advantageous to employ all of the relevant cognition, intention and behavior variables in this model. Viewing withdrawal this way is theoretically more consistent with how people act (Sager, Griffith & Hom, 1998). Dropout decisions can be spontaneous, but if they are resulting from factors such as poor integration and low commitment, the thoughts and intentions to perform this behavior will precede the actual behavior. In addition, withdrawal intent items can give an idea why students decided to leave. Without a measure that addresses intention it is more difficult to tell if a student left for a job, to transfer to another institution, or for another reason. Consistent with past student persistence literature, I am conceptualizing withdrawal intent as a direct precursor to withdrawal, but consistent with the turnover literature, I am including other potentially relevant variables in this model.

H17. Thoughts of leaving will positively affect intent to withdraw.

H18. Intent to withdraw will positively affect search behaviors.

H19. Search behaviors will positively affect withdrawal.

Other Variables.

While the variables in the later stages of this model are more complete than they have been in previous research, it was not possible to include everything. For instance, Bean & Eaton (2000) actually placed in their model academic and social interactions that

Tinto only implied existed and occurred. In their model, these interactions lead to psychological processes such as coping strategies, stress management, and one's locus of control. Ideally, every one of these could be measured and included in the current model. Unfortunately, these were not included in the data collection, at least partially due to the problems associated with expanding surveys that already include 200-400 items. Just as Tinto inferred certain interactions and processes existed between prematriculation characteristics and integration, we can make similar inferences, though further investigation is warranted to better identify and explain these elements.

This study is also not intended to be exhaustive of the variables included in organizational turnover models—such an intent would likely lead to a fruitless endeavor. Even though there are similarities between the collegiate and organizational contexts, there remain many differences. Griffeth, Hom, & Gaertner (2000) assessed the effects of variables such as compensation, supervisory relations, promotional opportunities, and job scope on turnover. Variable such as these are inapplicable simply due to differences between the contexts (i.e. students are not compensated for schoolwork, cannot be promoted, etc.). In sum, the hypothesized model is not perfect, but as is explained in the following section, a test of this model should provide significant contributions to the student withdrawal literature.

The Present Study

This study adds to the extant literature on student persistence in several ways. First, as was mentioned, the entry characteristics that have been examined in previous

models have been varied and inconsistent. The literature search I undertook leads me to believe that the entry characteristics included in this model are broader and more complete than they have been in previous research. Second, these prematriculation variables can be investigated in a full model of withdrawal that contains intermediary factors that are drawn from both models of student departure and models of employee turnover. Cabrera, Nora & Castaneda (1993) demonstrated the importance of combining elements from Bean's and Tinto's models, so doing the same in my model could help explain more of the variance in attrition. Peterson (2004) demonstrated that it may be useful to combine elements from these two streams of research, so doing the same again helps better explain the variance in attrition. In addition, the longitudinal nature of the data collection allows for investigation of dropout in the first, second, third, and fourth years; many studies have lacked the ability to do this (e.g Terenzini, Pascarella, Theophilides, & Lorang, 1983; Cabrera, Nora & Castaneda, 1993; Kahn & Nauta, 2001). Lastly, this study is multi-institutional, whereas many previous studies dealing with persistence have focused on only one institution (e.g. Mashburn, 2000/2001; Braxton, Milem, & Sullivan, 2000; Edens, 2006). All together, this study advances knowledge of models of attrition and helps researchers understand the nature of student withdrawal.

Another reason this study is valuable and adds to the literature in the area is that many of the measures used were developed specifically for this project by the College Board research team. It is possible that these measures are better suited for use with undergraduate students or even better predictors of the assorted elements of the hypothesized model than previous measures have been. All of the measures used in this study are described in the Method section below.

Method

Procedure

Participants were initially contacted in 2004 before the start of their first year of college at each of ten universities. They provided responses to paper-and-pencil measures in the first few days or weeks of their college career by participating in group sessions supervised by admissions officers or other staff members at the university. We also collected outcome measures at the end of the students' first, second, and third semesters via a web-based survey of all student participants in the original survey. With the students' permission, seven of the original 10 universities provided GPA and graduation data for each of the original participants following the students' eighth semester for each of the years they attended the university.

Of the seven universities that provided follow-up data, one is a historically Black college in the Southeast, five are Big Ten Midwestern universities, and one is a highly selective private mid-western school. Approximately 2800 students participated in at least one data collection, and approximately 2000 attended universities that provided follow up data. Forty-nine percent of the students in the full sample were White, 22% were Black, 7% were Asian, and 5% were Hispanic. Fifty-seven percent of the participants were female and 42% were male. Demographics for each of the data collections are presented in Table 1.

Measures

The time at which each of these variables was measured is in Table 2.

Careers, Perseverance, and Knowledge scales. These three biographical data scales were developed and validated as described in Oswald, Schmitt, Kim, Ramsay, & Gillespie (2004). Items in these scales pertained to experiences students encountered in high school and life in general. Each consisted of 10 multiple-choice items with varying response scales. The careers ($\alpha = .79$) and perseverance ($\alpha = .75$) scales demonstrated moderate reliability, though the knowledge scale ($\alpha = .67$) was below the traditional .70 criterion level. See Appendices A, B, and C, respectively.

Social/Cultural Involvement scale. To develop this scale, I searched the complete biographical data inventory developed by Oswald, Schmitt, Kim, Ramsay, & Gillespie (2004) for items asking about activities involving socializing with others in any way—volunteering in the community, organizing social gatherings, attending plays or art exhibitions, etc. Based on item content, I originally identified 18 items. When those with low item-total correlations were removed, this resulted in a 10-item scale ($\alpha = .79$). Four items in this scale were “artistic,” three dealt with “citizenship,” two involved “cultural appreciation,” and one was designed to measure “leadership.” See Appendix D.

Goal Orientation. Goal orientation was assessed using a new situational judgment measure created by the College Board team. This measure reflected the three goal orientation dimensions of mastery orientation, performance-approach orientation, and performance-avoid orientation. Eight scenarios were given, and each of these scenarios was associated with 3 or 4 items reflecting a particular behavior or rationale associated

with one of the goal orientation dimensions. Participants were asked to rate their likelihood of responding to each of these items on a 4-point Likert-type scale ranging from 1 (definitely not react this way) to 4 (definitely react this way). The 26 total items in the measure broke down into an 8-item mastery scale ($\alpha = .80$), a 9-item performance-approach scale ($\alpha = .77$), and a 9-item performance-avoid scale ($\alpha = .84$). See Appendix E.

Personality. The Big 5 personality traits were assessed using the scales available from the International Personality Item Pool (Goldberg, 1999). The 10-item scales were used to measure emotional stability, agreeableness, openness to experience, extraversion, and conscientiousness. Each item represented a phrase descriptive of a person, such as, “Make people feel at ease.” Participants rated the extent to which they believed each phrase reflected their personalities on a 5-point Likert-type scale ranging from 1 (very inaccurate) to 5 (very accurate). The openness ($\alpha = .85$), conscientiousness ($\alpha = .90$), extraversion ($\alpha = .93$), agreeableness ($\alpha = .89$), and emotional stability ($\alpha = .92$) scale all demonstrated good reliability. See Appendix F.

Fit/Integration. The academic ($\alpha = .80$) and social ($\alpha = .79$) subscales are based on scales found in the literature (Dowaliby, Garrison, & Dagel, 1993; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1980). No existing scale was found for financial fit, so original items for a financial fit/integration scale were generated; unfortunately, this scale demonstrated low reliability ($\alpha = .48$). See Appendix G.

Family Support. An 8-item measure of family support ($\alpha = .68$) was created by the College Board research team. An example of a family support item is, “My family

supports my decision to attend this school.” Response options are on a 5-point Likert scale ranging from Strongly Disagree to Strongly Agree. See Appendix H.

Degree and Institutional Commitment. Hollenbeck, Williams, and Klein’s (1989) measure of goal commitment was adapted for the degree commitment scale ($\alpha = .77$). Items were modified to reflect the goal of graduating from college specifically. For example, the item, “It is hard to take this goal seriously” was re-worded to say, “It is hard for me to take the goal of graduating from college seriously.” The institutional commitment scale was adapted from Allen and Meyer’s (1990) organizational commitment scale, which reflected the dimensions of affective, continuance, and normative commitment. Items were adapted to reflect commitment to one’s university. This scale was factor-analyzed to discern whether or not the items reflected the three intended dimensions. It was observed that all but two items loaded well on a single dimension. When these two items were omitted, the resulting 14-item scale demonstrated better reliability ($\alpha = .84$) than the continuance ($\alpha = .60$) and normative ($\alpha = .74$) subscales and comparable reliability to the affective subscale ($\alpha = .84$). Thus, institutional commitment will be treated as a unitary construct for the purposes of this project. Response options for both the degree and institutional commitment scales ranged from Strongly Disagree to Strongly Agree on a 5-point Likert scale. See Appendix I.

Satisfaction. The items in the academic ($\alpha = .81$), social ($\alpha = .91$), and financial ($\alpha = .83$) subscales were based on scales found in the literature (Smith, Kendall, & Hulin, 1969; Betz, Klingensmith, and Menne, 1970; Reed, Lahey, and Downey, 1984). The original 41-item scale was pilot tested on a group of 109 students and factor-analyzed. Based upon these analyses and subsequent sorting tasks, the scales were refined in order to

create the resultant 18-item measure. Participants responded to these items on a 5-point Likert-type scale ranging from “strongly disagree” to “strongly agree.” See Appendix J.

Self-efficacy. Academic self-efficacy was measured with a 4-item scale ($\alpha = .82$) created by the researchers. Each item was answered on a 5-point Likert-type scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). See Appendix K.

Thoughts of leaving. These two items were adapted from the interview questions used by Lee, Mitchell, Wise, and Fireman (1996). The two items used were: “I am considering transferring to another school” and “I am considering other job options instead of continuing in school.” These two items were correlated $r = .35$. See Appendix L.

Intent to Withdraw. Intentions to withdraw from the university were collected after participants’ first, second, and third semesters. Students’ intentions to drop out or transfer were assessed using three self-report items on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). The intent to withdraw scale ($\alpha = .76$) was adapted from the intent to withdraw/turnover scales by Eaton and Bean (1995) and Griffeth and Hom (1988). See Appendix M.

Search behaviors. As was the case with the items assessing thoughts of leaving, the search behavior items were adapted from the interview questions used by Lee, Mitchell, Wise, and Fireman (1996). These two items were: “I am gathering lots of information about other schools I could transfer to” and “I am gathering lots of information about job options as opposed to continuing in school. These two items were correlated $r = .43$. See Appendix N.

Shocks. The shock scale consists of 21 items, each representing a shock that could affect an average college student. This list was generated by the College Board team from team members' own experiences and observations of college life, from an interview with a university counselor, and from a focus group conducted with undergraduate students. Mitchell and Lee suggest that a shock need not be experienced by the individual him or herself, but that the experience of a shock by a close "other" can be enough to have an impact. Because of this, the shock measure contained an option in which individuals indicated whether or not a shock had happened to someone close to them. However, it could not be theoretically justified why most of the shocks happening to a friend or relative would affect persistence or satisfaction in college. Therefore, for each shock, only the item that asked students whether the shock has happened to them or not was used. The shock variable is a binary value; that is, a person who experienced one or more shocks will receive a value of "1," while a person who did not experience a shock will receive a "0." See Appendix O.

GPA. GPA was collected via two methods. First, at waves 2, 3 and 4 of data collection, GPA was assessed with a single-item self-report measure. Self-reported GPA has been found to correlate highly with actual GPA (Cassady, 2001; Gray and Watson, 2002); in a meta-analysis, Kuncel, Crede and Thomas (2005) found a .90 correlation between self-reported and actual GPA. The item assessing GPA was, "What is your current cumulative GPA?" Second, following the participants' eighth semester, school-reported GPA was provided by the universities for each of the four years. Both self-reported GPA and school-reported GPA were utilized for reasons described in the Analyses section.

The GPA data likely differ across institutions, so these data were corrected for this to enhance interpretability.

Withdrawal. As was noted, following the participants' eighth semester, the universities were asked to provide GPA and graduation data for the students for each of the four years. These data were used to compute withdrawal variables for each of the four years. For example, students are considered dropouts of Year 3 if the university indicated that they had not graduated, they had valid GPA data for Years 1 and 2, and they were missing GPA data for Years 3 and 4. In addition, an overall withdrawal variable was computed to indicate students who dropped out versus persisted after any year.

Analyses

First, confirmatory factor analyses were conducted to better understand the measurement properties of the data. Next, structural equation modeling in AMOS 17 was used to test the hypothesized model. Two tests of this general model were conducted. The first year of college has been identified as a critical time period in student development (Hull-Blanks et al., 2005) and as the year when most students drop out (ACT, 2008). Nearly 12% of students in this sample dropped out in this first year, which is almost half of the total percentage of students who dropped out. Thus, the first analysis focused on attrition in the first year, and is hence termed the "early attrition model". In the first analysis, withdrawal at the end of student's first year was predicted using the entry characteristic data (collected at the beginning of college), the mediating variable

data collected toward the end of students' first semester, and withdrawal data for the first year.

While nearly all of the variables (besides entry characteristics) used in the early attrition model were measured in the second wave, academic self-efficacy was not. Because of this, academic self-efficacy data from the first wave were used. Also, because withdrawal was calculated using first-year GPA data, individuals who dropped out did not have school-reported GPAs for this year. Thus, for this model test the self-reported GPA data collected in the second wave were used.

The second test was designed to test attrition in a more longitudinal manner and is termed the "longitudinal model." In this model, the entry characteristics, the integration data, and family support were the same as in the early attrition model. That is, the entry characteristics were measured at wave 1 and the integration and family support data were measured at wave 2. School-reported GPA from the first academic year was used. Academic self-efficacy, commitment, and satisfaction were measured during wave 3, and withdrawal cognitions and behaviors were measured during wave 4. The second, third, and fourth years had dropout rates of 4.7%, 2.9%, and 3.8% respectively. Because of these low attrition rates, the test of the longitudinal model was conducted by combining withdrawal data from these three years. By using data collected across four different time points, it is possible to better assess how the process leading up to withdrawal occurs over a longer span of time in one's undergraduate career.

Results

Preliminary Analysis of the Voluntary Nature of Withdrawal

The aim of this study was to investigate voluntary withdrawal. If a student is required to drop out by his or her university, the psychological process leading to withdrawal would not occur. Universities typically have a probationary system set up for students with low GPAs. For instance, at one of the universities in this study, students with a GPA lower than 2.00 for a semester are placed on probation (Michigan State University, 2009). If the student has a cumulative GPA below 2.00 in the probationary semester, the student is placed on final probation. If the student does not raise his or her GPA above 2.00 in this final probationary semester, dismissal may result. If the student is making progress toward an acceptable GPA, however, a decision can be made to retain the student.

Because the process varies between universities, and because decisions can be made on a case-by-case basis despite general guidelines for administrators involved in the probation and dismissal process, it is not possible to know whether or not students in this sample were forced to withdraw. However, of the students who dropped out during the first year, only 14 had first-semester GPAs low enough to be placed on academic probation (assuming a barrier of 2.0 for this to occur). Only seven students had a GPA below 2.00 during the second semester. Only two students had these low GPAs in successive semesters. Twenty-eight students who dropped out in the second year had GPAs below 2.0 for the second and third semesters. While it is not possible to know if these students were dismissed, the low number of students with GPAs likely to result in

probation and dismissal indicate that it is unlikely students who were dismissed had a large impact on the results.

Descriptive Statistics

Means, standard deviations, alpha reliabilities, and intercorrelations among the scales are presented in Tables 3 and 4. Table 3 presents these statistics for the early attrition model, while Table 4 presents them for the longitudinal model. Prior to delving into a complete analysis of these statistics, a few issues were noticed. Some variables of a similar nature were strongly correlated. For instance, mastery goal orientation was correlated $r=.67$ with performance approach goal orientation and $r=-.57$ with performance avoid goal orientation. Intent to turn over was correlated $r=.68$ with information gathering behaviors and $r=.70$ with thoughts of leaving; information gathering behaviors and thoughts of leaving were correlated $r=.84$. Such correlations could indicate that some variables are not represented with the appropriate structure, be it due simply to low discriminant validity among similar constructs or a product of the common method used to measure such variables. In order to increase confidence in the structure of the variables in this model, a number of confirmatory factor analyses were undertaken.

Confirmatory Factor Analyses

In deciding what input to supply for these confirmatory factor analyses, it was realized that the sheer number of parameters in the model could be problematic. Models with a large number of parameters to be estimated can make “specification and empirical

evaluation unwieldy” (Liang, Lawrence, Bennett, & Whitelaw, 1990). To prevent this from being an issue, item parcels were used as opposed to single-item indicators. For scales with more than five items, sets of three items were grouped together to form a parcel. The cutoff number of five items was chosen with the goal of maintaining information for smaller scales (i.e., those with five items or fewer), but reducing scales with more items to a manageable size. As an example, the mastery, performance approach, and performance avoid goal orientation scales each consisted of nine items. After item parceling, each of these latent variables was represented with three indicators that were averages of three items each. For scales that had an odd number of items, the extra item was assigned to the last existing parcel. For instance, the scales measuring conscientiousness, agreeableness, and emotional stability were each comprised of 10 items. The first and second parcels for these constructs represented three items, while the third parcel represented four items. Items were not ordered in any systematic manner in the original scales, so parcels were composed of items next to each other in the survey instrument to approximate the RAND method (Landis, Beal, & Tesluk, 2000). In the end, item parcels ended up being used for all constructs except family support, academic self-efficacy, and withdrawal cognitions and behaviors. The final collection of latent variables (after revisions based upon the CFAs below) had between three and eight indicators; the reasons for some of these variables having such a large number of indicators will be explained later.

A series of confirmatory factor analyses (CFAs) were then conducted to assess the structure of the variables in this model. These were conducted using data from the first (for entry characteristics and academic self-efficacy) and second (for all other variables)

waves of data collection. These data were used because they represented the largest samples obtained for their respective variables. For some of the CFAs, variables of a similar nature were analyzed together because, though conceptually distinct, they may not have demonstrated uniqueness in practice. For instance, academic integration and social integration are both forms of integration. In theory they should not be highly correlated because they tap different, independent life domains. However, when these measures are administered the perception of one may affect an individual's perception of the other. They also were measured using similar self-report scales. If it appears that individuals were not able to discriminate between the two measures, combining them will prevent multicollinearity issues in the structural equation model. Also of note, multiple researchers (e.g. McDonald & Ho, 2002; Garson, 2009) have recommended reporting three fit indices to assess CFAs or SEMs: the chi-square, the CFI (or other baseline fit measure), and RMSEA. The results of these CFAs as well as the results for the structural equation models in the next section follow such recommendations.

Stage 1 Variables.

The first set of CFAs assessed the structure of the background (i.e. stage 1) variables. First, the mastery, performance approach, and performance avoid goal orientation variables were represented as three separate constructs in an initial test with the parcels measuring each as their indicators. Results indicated that fit was slightly less-than-desirable ($\chi^2(24)=1029.40$, $p<.01$, CFI=.91, RMSEA=.12), with indicator loadings ranging from .59-.89. Alternate configurations of these facets (e.g. with mastery goal-

orientation and performance-approach goal orientation loading on one latent variable, and with all three facets loading on one variable) were tested but did not result in better fit. For this reason, the original representation with three facets was retained.

Next, the personality variables of conscientiousness, agreeableness, and emotional stability were tested. These were represented as separate latent variables with the parcels measuring each as their indicators. The results indicated reasonable fit ($\chi^2(24)=368.15$, $p<.01$, CFI=.96, RMSEA=.07). Indicator loadings ranged from .62-.84 and the three latent variables were correlated with each other $r=.33$ or below. This structure was retained.

The remaining entry variables of knowledge, career orientation, perseverance, and social/cultural involvement were subjected to another CFA. All of these were measured using biographical data scales but, as has been discussed, are distinct constructs. They were treated as separate constructs in a single analysis with the parcels measuring each as their indicators. Indicator loadings ranged from .58 to .86, and the results indicated good fit ($\chi^2(48)=354.48$, $p<.01$, CFI=.97, RMSEA=.05). These structures were used in further analyses.

Stage 2 Variables.

The first analysis conducted involving second stage variables assessed the structure of the fit/integration data. In this test, academic, social, and financial integration were represented as three separate constructs with the parcels (for academic integration) and items (for social and financial integration) as indicators. While this

structure demonstrated good fit ($\chi^2(32)=203.22$, $p<.01$, CFI=.94, RMSEA=.04), there appeared to be issues with the financial integration scale. The standardized loadings of two of the items were extremely low ($b\sim.30$), and the loading of the third was excessively high ($b>1$). Removing either of the first two items made the structure unidentified, while removing the third item lowered the loadings of the other two items to .28 and .12. This information was considered in conjunction with the previously reported poor reliability, and it was decided that what this scale was measuring was unclear. Because of this, it was dropped from further analyses. The remaining social and academic integration scales were tested as separate constructs in a subsequent analysis and indicated good fit ($\chi^2(13)=99.88$, $p<.01$, CFI=.97, RMSEA=.05) with indicator loadings ranging from .59-.85. Because of the moderate correlation between the two constructs ($r=.46$), an alternative model was tested in which all indicators loaded on a single fit/integration construct. This resulted in poorer indicator loadings which ranged from .45-.68 and much worse fit than the original ($\chi^2(14)=826.34$, $p<.01$, CFI=.70, RMSEA=.14). Because of this, the original model with separate social and academic integration constructs was retained.

The second CFA in this stage assessed the structure of the academic self-efficacy data. The analysis indicated reasonable fit ($\chi^2(2)=37.39$, $p<.01$, CFI=.99, RMSEA=.08) and items loaded .54-.88 on the latent variable, so this structure was accepted.

A CFA regarding the family support variable revealed that the third indicator had a very poor loading (.17). A subsequent CFA using the items as indicators revealed that the three items that composed this third parcel had loadings ranging from .10-.40. In reviewing the content of the items, the reasons for these poor loadings became clear. The

first five items were more directly related to the support a student received from his or her family, each beginning with “My family supports/supported...” The last three items assessed how much one’s family wanted him or her to attend the school one actually attends, how much the family would care if the student transferred, and whether going to the school was a family tradition. While these items may aid in understanding the nature of the relationship a student has with his or her family, they are qualitatively different than basic support a family can provide. These three items were removed and the structure was tested again. The resulting 5-item structure demonstrated reasonable fit ($\chi^2(5)=69.94$, $p<.01$, CFI=.95, RMSEA=.07), while item loadings ranged from .59-.73. This structure was retained for further analyses.

Stage 3 Variables.

A CFA was conducted to assess the structure of the satisfaction and commitment data. Testing a model in which the latent variables have only two indicators each can result in underidentification and unreliable error estimates (Garson, 2009). Because the facets of satisfaction had only two indicators each, they were tested along with institutional and goal/degree commitment. The facets of satisfaction and commitment were treated as separate constructs in a single analysis with the parcels for each serving as indicators (i.e. academic, social, and financial satisfaction were treated as separate constructs, as were goal and institutional commitment). Indicator loadings ranged from .68 to .93 for the satisfaction facets and from .50 to .81 for the commitment facets. The results indicated good fit ($\chi^2(67)=219.96$, $p<.01$; CFI=.97; RMSEA=.03). Two

exploratory analyses were conducted to assess the possibility that all three facets of satisfaction were better represented by one construct or that both commitment facets were better represented by one construct. In the satisfaction analysis the commitment data were removed, and in the commitment analysis the satisfaction data were removed. Both the test involving satisfaction ($\chi^2(9)=1233.84$, $p<.01$, CFI=.59; RMSEA=.22) and the test involving commitment ($\chi^2(21)=780.27$, $p<.01$, CFI=.69, RMSEA=.11) resulted in poorer fit. The original structures for these variables were intended to be retained in further analyses, but out of necessity the facets for each were combined into single satisfaction and commitment variables in the full model; the reasons for this are described later in this section.

Stage 4 Variables.

A CFA was conducted to assess the structure of the withdrawal cognition data. Information gathering, withdrawal thoughts, and withdrawal intent were treated as separate constructs in a single analysis with the items for each as indicators. The results indicated poor fit ($\chi^2(11)=1170.76$, $p<.01$, CFI=.75; RMSEA=.20). Grouping all of the items together as indicators of a single construct did not result in a better fitting model ($\chi^2(14)=1377.80$, $p<.01$, CFI=.71; RMSEA=.19). However, it was observed in the correlation matrix of these items that the job-related items from each of these scales were related to each other, and that the transfer-related items were related to each other as well. A third model was tested in which the job-related items represented one construct and the transfer-related items represented another. Creating this structure involved removing the

item about general intent to leave the university, as this item was related to both job-related withdrawal and transfer-related withdrawal. This model resulted in greatly improved fit ($\chi^2(8)=188.54$, $p<.01$, CFI=.95, RMSEA=.09). This structure was retained for use in subsequent analyses, but like the satisfaction and commitment data, had to be modified for use in the full model. The reasons for this arose in the CFA of the full model, which is described next.

Lastly, a CFA was conducted with all of the variables in the model to determine the overall fit of the data to the measurement model. Significant issues arose in conducting this analysis. The satisfaction, commitment, and job and transfer constructs were unidentified, despite several “rules of thumb” (i.e. the model being recursive and having positive degrees of freedom, each of the latent variables having a scale) indicating the model should have been identified. While these general guidelines are useful, they are not always sufficient for empirical identification (Kline, 2005, p. 107). One possibility for this is Heywood cases (i.e. negative error variance estimates), but there was no evidence of this. Another possible reason for this underidentification is multicollinearity. When the significant correlations among these multiple unidentified variables were considered together, multicollinearity appeared to be problematic. That is, academic, social, and financial satisfaction were correlated with each other to a degree that prevented convergence of the measurement model, as were institutional and degree commitment with each other and job and transfer thoughts and behaviors with each other.

To deal with this problem it was necessary to combine facets of constructs. At first, only the satisfaction facets were combined, but this did not result in convergence of the model. Combining only the commitment facets or only the withdrawal cognitions

and behaviors produced the same unsatisfying result. Combining any two of the three problematic groups of variables also did not result in model convergence. In the end, it was necessary to combine the facets of each of these problematic groups of variables. This resulted in composite constructs of satisfaction, commitment, and withdrawal cognitions/behaviors. Item parceling resulted in a latent variable representing satisfaction with six indicators: two academic, two social, and two financial. The latent variable representing commitment had three goal commitment parcels and five institutional commitment parcels. The latent variable representing withdrawal cognitions and behaviors was comprised of the three items related to transfer cognitions and behavior and three items related to job cognitions and behavior. After combining these facets, the CFA for the measurement model was identified and demonstrated a good RMSEA but a poor CFI ($\chi^2(1817)=10385.29$, $p<.01$, CFI=.84, RMSEA=.04). Interpretation of this difference in fit indices is provided later when the full model is discussed. While the resulting model is not optimal and decreases fit to some extent, it has greater parsimony and is not at odds with the theoretical bases for the various paths that were affected. This revised model structure was used in the subsequent analyses.

Revised Descriptive Statistics

Means, standard deviation, α reliabilities, and intercorrelations among the revised variables are presented in Tables 5 and 6. Table 5 provides these statistics for the early attrition model and Table 6 provides them for the longitudinal model. Reliability was generally acceptable for variables in both models, though the knowledge ($\alpha=.63$) and satisfaction ($\alpha=.68$ in the early attrition model and .63 in the longitudinal model)

variables demonstrated low reliability. It is not surprising that the reliability of the satisfaction scales were poor, given the need to combine facets to facilitate model convergence. Even after combining facets, however, the commitment and withdrawal cognitions and behaviors scales demonstrated acceptable reliability.

Early Attrition Model Correlations.

As was discussed, the early attrition model utilizes background variables and academic self-efficacy data from the first data collection, but all other variables in the model are from the second data collection. The zero order correlations for this model provide preliminary support for many of the hypotheses. Hypotheses were supported by a statistically significant r ($p < .05$).

Mastery goal orientation, performance approach goal orientation, knowledge, perseverance, career orientation, agreeableness, conscientiousness, and emotional stability were all positively related to academic integration. These correlations ranged from .09 to .30. Performance avoid goal orientation was negatively related to academic integration ($r = -.09$.) Agreeableness and emotional stability were positive related to social integration ($r = .17$ and $r = .23$ respectively), but contrary to hypotheses, conscientiousness and social/cultural involvement were not related to social integration. In total, 12 of the 14 hypothesized links between stage 1 and stage 2 were supported by the zero-order correlations.

Academic integration, social integration, and family support demonstrated relatively strong relationships with satisfaction, with correlations of .44, .62, and .31

respectively. These variables also demonstrated similarly strong relationships with commitment (academic integration $r=.44$; social integration $r=.53$; family support $r=.28$). Academic integration was significantly related to academic self-efficacy ($r=.21$), but academic self-efficacy was not related to GPA. The shocks variable was related to satisfaction ($r=-.17$) but not to actual withdrawal ($r=-.05$). In total, eight of the 10 links in this section of the hypothesized model were supported by the zero-order correlations.

In the next stage of the model, satisfaction, commitment, and GPA all demonstrated significant relationships with the withdrawal cognition and behavior variables ($r=-.48$, $r=-.59$, $r=-.21$ respectively). Thus, all three of the links in this section of the model were supported at the bivariate level. Lastly, withdrawal cognitions and behaviors were not related to actual withdrawal. Across the entire model, the correlations provided support for 23 of the 28 hypothesized relationships. The exceptions were the relationships between conscientiousness and social integration, social/cultural involvement and social integration, academic self-efficacy and GPA, shocks and withdrawal, and withdrawal cognitions and behaviors and actual withdrawal. The SEMs described below consider support for the model as a whole.

Longitudinal Model Correlations.

Each stage in the longitudinal model corresponded to a different data collection time point (i.e. stage 1 utilized data from the first data collection, stage 2 utilized data from the second, stage 3 utilized data from the third, and stage 4 utilized data from the fourth). As a result of this strategy, variables from stage 1 and stage 2 were the same in

the longitudinal model as in the early attrition model. The resulting intercorrelations between variables were the same in both models, so the previous section should be consulted for discussion of these correlations.

The next stage is where this model begins to differ from the early attrition model. Academic integration, social integration, and family support were again related to satisfaction ($r=.38$, $r=.48$, and $r=.27$ respectively) and to commitment ($r=.29$, $r=.44$, $r=.25$). Academic integration was related to self-efficacy ($r=.26$), but unlike in the previous model, self-efficacy was in turn related to GPA ($r=.17$). Shocks were related to satisfaction ($r=-.14$) and withdrawal ($r=.09$). All of the 10 links in this section of the model were supported by these correlations.

Satisfaction, commitment, and GPA again demonstrated significant relationships with withdrawal cognitions and behaviors ($r=-.35$, $r=-.37$, and $r=-.21$ respectively). Lastly, withdrawal cognitions were positively related to actual withdrawal ($r=.23$). Thus, 26 of the 28 hypothesized relationships in the longitudinal model were supported by the zero-order correlations. The exceptions were the relationships between conscientiousness and social integration and between social/cultural involvement and social integration.

Structural Equation Models

To test the hypothesized models, structural equation model (SEM) analyses were conducted in AMOS 17. Figure 2 displays the measurement model that was identified through the CFAs in the previous section. Due to the size of the model, the portion of the measurement model concerning the entry characteristics is displayed on one page, while the rest of the variables are displayed on the next page with the entry characteristics

represented only by their latent variables. Figure 3 displays the structural model. In this model, the paths between constructs are represented by one-headed arrows. In addition, disturbances have been added to the endogenous variables to account for unmodeled determinants of these variables.

It should also be noted that in the actual tests of these models, the exogenous variables (i.e. all of the entry characteristics, family support, and shocks) were free to covary. However, due to the high number of exogenous variables in the general model, graphically representing the correlations between these variables resulted in this portion of the figure being unreadable, so these correlations are not presented in the figure. Figure 4 represents the full model, which is a combination of the measurement and structural models. As was the case in the measurement and structural models, the structural portion representing the entry characteristics and the correlations among exogenous latent variables are not displayed in this figure despite being included in tests of the model. The correlations among these exogenous variables are in Tables 7 and 8.

In the SEM analyses that were conducted, one factor loading on each latent variable was fixed to a value of 1 for scaling purposes. Full-information maximum likelihood was used to handle missing data, as this technique has demonstrated better versatility and performance than other methods of handling missing data (Carter, 2006; Kline, 2005). The use of full-information maximum likelihood is especially advantageous in comparison to other methods when subjects drop out of a longitudinal study, both when this nonresponse is random and when it is due to a low score on a measured variable (Wothke, 2000). In this study, the original sample of students who completed at least a portion of the wave 1 survey consisted of 2,716 students, meaning

this was the number available for analysis. In waves 2, 3, and 4, 1149, 996, and 863 students responded, respectively. The return rate of 42% from wave 1 to wave 2 was clearly the lowest, but the return rate from wave 2 to wave 4 of 75% was much better. Because these data were collected during the first two years, it is possible that up to approximately 16% of the nonresponse rate from wave 1 to wave 4 was a result of withdrawal.

The first SEM analysis was conducted to assess the fit of the data to the early attrition model. In this model, as was previously discussed, withdrawal at the end of the students' first year was predicted using the entry characteristic data (collected at the beginning of college), the mediating variable data collected toward the end of students' first semester (except for the variables of academic self-efficacy and GPA as noted earlier), and withdrawal data for the first year.

Intercorrelations among the indicators in the early attrition model are presented in Table 9, while the results for this analysis (as well as for the analysis of the longitudinal model) are in Table 10. Figure 5 also displays the regression coefficients obtained in this analysis. The correlations among the exogenous latent variables (in Table 7 for the early attrition model) indicated high collinearity between some of the exogenous variables. For instance, perseverance was correlated $r=.41$ or greater with all of the entry characteristics except emotional stability. Knowledge was highly correlated with conscientiousness ($r=.56$), and many other correlations were above $r=.30$.

For the paths between stage 1 and stage 2 variables, career orientation, agreeableness, and emotional stability were all positively and significantly ($p<.05$) related

to academic integration. The standardized regression coefficients were weak to moderate, ranging from .09 to .35. Performance avoid goal orientation was negatively related ($\beta = -.15$, $p < .05$) to academic integration. Agreeableness and emotional stability were also related ($p < .05$) to social integration, with regression coefficients of .22 and .27 respectively. In the next stage of the model, academic integration was related to both academic self-efficacy and commitment, and social integration was related to both satisfaction and commitment. These relationships were moderate to strong, ranging from .23 to .88. Family support was related to commitment and shocks were related to satisfaction, but these were weaker than the other relationships in this stage, with standardized regression coefficients of .13 and -.06 respectively. In the stage 3-stage 4 relationships, GPA, satisfaction and commitment were related to withdrawal cognitions and behaviors, with standardized regression coefficients of -.24, -.09 and -.62 respectively. Lastly, withdrawal cognitions and behaviors were weakly related to actual dropout ($\beta = -.07$). Fit indices for this model and for subsequent model tests are presented in Table 15. The overall model demonstrated curious fit, with a significant chi-square ($\chi^2(2188) = 13788.13$, $p < .01$) and poor CFI (.80) but with a good RMSEA (.04). Possible explanations for the difference in these fit indices are provided later.

The squared multiple correlations for the endogenous variables in this model are presented in Table 11. Academic integration ($R^2 = .31$), social integration ($R^2 = .13$), and academic self-efficacy ($R^2 = .22$) were predicted moderately, while satisfaction ($R^2 = .78$), commitment ($R^2 = .44$), and withdrawal cognitions and behaviors ($R^2 = .51$) were predicted more strongly. GPA ($R^2 = .00$) and withdrawal ($R^2 = .01$), each having only one associated correlate, were not predicted at a significant level ($p < .05$).

The second analysis was designed to test relationships among these variables over a more extended time frame. In this analysis, the entry characteristics used data from the initial data collection, the integration-stage variables used data from the second data collection, the satisfaction/commitment-stage variables used data from the third data collection, and the withdrawal cognitions and behaviors were from the fourth data collection. Because of low attrition rates in the second, third and fourth years, withdrawal data from these years were combined to form a composite.

Intercorrelations among variables in the longitudinal model are presented in Table 12. As was mentioned, results from this analysis are presented in Table 10. Figure 6 also displays the regression coefficients found in this analysis. Collinearity among exogenous latent variables (displayed in Table 8) was similar to that in the early attrition model. In the first stage of the longitudinal model, knowledge, career orientation, agreeableness, and emotional stability were positively related ($p < .05$) to academic integration. These relationships were weak to moderate, ranging from .12 to .41. Mastery goal orientation and perseverance were negatively related ($p < .05$) to academic integration, with betas of -.26 and -.19, respectively. Neither of these negative relationships was consistent with expectations, but the positive zero-order correlations associated with each suggested that collinearity affected these regression coefficients. In addition, agreeableness and emotional stability were related to social integration, with betas of .20 and .25 respectively.

In the next stage of the model, academic integration was related to academic self-efficacy, satisfaction, and commitment, social integration was related to satisfaction and commitment, academic self-efficacy was related to GPA, and family support was related

to commitment and satisfaction. These relationships ranged from fairly weak (e.g., both of the relationships involving family support were below .13) to strong (e.g., both of the relationships involving social integration were above .55). In the third stage of the model, GPA, satisfaction, and commitment were all related to withdrawal cognitions and behaviors. Satisfaction was weakly related ($b = -.10$), but GPA and commitment demonstrated stronger relationships ($\beta = -.45$ and $\beta = -.41$, respectively). Each of these negative coefficients are in the hypothesized direction. Finally, withdrawal cognitions and behaviors demonstrated a strong relationship with actual dropout ($\beta = .45$). The overall model displayed a similar pattern of fit to the early attrition model ($\chi^2(2188) = 10786.96$, $p < .01$, CFI = .83, RMSEA = .04).

The squared multiple correlations for the longitudinal model are also presented in Table 11. Academic integration ($R^2 = .21$), social integration ($R^2 = .11$), academic self-efficacy ($R^2 = .10$), satisfaction ($R^2 = .49$), commitment ($R^2 = .39$), and withdrawal cognitions and behaviors ($R^2 = .42$) displayed a similar pattern to the squared multiple correlations in the early attrition model, but they were all slightly lower. The two multiple correlations that were not significant in the early attrition model, however, were significant in the longitudinal model (GPA $R^2 = .05$, withdrawal $R^2 = .20$).

There were some notable differences between these models. Despite having variables from the same waves of data collection in stages 1 and 2 of the models, the patterns of significance were slightly different. The relationship between performance avoid goal orientation and academic integration was significant in the early attrition model but not in the longitudinal model, while the relationships between mastery goal orientation and academic integration and between knowledge and academic integration

were significant in the longitudinal model but not in the early attrition model. This indicates that the additional variables in later stages of the model correlated with the variables in stages 1 and 2 in ways that either enhanced or diminished relationships between variables at these initial two stages. Aside from these changes in statistical significance, the magnitude of the significant relationships between these stages was similar, differing at most by .06.

The relationships between stage 2 and stage 3 were also fairly consistent across the models but there were a few differences. The shocks variable was weakly related to satisfaction in the early attrition model but not in the longitudinal model. Family support and academic integration were related to satisfaction and GPA was related to academic self-efficacy in the longitudinal model but not in the early attrition model. This may have been due to the use of self-efficacy data from wave 1 in the early attrition model; at this time point, students had not had as much time to develop accurate self-efficacy beliefs as at later time points. The difference in betas was noticeable for the relationship between social integration and satisfaction (.21) and for the relationship between academic integration and academic self-efficacy (.15), but it was .07 or less for all other significant relationships.

In the next stage, all three hypothesized relationships were supported in both models, though the differences in relationship strength between GPA and withdrawal cognitions and behaviors and between commitment and withdrawal cognitions and behaviors (both .21) were noticeable. In the final stage of the model, withdrawal cognitions and behaviors were weakly related to dropout in the unexpected, negative

direction in the early attrition model, but were positively and more strongly related to dropout in the longitudinal model.

The overall fit indices give a reasonable idea of the adequacy of the models as a whole. The relative chi-square (i.e. the ratio of the chi-square value to the degrees of freedom) is less than the upper bound of 5.0 that has been provided as a guideline for good fit (Kline, 2005, p. 137) for the longitudinal model (relative chi-square=4.93) but slightly above this range for the early attrition model (relative chi-square=6.30). It should be noted, though, that the chi-square statistic frequently produces Type II errors and is often disregarded by researchers in favor of other fit indices when poor (Garson, 2009). For both models, the CFI values were below what is generally considered acceptable, while the RMSEA values were within the limits of good fit (Hu & Bentler, 1999). This difference indicates that while the models do not do well when compared to a baseline model in which indicators and latent variables are uncorrelated, the data do fit the hypothesized models acceptably when degrees of freedom are taken into account. That is, the data do not fit the hypothesized model that well in the absolute sense, but when a proxy for the complexity of the model (i.e. the number of parameters to be estimated) is taken into account, the data fit reasonably well. It has also been suggested that RMSEA be relied upon more in confirmatory contexts whereas CFI be relied on more in exploratory contexts (Rigdon, 1996). Given this recommendation, it might be more appropriate to rely on the RMSEA in this confirmatory context.

The measurement model appeared to contribute most strongly to lack of model fit. The most problematic variables were those that had to be combined due to multicollinearity. The satisfaction, commitment, and withdrawal cognitions and

behaviors constructs were not ideally represented, negatively impacting fit. Also, variables such as the three aspects of goal orientation did not demonstrate great fit. Taken together, these variables negatively affected overall fit. The final CFA of all variables indicated that this was the case, and the addition of the causal paths only served to maintain similar fit rather than overcoming the existing measurement issues. While these fit indices present a general picture of these models, it is also useful to examine the individual paths and their associated hypotheses; the next section is such an attempt.

Support for Hypotheses

Figure 1 presents the general model with numbered hypotheses. A summary of support for each of the hypotheses is presented in Table 13. The correlations provide support for the bivariate relationships, while the regression weights provide support for these relationships when they are considered as part of the full model. Support is classified as “full” if all associated correlations and standardized regression weights support a hypothesis, “partial” if some but not all evidence supports a hypothesis, “none” if none of the evidence supports a hypothesis, and “uncertain” if the support for a hypothesis is unclear due to evidence simultaneously supporting and contradicting (i.e., having a sign opposite of what is hypothesized) a hypothesis. The table also displays whether the support classified as “partial” is due to correlational evidence only (indicated by “corr.” next to the designation of “partial”) or if the evidence is from correlations and beta weights (indicated by “mixed” next to the designation of “partial”).

Hypotheses 1a, 1b, and 1c stated that the personality factors of conscientiousness, agreeableness, and emotional stability would be positively related to academic integration. The correlation with academic integration was significant for conscientiousness, but neither of the beta weights were, partially supporting Hypothesis 1a. The correlations and betas for the latter two personality factors were all significant, providing full support for Hypotheses 1b and 1c. Hypotheses 2a, 2b, and 2c proposed similar relationships between the three personality factors and social integration. Hypothesis 2a (which concerned conscientiousness) received no support, while the hypotheses concerning the other two variables received full support. Thus, conscientiousness demonstrated little effectiveness as a predictor, but agreeableness and emotional stability demonstrated effectiveness for academic and social integration both when considered at the bivariate level and when considered in the context of the full model.

Hypotheses 3a, 3b, and 3c posited that mastery goal orientation (positively), performance approach goal orientation (positively), and performance avoid goal orientation (negatively) would be related to academic integration. The correlation between mastery goal orientation and academic integration provided support for this hypothesis. Contrary to this hypothesis, however, the beta for the longitudinal model was negative and significant, indicating uncertainty in the support of this hypothesis. This indicated suppression in the model that resulted from mastery goal orientation correlating with other variables. Performance approach goal orientation received support only from the correlation, indicating partial support for Hypothesis 3b. Performance avoid goal orientation received support from the correlation and the early attrition model beta,

indicating partial support. In sum, the conjectures that mastery goal orientation would be related to academic integration received uncertain support, while the hypotheses regarding performance approach and performance avoid goal orientation received partial support.

Hypotheses 4, 5, and 6 posited that career orientation, knowledge, and perseverance (respectively) would be positively related to academic integration. Career orientation was related to academic integration all possible ways, indicating full support for Hypothesis 4. This relationship with knowledge was supported by the correlation and by the longitudinal model beta, indicating partial support for Hypothesis 5. The relationship with perseverance was supported only by the correlation. Contrary to the hypothesis, however, the standardized regression weight for the longitudinal model was in the opposite direction than expected due to multicollinearity, resulting in uncertainty about the support for this hypothesis. It seems that the hypothesis is supported when the relationship is considered by itself, but not supported when considered in the context of the full model. Lastly for this stage, Hypothesis 7 stated that social/cultural involvement would be positively related to social integration. This hypothesis received no support.

Hypotheses 8a, 8b, 8c, and 8d stated that academic integration would be positively related to academic self-efficacy, academic satisfaction, institutional commitment and degree commitment respectively. Hypothesis 8a, which concerned academic self-efficacy, received full support. Because of the aforementioned issues with the model, Hypotheses 8b, 8c and 8d had to be modified to test combined satisfaction and commitment variables. The early attrition model correlation and the betas for both models were significant for the relationship between academic integration and

satisfaction, providing partial support for a modified Hypothesis 8b. All evidence for the academic integration-commitment relationship was significant, providing full support for modified Hypotheses 8c and 8d.

Hypotheses 9a, 9b, and 9c stated that social integration would be positively related to social satisfaction, institutional commitment, and degree commitment respectively. All of the evidence for these hypotheses was significant, providing full support for Hypothesis 9a and modified Hypotheses 9b and 9c. Hypotheses 10a, 10b, and 10c stated that financial integration would be related to financial satisfaction, institutional commitment, and degree commitment. Because of the elimination of this variable, these hypotheses were not tested.

Hypotheses 11a, 11b, and 11c predicted that family support would be related to the three facets of satisfaction, while hypotheses 11d and 11e predicted that family support would be related to the two facets of commitment. For the satisfaction composite, the correlation for the early attrition model and the betas for both models were significant, providing partial support for modified Hypotheses 11a, 11b, and 11c. For the commitment composite, all evidence was significant, providing full support for modified Hypotheses 11d and 11e. Hypothesis 12 stated that self-efficacy would be related to GPA. Only the correlation and standardized regression coefficient in the longitudinal model were significant, providing partial support for this hypothesis. Lastly for this stage, Hypotheses 13a posited that shocks would be related to academic satisfaction, while Hypothesis 13b posited that shocks would lead directly to withdrawal. For the satisfaction composite, both correlations and the beta for the longitudinal model were significant, providing partial support for modified Hypotheses 13a, 13b, and 13c. For the

path from shocks directly to withdrawal, only the correlation for the longitudinal model was significant, providing weak but partial support for this hypothesis.

Hypotheses 14a and 14b predicted a negative relationship between the two facets of commitment and thoughts of leaving. Both of these were originally conceptualized as variables with distinct facets, but both were ultimately represented as composites of these facets. There was full support for modified Hypotheses 14a and 14b. Hypotheses 15a, 15b, and 15c predicted negative relationships between the three facets of satisfaction and thoughts of leaving. These modified hypotheses were fully supported. Hypothesis 16 predicted a negative association between GPA and thoughts of leaving. Like the others in this stage, this hypothesis was fully supported. Finally, Hypotheses 17, 18, and 19 predicted a positive relationship between thoughts of leaving and intent to withdraw, a positive relationships between intent to withdraw and search behaviors, and a positive relationship between search behaviors and withdrawal. Again, these facets had to be combined due to multicollinearity, resulting in a single direct relationship from withdrawal cognitions and behaviors to withdrawal. The betas for both models and the correlation for the longitudinal model were significant, providing partial support for this hypothesis.

Model Modification

In an effort to identify a better fitting model, the previously presented information was considered in conjunction with the modification indices to guide model trimming and building.

There is a delicate balance in using both empirical and theoretical guidance for modification. As Kline (2005, p. 149) explains, while empirical modification indices can assist researchers in identifying opportunities for improvement in a model, uncritical reliance on these indices increases the likelihood of capitalizing on chance and frequently does not uncover the true model. Theory is needed to guide such respecification. In the present study, modification indices were consulted, but an attempt was made to maintain consistency with the general theory behind the model. Prior to modification a few rules were developed to achieve this aim. Paths between variables in one stage and variables in the next stage that were not included in the original model were permitted to be added (e.g. the relationship between social/cultural involvement and academic integration would be estimated when inclusion of this path was supported by the evidence). Existing paths in the model were also deleted when prior analyses indicated they were nonsignificant. No path was permitted to go “backward” (e.g., nothing in stage 2 was permitted to lead to a variable in stage 1) or to lead to another variable in the same stage, though other relationships across stages of data collection were estimated if there was enough evidence to support their inclusion. Estimation of paths that skipped a data collection stage was not included except in the case of the relationship between entry characteristics and withdrawal. Because actual withdrawal is arguably the variable of greatest interest, and because direct relationships between entry characteristics and withdrawal have been supported in previous research, direct effects were permitted from these variables to withdrawal.

It should also be noted that although there have been cogent arguments in support of correlating error terms associated with indicators (e.g. Reddy, 1992; Cole, Ciesla, &

Steiger, 2007), this practice was not adopted in the present study. As Landis, Edwards, and Cortina (2009) explain, there are a number of problems with this practice especially when conducting post-hoc model modification. While correlating residuals will certainly increase model fit, the practice largely capitalizes on chance, is rarely replicable, and essentially rewards a researcher for “what could have been” (Landis, Edwards, & Cortina, 2009, p. 193) by accounting for whatever he or she neglected to include in a model. The debate about correlating residuals will undoubtedly continue in the literature, but the unresolved problems with the practice are significant enough to warrant exclusion from model modification in this instance.

Early Attrition Model Modification.

In the early attrition model, the empirically supported modifications mainly resulted in only small drops in the chi-square statistic. The largest possible improvements would have resulted from allowing error terms to correlate. Allowing some pairs of error terms to correlate, such as two of the commitment error terms or two of the satisfaction error terms, would have dropped the chi-square by 200-400. No other alterations to the model approached these levels of impact. While some researchers have followed arbitrary guidelines such as only making modifications where the indices indicate a drop in chi-square greater than 100, others have simply made the modifications that result in the largest drop regardless of value (Garson, 2009). In the early attrition model there were no modifications (permitted under the aforementioned rules) that would

have resulted in chi-square drops greater than 100, so by default, the latter strategy was used.

One reason that there were few supported paths to be added is that the original model included most of the theoretically possible relationships. Due to the need to collapse facets of satisfaction and facets of commitment into single variables based on measurement considerations, few potential paths from stage 2 variables to stage 3 variables remain to be estimated. All of the stage 3 variables are already hypothesized to relate to withdrawal cognitions and behaviors. The only possibilities for adding paths, then, exist in the omitted relationships between stage 1 and stage 2 (e.g., from knowledge to social integration or from social/cultural involvement to academic integration) and the few omitted relationships between stage 2 and stage 3 (e.g. from shocks to commitment or from academic integration to GPA). Unfortunately, support for all such paths was weak.

Despite this, there were some modifications that were empirically supported and theoretically justifiable. First, academic self-efficacy appeared to work better as a stage 2 variable that resulted from entry characteristics. That is, modification indices indicated that the chi-square would drop between 12.41 and 84.07 per path for paths added from the stage 1 variables (i.e. the entry characteristics) to academic self-efficacy. The zero-order correlations between these variables (presented in Table 5) also appeared to support this move. Social/cultural involvement was the only entry characteristic for which the evidence did not support adding a path to academic self-efficacy, with a weak zero-order correlation between the variables and with a near-zero drop in chi-square adding this path.

While paths closer to the lower end of this range of discrepancy change would not have been added by themselves, taken as a whole, these changes are theoretically justifiable. Though a post-hoc explanation, all of these variables were hypothesized to relate to academic integration, so it is not entirely surprising that they should be related to another variable that is also of an academic nature. Additionally, both the entry characteristics and academic self-efficacy were measured at wave 1. Thus, the first step of modifying this model involved altering the antecedents of academic self-efficacy. The path from academic integration to academic self-efficacy was removed, and paths were created from mastery goal orientation, performance approach goal orientation, performance avoid goal orientation, knowledge acquisition, career orientation, perseverance, conscientiousness, emotional stability, and agreeableness to academic self-efficacy. This model demonstrated improved fit over the original model ($\chi^2(2180)=13358.61$, $p<.01$; CFI=.81; RMSEA=.04). Because these models were not hierarchically nested, they cannot be compared using a chi-square different test. However, they can be compared using the Akaike Information Criterion (AIC). Lower values of this index suggest greater parsimony and increased likelihood of replication (Kline, 2005, p. 142). The revised model (AIC=13832.98) had a lower value on this fit index than the original model (AIC=14380.13), indicating better fit. In addition, the variance explained in academic self-efficacy ($R^2=.28$) was greater than in the original model ($R^2=.22$).

After this change, there were no additional variables that displayed relationships with variables from another stage in a manner that supported similar revision. There was also little information to support adding more paths. The only permissible path that, if added, would have lowered the chi-square by more than 25 was from social/cultural

involvement to withdrawal. This path would have lowered the chi-square by approximately 40. Unfortunately, the estimated parameter change was positive for this path, indicating individuals higher on social/cultural involvement were more likely to drop out. It could be argued that this path should be added despite being inconsistent with theory, but as was discussed, simply modifying a model based on empirical suggestions increased the likelihood of capitalizing on chance and reduces replicability. With no theoretical justification for adding this path, it was decided to leave it out of the revised model.

The next step in modifying the model involved trimming paths that were trivial. In the early attrition model, the paths between four pairs of variables demonstrated both nonsignificant betas and zero-order correlations: the path from social/cultural involvement to social integration, the path from conscientiousness to social integration, the path from academic self-efficacy to GPA, and the path from shocks to withdrawal. These paths were targeted for removal because, whether analyzed within the full model or assessed in bivariate relationships with their associated criterion (i.e. the zero-order correlation between, for example, academic self-efficacy and GPA), they had no predictive ability.

First, the path from social/cultural involvement to social integration was removed. Upon removing this path, the social/cultural involvement variable was no longer hypothesized to relate to anything; thus, this variable was removed from the model completely. The new model demonstrated a lower chi-square and CFI but a comparable RMSEA ($\chi^2(1994)= 12804.60, p<.01$; CFI=.80; RMSEA=.04) relative to the model that included this variable and path (reported above). However, the AIC was lower for the

newer model (AIC=13370.60) compared to the older model (AIC=13832.98). These results indicate that the structure of the social/cultural involvement variable was positively influencing fit indices, even though the lone path coming from this variable was not positively influencing fit. When the variable was removed, fit was affected by the loss of the structure's influence on the indices, but parsimony (as evidenced by the AIC) increased. Despite the slightly lower fit indices it is not defensible to keep this variable in the model. In theory, a host of variables with great structure could be included in an SEM test but not hypothesized to be related to any other variable in the model. This would improve fit but would tell the researcher nothing about the structural relationships he or she is attempting to study. Because social/cultural involvement contributed nothing to the model but a false impression of increased fit, it was removed from further analyses.

Second, the path from conscientiousness to social integration was removed. As might be expected, removing a single path in such a large model had only a small effect on the chi-square ($\chi^2(1995) = 12806.30, p < .01$), and no effect on the CFI or RMSEA. There was also a small but measurable effect on the AIC (AIC=13370.30). Because this model was nested in the model that included this path, they can be compared using a chi-square difference test. This test was nonsignificant ($p < .05$), indicating that the models fit the data equally well. Because the more parsimonious model fits just as well, the path was eliminated.

Though the path from academic self-efficacy to GPA was nonsignificant statistically ($p < .05$), removing it was not as easily justified. If it were removed, academic self-efficacy would be a "dead end" (i.e. it would lead to nothing else in the model).

GPA would become an exogenous variable with unknown causes and would have to be set to covary with the other exogenous variables in the model. Even post-hoc, this was difficult to justify theoretically. While empirically academic self-efficacy is indeed a “dead end,” in accordance with good model modification technique, this path was retained due to insufficient theoretical justification.

The final hypothesized path that was not affirmed by the data was the path from shocks to withdrawal. It is quite possible that, at least in this college setting, there are not many shocks that lead an individual to automatically quit. Instead, most shocks may simply have a negative effect on satisfaction. It was deemed justifiable to remove this direct path to withdrawal. As was the case with the conscientiousness-social integration link, removing only one path did not have a large impact on model fit ($\chi^2(1996)=12807.05$, $p<.01$; CFI=.80; RMSEA=.04), though the AIC was slightly lower in this model (AIC=13369.36) than in the previous model (AIC=13370.60). The chi-square difference test, however, was nonsignificant ($p<.05$), indicating the path should be deleted. This path was removed from the model.

Standardized regression coefficients for the paths in this modified early attrition model are presented in Table 14. These modifications did change the pattern of significance to some extent and the strength of some relationships. In the stage 1-stage 2 links, performance avoid goal orientation was no longer related to academic integration, but mastery goal orientation, knowledge, and perseverance were now significantly ($p<.05$) related to academic integration. Of the newly added paths, only four of nine ended up being significant ($p<.05$) in the full model test. Performance avoid goal orientation, career orientation, perseverance, and emotional stability were significantly

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related to academic self-efficacy, while performance approach and mastery goal orientation, knowledge, conscientiousness, and agreeableness were not related to academic self-efficacy. As most of the changes occurred in this area of the model, the rest of the regression weights were nearly unchanged. The squared multiple correlations for this revised model are presented in Table 15. Academic integration was predicted less well ($R^2=.21$) than in the original model, but academic self-efficacy was predicted better ($R^2=.28$) than in the original model. No other multiple correlations were different than in the original model.

Longitudinal Model Modification.

Though the early attrition model and longitudinal models were originally conceptualized to be the same, it is possible that support for hypothesized mediating effects is different. For this reason modifications were conducted separately for each model. By examining the evidence for each model and building and trimming separately, possible differences in these models could be uncovered.

The modification indices for the longitudinal model suggested even smaller gains from modifying the model than those realized for the early attrition model. While reassigning academic self-efficacy to the second stage was a supported change in the early attrition model, it was clearly not appropriate in the longitudinal model. The largest drop in chi-square (resulting from connecting performance avoid goal orientation to academic self-efficacy) would only have been about 15. With no evidence supporting the addition of paths, the focus shifted to removing paths.

In the longitudinal model, there were only two paths for which both the zero-order correlation and beta were nonsignificant ($p < .05$): the path from social/cultural involvement to social integration, and the path from conscientiousness to social integration. The model that omitted the path from social/cultural involvement to social integration, and also removed the social/cultural involvement variable altogether, resulted in slightly worse fit ($\chi^2(2001) = 10308.11$, $p < .01$; CFI=.82; RMSEA=.04) than the old model ($\chi^2(2188) = 10786.96$, CFI=.83, RMSEA=.04). The new model, however, resulted in a lower AIC (10860.11) than the old model (AIC=11380.96). The chi-square difference test for this modification was significant ($p < .05$), but this was due to the positive impact of the measurement of social/cultural involvement on fit (i.e. leaving the social/cultural involvement variable in the model, but with no relationships with other variables, did improve the chi-square). For the same reasons discussed above, this modification was retained. When the path from conscientiousness to social integration was removed the CFI and RMSEA did not change, but the chi-square ($\chi^2(2003) = 10309.99$, $p < .01$) and AIC (10859.99) changed slightly. The chi-square difference test was nonsignificant ($p < .05$), indicating the path should be removed.

Finally, the correlation matrix indicated that the stage 3 variables of satisfaction, commitment, and GPA were directly related to withdrawal. It was decided to move this variable from the final stage of the model to the stage with withdrawal cognitions and behaviors. Conceptually, this alters this portion of the model. Withdrawal cognitions and behaviors can be considered as a criterion just as withdrawal can. It is likely that many students who consider withdrawing do not follow through. However, these students may not be as involved in the community, or may not represent the university

well to outsiders by expressing their intent to leave. Thus, it is still a criterion of interest. Also, in the longitudinal model withdrawal was summed across years two through four. The withdrawal cognitions and behaviors measured in students' third semester may not have captured consideration of withdrawing that occurred later. Low satisfaction, commitment, and GPA may have accumulated over time, or simply may have not changed despite a student's short-term decision to stay in college; in this case, these variables could eventually lead to a withdrawal decision that would not be mediated by withdrawal cognitions and behaviors measured during the third semester.

The withdrawal variable was moved to stage 4 of the model. The path from withdrawal cognitions and behaviors to withdrawal was removed, and paths were added from satisfaction, commitment, and GPA to withdrawal. The CFI (.83) and RMSEA (.04) remained the same, but the chi-square ($\chi^2(2001)=10210.08$, $p<.01$) and AIC (10762.07) decreased. The betas for the paths from commitment and GPA to withdrawal (-.32 and -.25) were significant ($p<.05$), but the beta for the path from satisfaction to withdrawal (.04) was not significant ($p<.05$). In addition, the variance explained in both withdrawal cognitions and behaviors ($R^2=.34$) and withdrawal ($R^2=.16$) were lower than in the original model. Because fit was not notably improved, and because the variance explained in both withdrawal cognitions and behaviors and actual withdrawal decreased, this modification was not retained.

The model identified prior to moving withdrawal was accepted as the final modified longitudinal model. Standardized regression coefficients for the paths in this model are presented in Table 16. Because there were minimal changes, the modified model exhibited the same pattern of significance and very similar betas to those found in

the original model. Because the squared multiple correlations did not change, they are not presented. A summary of model fit across the early attrition model, the longitudinal model, and the revised version of both of these models is presented in Table 17.

Discussion

Main Findings

These findings provide mixed support for the model as a whole. The main problem with the model was the measurement portion. Many of the variables did not demonstrate discriminant validity. These problems caused estimation issues, and while combining variables resolved these problems, fit was negatively impacted. In the full model, the addition of structural paths did not compensate for this poor measurement. The differences in fit indices are evidence of these measurement issues. Because many of the indicators and latent variables in this model are indeed correlated, a low CFI resulted, as this fit index compares the hypothesized model to a baseline model in which indicators and latent variables are uncorrelated. Even though the model fared poorly when assessed by the CFI, the model appeared to fit the data much better when assessed by the lack of fit relative to degrees of freedom (as indicated by the RMSEA).

Despite these measurement issues, regression weights from the structural portion of the model provide support for many of the hypotheses. Of the stage 1-stage 2 paths, five were supported by the early attrition model and the longitudinal model. Career orientation, agreeableness, and emotional stability were related to academic integration, and agreeableness and emotional stability were related to social integration. In the early attrition model, performance approach goal orientation was related to academic

integration, and in the longitudinal model, knowledge was related to academic integration. While only seven of 13 hypothesized paths were supported in the full model by their associated regression weights, this number was reduced because of multicollinearity. The zero-order correlations indicate that 11 of these 13 paths were significant (the paths between social/cultural involvement and social integration and between conscientiousness and social integration being the two exceptions). If these variables were to be measured with more precision and discriminant validity was increased (reducing multicollinearity), it is possible that the regression coefficients associated with the paths would be significant.

These results increase our understanding of the relationships of these variables to withdrawal. While the broad category of entry characteristics has been found to directly affect withdrawal (Pascarella & Terenzini, 1980; Braxton, Sullivan, & Johnson, 1997), it may be more useful to understand these relationships as being affected by a series of intervening variables. More specifically, conscientiousness, agreeableness, emotional stability, mastery goal orientation, career orientation, and perseverance have all been directly related to withdrawal or withdrawal intent in previous research. The zero-order correlations indicate that all of these variables were more strongly related to academic integration than to withdrawal or withdrawal intent in both the early attrition and longitudinal models, with one exception (i.e. emotional stability was correlated $r=.15$ with academic integration and $r=-.15$ with withdrawal cognitions and behaviors). In the full models, the modification indices did not suggest that direct paths should be added from these entry characteristics to withdrawal. Similarly, although conscientiousness and social/cultural involvement did not demonstrate hypothesized relationships with social

integration, agreeableness and emotional stability demonstrated stronger relationships with social integration than with withdrawal or withdrawal cognitions and behaviors, despite previous research indicating direct relationships with these outcomes. These results suggest support for mediation and a more process-oriented approach to the study of relationships between individual differences and withdrawal.

The strongest findings involve the variables in the later stages of these models. In the stage 2-stage 3 paths, zero-order correlations indicated relatively strong relationships between the stage 2 variables of academic integration, social integration, and family support and the stage 3 variables of commitment and satisfaction. Again, these effects were attenuated in the full model for the relationships between academic integration and satisfaction and between family support and satisfaction due to similarity of constructs in measurement. Even so, the results concerning the relationships between integration and both satisfaction and commitment are consistent with previous research (Braxton, Sullivan & Johnson, 1997; Liu & Liu, 2000) supporting these relationships. The findings regarding family support are consistent with previous research that has found a relationship between family support and commitment (Cabrera, Nora, and Castaneda, 1993) but are incremental in that they also identify a relationship with satisfaction, though this bivariate relationship was weakened when included in the full model.

Lastly for the second stage, the shocks variable was not an effective predictor of satisfaction or dropout in the full model, but it did exhibit significant ($p < .01$) negative bivariate correlations with satisfaction. It is important to note that the typical richness found in a measure of shocks was decreased in this study. While a number of different shocks were measured, the representation of shocks in the full model combined all shocks

into a single binary composite, simply indicating whether a student had experienced any of the shocks or none of the shocks. Different shocks may have varied in the extent to which they decreased satisfaction or resulted in withdrawal decisions. Future research should investigate the impact of shocks in this context more thoroughly without such a simple representation of this phenomenon.

One of the most significant differences between the early attrition model and the longitudinal model was the relationship between academic self-efficacy and GPA, which was nonsignificant ($p < .05$) in the former and moderate and significant ($p < .01$) in the latter. Because self-efficacy was measured at different time points in these models, this difference is consistent with previous literature that has found academic self-efficacy only demonstrates predictive ability when it is measured later in college. It appears that students do need to develop accurate perceptions of ability based upon feedback and performance in a context before developing a sense of self-efficacy in that context.

Zero-order correlations between the stage 3 variables of GPA, satisfaction, and commitment and the stage 4 variable of withdrawal cognitions and behaviors were consistent and moderate to strong. While the relationship between satisfaction and withdrawal cognitions and behaviors was somewhat smaller (but still significant, $p < .05$) in the full model, the other two paths remained strong. This evidence provides support for the idea that poor performance, reduced contentment with one's situation in college, and reduced dedication to the goal of graduating and to one's institution increase the likelihood a student will evaluate alternatives to college and consider dropping out. It is interesting to note, then, that these withdrawal cognitions and behaviors lead to a decision to actually withdraw much less frequently in the first year than in the second through

fourth years. It may take time for a student to fully evaluate his or her options, hence the support from the longitudinal model. Also, students making such deliberations may either decide to “stick it out” and see if college life improves, or may simply not encounter the same pressures from family, friends, or the university to withdraw earlier in their college experience.

Overall, this evidence provides a general picture of the factors affecting college student withdrawal. Students appear to go through a process from the time they enter college to the time they decide to leave a university, rather than simply withdrawing as a result of background variables, despite previous research having demonstrated this relationship. As was mentioned, previous research has found that entry characteristics do affect withdrawal (Pascarella & Terenzini, 1980; Braxton, Sullivan, & Johnson, 1997), but these associations may be better understood when considered in the context of a full model especially when assessed over time. In this study, the entry characteristics were largely unrelated to eventual withdrawal. The exception was the variable of social/cultural involvement. Though the modification indices (and zero-order correlations) for the early attrition model most strongly supported a direct path from social/cultural involvement to withdrawal, it is unclear why this association existed. Perhaps students who spent more of their time pursuing non-academic endeavors simply concluded they enjoyed these activities more than college. Future research should investigate possible reasons for this relationship.

This was not the only possible improvement to the model that was not ultimately undertaken. In the early attrition model, though not retained, there were nonhypothesized direct relationships from commitment and GPA to withdrawal. These variables could

perhaps be rearranged in a manner that takes advantage of such relationships while not decreasing the variance explained in withdrawal and withdrawal cognitions and behaviors. If these direct relationships are supported in future research, such findings would imply that students who lack commitment or have a low GPA early on in college may be more likely to withdraw without evaluating alternatives to the same extent as students who withdraw later in college.

Theoretical Implications

These findings build upon the academic withdrawal literature in a couple ways. First, the entry characteristics that were used in previous research were varied and inconsistently employed. This study represents a more exhaustive set of entry characteristics, and also explicates the nature of their relationships with academic and social integration. These variables are related to withdrawal, but I show that this is a mediated relationship. Second, this model expands upon more abbreviated models (e.g. Cabrera, Nora, & Castaneda, 1992) that utilized variables from Tinto's (1993) and Bean's (1981) frameworks. While more complex models that use variables from both frameworks have been proposed on theoretical grounds (e.g. Bean and Eaton, 2000), little empirical testing has been done on these complex models.

These findings also build upon the organizational turnover literature. First, Munson and Rubenstein (1992) advanced the idea that school *is* work for the students involved, and that these two contexts are more similar than most believe. Peterson (2007) tested a model somewhat similar to the present model (i.e. combining some of the

same variables from the academic and organizational literatures) in work organizations, finding that initial goals and career decision-making self-efficacy were related to employee fit or integration, and that this integration predicted commitment and satisfaction. Similarly, the present study demonstrated that career orientation and facets of goal orientation are related to academic integration, and that this integration predicts commitment and satisfaction. These shared relationships aid our understanding of Peterson's (2007) representation of organizational turnover and our general understanding of the relationship between the academic and organizational contexts.

Second, satisfaction, commitment, and turnover intentions have been extensively researched in organizational settings. This study provides evidence that these variables are important in decisions to leave the institution one is associated with, and also are important across contexts. Fit has been found to relate to commitment (Sekiguchi, 2004) and satisfaction (Verquer, Beehr & Wagner, 2003) and commitment has been found to relate to withdrawal cognitions (Cohen & Freund, 2004) and intent to leave (Williams & Hazer, 1985). These findings were replicated in this study. In addition, the relationship between satisfaction and turnover is better clarified by the results of this study. Satisfaction has been found to have direct relationships with turnover (Griffeth, Hom & Gaertner, 2000) and to mediate the relationship between fit and turnover (Wheeler, Coleman, Gallagher, Brouer, and Sablynski (2007). The results of this study are more consistent with findings that suggest the relationship between satisfaction and turnover is not direct but is mediated by withdrawal cognitions and behaviors (e.g. Hom, Caranika-Walker, Prussia, & Griffeth, 1992).

Despite the similarities of these results to findings in the organizational literature, there are some differences. The shocks variable was a poor predictor of satisfaction and withdrawal. As was mentioned, this could have been a result of collapsing all of the shocks into a single binary variable, losing much of the richness of the shocks measure. Another possible explanation is that students do not experience as many shocks as employees. Even if the rate of experiencing shocks is the same in the two contexts, students may be less likely to drop out as a result of a shock than employees. Whatever the reason, the shocks variable did not display patterns consistent with evidence from the organizational literature. Also, the intent to leave, search behaviors, and thoughts of leaving variables also could not be investigated in the order supported by Sager, Griffith, and Hom (1998) due to multicollinearity among these variables. If these variables had demonstrated discriminant validity, it is possible such an order could have been supported, but the results of this study only support relationships of satisfaction, commitment, GPA and withdrawal with a more general variable of withdrawal cognitions and behaviors.

The similarity of these relationships in both contexts could be interpreted to support a logical extension of Munson and Rubenstein's (1992) hypothesis: this *is* organizational research, and attempts to categorize it based solely on the contextual label (i.e. school or work) under which it occurs rely on artificial assumptions. This is not to say that the contexts are equivalent; as was discussed in the introduction to this study, there are important differences between them. However, attrition occurs in both contexts, and there appear to be similar cognitive processes for individuals who voluntarily leave either context.

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Practical Implications

These findings also have several practical implications. Measuring entry characteristics such as career orientation, perseverance, and goal orientation may be useful for academic institutions. These characteristics are largely developed before one gets to college, but they affect the match one perceives between individual characteristics and the university environment. These variables could play a part in the admissions process. Selecting students based on these could increase the likelihood that a student will perceive this fit, and eventually could lower withdrawal rates. Admittedly, there are potential problems with this use such as applicant faking and reactions, but admissions are still a potential use.

Alternatively, students could be measured on these variables when they enter college for counseling purposes. Students likely to drop out could be counseled in order to lessen the chances of this occurrence. The variables in later stages of the model could be used similarly. The degree of integration a student perceives with the academic and social aspects of college could be measured, and counselors could target these areas if they are in need of improvement. Satisfaction, commitment, and withdrawal cognitions and behaviors could also be monitored throughout college to provide assistance to these students and reduce attrition.

Strengths and Limitations

This study has a number of strengths. First, this represents the first test of a model in the collegiate context that combines variables from the dominant models of the academic literature and variables from the organizational literature. While models have been tested in this context using variables from Tinto's and Bean's frameworks and a model combining academic and organizational variables has been tested in a workplace, no previous study has tested a model in the academic setting that has drawn on the academic withdrawal and organizational turnover literature. Second, this is a longitudinal study assessing withdrawal over four years. Many other studies of withdrawal (e.g. Terenzini, Pascarella, Theophilides, & Lorang, 1983; Cabrera, Nora & Castaneda, 1993; Kahn & Nauta, 2001) have not done this. Third, this study involves participants in multiple institutions, so the results may be more generalizable than studies that have only focused on participants in one institution (e.g. Mashburn, 2000/2001; Braxton, Milem, & Sullivan, 2000; Edens, 2006).

Despite these advantages, there are some limitations associated with this study. First, the correlational nature of the data prevents establishing causation. Even though correlations support many of the associations between variables, it cannot be concluded that one necessarily causes another. Also, as has been discussed, the measurement of these variables was not optimal. Facets of a number of the variables were highly correlated. For instance, the items in the goal orientation measure may not have been optimal. For example, the third situation presented pertained to volunteering to solve a problem in front of a class. Individuals may not want to do this for a number of reasons including anxiety and low confidence, but these could have little to do with low mastery

orientation, which two of the items are intended to capture. The motivation for performing a number of the actions in the scenarios presented may not be as simple and clear-cut as the items appear to suggest, and this may have resulted in the strong correlations between the facets. The collinearity of these facets may have affected the paths from these facets to academic integration.

The measurement of satisfaction, commitment, and withdrawal was especially problematic. Analyzing a model with such a large number of variables undoubtedly added to multicollinearity issues. Given the multicollinearity among the entry characteristics (e.g., perseverance correlated $\geq .40$ with a majority of the other variables in this stage), it might be useful to employ a smaller model with fewer of these variables. This could prevent some of the significant correlations from displaying nonsignificant betas in the full model, or even eliminate the suppression that occurred in the relationship between mastery goal orientation and academic integration or the relationship between perseverance and academic integration. In the later stages of the model the inability to discriminate between variables clearly caused difficulties. This prevented testing the model exactly as hypothesized, so questions remain about the relationships involving facets of satisfaction, commitment, and withdrawal cognitions and behaviors.

In addition, although common in withdrawal studies, the attrition rate in this study (which summed to 23.1%) was lower than the actual rate, which is consistently estimated at approximately 40% (ACT, 2008). This statistic, however, is for public universities; private universities typically have lower attrition rates than public universities. Two of the universities in this study (the students of which comprised 14.8% of the sample) were private universities and have typical attrition rates of 23% and 14% according to data

from those universities, so the attrition rate for the entire sample should not be expected to be as high as the ACT estimation. Also, some students who had not yet graduated may have dropped out after the completion of this study, though given the low attrition rates in the 3rd and 4th years of college, this number is not likely to be high. In addition, students who did not respond to the survey may be different than students who did respond. For instance, poorer performing students may have been less likely to respond to the survey, but they would also be more likely to drop out. However, without having these data it is not possible to know. All of these factors could have contributed to the lower attrition rate found in this study.

Future Work

The deficiencies in this study and the questions raised by the findings could be illuminated with future research. Suggestions for future research have been offered in this section, generally falling into the categories of measurement and operationalization improvements, structural improvements, or research design and focus improvements. In the measurement category, the scales in this study could be improved. Most of these scales were developed specifically for use in this study. While this increased contextual specificity, it may have led to too much overlap between the scales, causing the aforementioned measurement issues. Future research should investigate if different measures impact the relationships in this model. Additionally, even with retaining the same shocks measure, a different representation in the full model could improve the utility of this variable. A study with a narrower focus on these shocks could aid in understanding them.

Structural improvements could also be investigated. While the results of this study represented an attempt to include more variables than other studies have, there is always the possibility that important variables were omitted. Other entry characteristics, such as locus of control and coping strategies, could demonstrate relationships with fit or integration. Variables such as study habits, hours worked at a non-academic job, or stress levels could affect the withdrawal process at some point. More variables would make the model more complex, but they could help better identify how students move from enrollment to withdrawal. Aside from adding variables, those measured in this study may not function as originally hypothesized. Model modification indicated relationships between GPA, commitment and satisfaction with withdrawal in the longitudinal model. Reconfiguration of the variables in the model could account for these relationships without losing the important link between withdrawal cognitions and behaviors and withdrawal. Family support was also significantly ($p < .05$) correlated with academic and social integration. Just as an argument was made for the hypothesized relationships between family support and the outcomes of satisfaction and commitment, an argument can be made for why such support facilitates integration into the academic and social environment. This variable could be measured at the initial data collection and entered into the model as a stage 1 variable that leads to integration. Such reconfigurations of variables in the model would aid understanding of the nature of these variables.

Lastly, the research design or focus could be altered. This method did not focus on institutional characteristics such as whether a university was public or private, selectivity, or regional or cultural differences. It is possible the withdrawal process differs based on these characteristics. Also, student characteristics, such as race, gender,

or whether they were traditional or continuing education students were not assessed.

Again, it is possible focusing on one group or another would affect results.

Conclusion

Assessing withdrawal with a more complex model aids our understanding of this phenomenon. It seems that entry characteristics do affect integration, and that integration and family support affect commitment and satisfaction, which lead to withdrawal cognitions and behaviors and eventually to withdrawal. The large number of variables in the model and the measurement issues involving those variables complicated interpretation of the results, but many of the hypothesized relationships were supported. These results have helped bridge the student withdrawal and organizational turnover literatures, and they also have practical implications for universities looking to reduce withdrawal. With further research into this model and these relationships, we can increase our understanding of student withdrawal, and perhaps eventually affect the rates that have been consistent over so many years.

APPENDICES

Appendix A

Biographical data- Career Scale

1. How many times have you gathered information (e.g., from the library, on the Internet) about a career in which you were interested?

- A. None
- B. One or two
- C. Three or four
- D. Between five and ten
- E. More than ten

2. Which of the following best reflects your current career plans?

- A. You know what you want many years in advance and plan to stick to you goals
- B. You have a general idea of what you would like to do
- C. You know what you want to do a few years in advance, but are not concerned much beyond five years or so
- D. You are really only concerned with your immediate goals
- E. You make no plans at all, but take advantage of opportunities as they present themselves

3. In the last year, how many times have you talked to a career counselor or used materials at a career center?

- A. None
- B. One or two
- C. Three or four
- D. Between five and ten
- E. More than ten

4. What steps have you taken to gather information about possible careers? Pick the answer that best demonstrates the amount of effort that you have made.

- A. I have not done anything actively yet
- B. I have mostly listened to friends and observed a parent's or relative's career
- C. I have sought information from my school or career counselor
- D. I have gotten library or web-based information on careers that I thought were interesting

5. How committed are you to achieving your career goals?

- A. Extremely committed
- B. Very committed
- C. Somewhat committed
- D. Not very committed
- E. Not at all committed

6. To what extent have you tried to prepare yourself for a particular job that you hope to have in the future? (For example, you contacted a company and talked to someone about the work.)

- A. A great deal
- B. A lot
- C. Somewhat
- D. A little
- E. Not very much

7. How confident are you about what your career will be?

- A. Very confident
- B. Somewhat confident
- C. About as confident as others are
- D. Somewhat less confident than others
- E. Not confident

8. How many awards or scholarships have you applied for that were directly relevant to your career interests?

- A. 0
- B. 1
- C. 2 or 3
- D. 4 or 5
- E. More than 5

9. How confident are you about what your college major will be?

- A. Very confident
- B. Somewhat confident
- C. About as confident as others are
- D. Somewhat less confident than others
- E. Not confident

10. When did you develop a sense of what you want out of a career (whether it is money, respect, interesting work, the opportunity to help people, or something else)?

- A. Before high school
- B. During my first year or second year in high school
- C. During my third year in high school
- D. During this past year
- E. Still undecided

Appendix B

Biographical data- Perseverance scale

1. How important is it to you to succeed in whatever task you are engaged in?

- A. Extremely important
- B. Very important
- C. Important
- D. Not very important
- E. Not at all important

2. When encountering problems that take a long time to solve, how impatient do you tend to become?

- A. Extremely impatient
- B. Very impatient
- C. Somewhat impatient
- D. Slightly impatient
- E. Not at all impatient

3. How often do others tend to compliment you on your determination to continue with a project under difficult circumstances?

- A. Very often
- B. Often
- C. Sometimes
- D. Rarely
- E. Never

4. To what extent would your friends describe you as someone who goes after what you want?

- A. Not at all
- B. A slight extent
- C. A moderate extent
- D. A large extent
- E. A great extent

5. How often have you achieved a personal goal that seemed unattainable at first?

- A. Very often
- B. Often
- C. Sometimes
- D. Rarely
- E. Never

6. How frequently do you fail to get what you want because you did not put in enough effort?

- A. Very often
- B. Often
- C. Sometimes
- D. Rarely
- E. Never

7. To what extent has it been important to you to do your very best whenever you take on a project?

- A. Extremely important
- B. Very important
- C. Important
- D. Not very important
- E. Not at all important

8. How often have you accomplished something you initially thought was very difficult or almost impossible?

- A. Very often
- B. Often
- C. Sometimes
- D. Rarely
- E. Never

9. How often have you finished a project when faced with difficult circumstances?

- A. Very often
- B. Often
- C. Sometimes
- D. Rarely
- E. Never

10. How often do you tend to give up on a task after being told that you were not doing well?

- A. Almost all the time
- B. Most of the time
- C. Sometimes
- D. Rarely
- E. Never

Appendix C

Biographical data- Knowledge scale

1. Think about the last several times you have had to learn new facts or concepts about something. How much did you tend to learn?

- a. usually not enough
- b. sometimes not enough
- c. just what is needed
- d. a little more than what is needed
- e. much more than what is needed

2. How do you compare your standards for learning to the standards teachers in high school or college gave you?

- a. much lower
- b. lower
- c. about the same
- d. higher
- e. much higher

3. How do you compare with other people your age in having specific knowledge on a wide variety of topics (both inside and outside of school)?

- a. well below average
- b. below average
- c. average
- d. above average
- e. well above average

4. Think about those courses in high school you were most interested in. Generally how determined were you to learn the facts and concepts from the class?

- a. extremely determined
- b. very determined
- c. rather determined
- d. sort of determined
- e. not very determined

5. When you were in high school, how much of a priority was knowledge and learning (both inside and outside of school)?

- a. not much of a priority
- b. somewhat of a priority
- c. a priority
- d. a high priority

e. a very high priority

6. Out of the courses that interested you in high school/college, how often were you interested in knowing all the information (vs. getting a general idea of the information)?

- a. never
- b. not very often
- c. sometimes
- d. often
- e. always

7. Generally, whenever you learn about a topic or how to perform a task, how often do you learn all the details as well as the general principles?

- a. hardly ever
- b. not very often
- c. sometimes
- d. often
- e. almost always

8. In your college/high school courses, how effective would you say you are at learning knowledge and mastering general concepts?

- a. very effective
- b. effective
- c. not effective but not ineffective
- d. ineffective
- e. very ineffective

9. In college, how do you tend to work on your homework assignments?

- a. You always spend the most time learning what you think the teacher/professor will include on tests
- b. you learn enough to get the work done, and eventually learn the concepts
- c. you make sure you learn the concepts, and get the work done
- d. you learn the concepts, and after the concepts are learned, you practice some more

10. How often do you tend to learn all the rules of a complicated game, or all the details of a complicated task, before trying it?

- a. almost always
- b. most of the time
- c. sometimes
- d. not often
- e. almost never

Appendix D

Biographical data- Social/cultural involvement scale

1. Over the past year how many art exhibitions have you attended?

- A. None
- B. One
- C. Two
- D. Three or four
- E. Five or more

2. How many times in the last year have you attended cultural events, even when you weren't certain about whether you would like them?

- A. Never
- B. Once
- C. Twice
- D. Three or four times
- E. Five times or more

3. The number of high school clubs and organized activities (such as band, sports, newspapers, etc.) in which you took a leadership role was:

- A. I did not take a leadership role
- B. 1
- C. 2
- D. 3
- E. 4 or more

4. How many times in the past year have you volunteered in social service or charity organizations?

- A. Never
- B. Once
- C. Twice
- D. Three
- E. Four times or more

5. In the last six months, how many times have you tried to talk to someone from a different country or culture just to learn about their background?

- A. Never

- B. Once
- C. Twice
- D. Three or four times
- E. Five times or more

6. In the past year, how many hours were you engaged in community service or volunteer activities?

- A. None
- B. Less than 10 hours
- C. 11-40 hours
- D. 41-80 hours
- E. More than 80 hours

7. How important has it been in the past for you to be involved in community or volunteer work?

- A. Extremely important
- B. Very important
- C. Important
- D. Not very important
- E. Not at all important

8. In the last year, how many times did you go to a play, musical, or other live theater performance?

- A. Never
- B. Once
- C. Twice
- D. 3 to 5 times
- E. More than 5 times

9. How many times each year do you visit museums, art galleries, or exhibitions?

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4 or more

10. Compared with others your age, how much do you know about art (e.g., types of painting, sculpture, and music) both historically and across cultures?

- A. Much more than others
- B. Somewhat more than others
- C. About the same as others
- D. Somewhat less than others
- E. Much less than others

Appendix E

Goal Orientation Measure

Instructions: Below are descriptions of different situations. Each situation has a number of options following it that describe different reactions. Please indicate how likely you would be to react in each of the ways described, using the scale below.

1	2	3	4
definitely not	probably not	probably	definitely
react this way	react this way	react this way	react this way

*Think of each item **by itself**. In other words, just think about the situation and how you would react to the specific item you are answering at the time. Don't worry about how you said you would react in the previous items.*

A teacher says something that you don't understand in class.

1. I would raise my hand to gain a better understanding. (MASTERY)
2. I would raise my hand if I get credit for class participation. (APPROACH)
3. I would raise my hand to make sure that what she is saying is similar to what I am thinking. (MASTERY)
4. I wouldn't raise my hand because I wouldn't want to look stupid. (AVOID)

You are having trouble finishing a statistics project that the teacher said should be pretty easy.

5. I would go to the T.A. for help because I want to get the best grade I can. (APPROACH)
6. I would go to the T.A. for help, so the T.A. would recognize that I am trying and showing my effort to understand. (APPROACH)
7. I wouldn't go to the T.A., because I'm embarrassed that I do not understand when the teacher said it would be easy. (AVOID)

Your teacher asks for a volunteer to solve a problem on the blackboard in front of the class. You think you know how to solve the problem, but you are not sure.

8. I would volunteer to solve it to see if I am correct in knowing how to solve it. (MASTERY)
9. I would volunteer to solve it to see if I am wrong and then learn how to solve it. (MASTERY)
10. I would volunteer to solve it to show class participation. (APPROACH)

11. I wouldn't volunteer to solve it, because I fear the teacher's criticism if I don't do it correctly. (AVOID)

Please continue to use the following scale:

1	2	3	4
definitely not	probably not	probably	definitely
react this way	react this way	react this way	react this way

In a class discussion, your teacher asks what the class thought of an assigned reading that you read thoroughly.

12. I would raise my hand and share my opinion so the teacher knows I did the assignment. (APPROACH)

13. I would raise my hand and share my opinion, so that I can make sure that what I got out of the reading was correct. (MASTERY)

14. I wouldn't say anything, because I have a fear of speaking in public and sounding unintelligent. (AVOID)

You are studying with some friends, and you don't understand some of the materials they are reviewing. You feel like they are going too fast.

15. I would ask them to slow down and explain it so I have a good understanding of the material. (MASTERY)

16. I would ask them to slow down and explain it, because I want to do well in the class. (APPROACH)

17. I would decide to learn it on my own later, because I don't want the others to think that I'm not intelligent. (AVOID)

You're in a classroom and your teacher asks if anyone knows the answer to the problem that she says is really difficult. You know the answer.

18. I would raise my hand and give the answer to show myself that I can tackle difficult topics. (MASTERY)

19. I would raise my hand and give the answer if I get class participation points. (APPROACH)

20. I wouldn't raise my hand because I don't want to be wrong or seem stupid in front of other people. (AVOID)

Please continue to use the following scale:

1	2	3	4
definitely not	probably not	probably	definitely
react this way	react this way	react this way	react this way

There is an academic honor society for individuals in the major that you have. You have been invited to join.

21. I would join the honor society because it looks good on a resume. (APPROACH)

22. I wouldn't join the honor society because I don't want to risk any potential embarrassment. (AVOID)

23. I wouldn't join the honor society because I fear rejection from others already involved once I get there. (AVOID)

You are asked to be a T.A. for a class that you took last semester. You did well in the class but aren't sure you know the material perfectly.

24. I would agree to be the T.A. to advance my knowledge in that area. (MASTERY)

25. I would agree to be the T.A. to help build my resume. (APPROACH)

26. I would decide not to be the T.A. because I don't want to look stupid. (AVOID)

Appendix F

IPIP Personality Items

Instructions: On the following pages, there are phrases describing people's behaviors. Please use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself in relation to other people you know of the same sex as you are and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Please read each statement carefully and then fill in the bubble that corresponds to the number on the scale.

1	2	3	4	5
very	moderately	neither accurate	moderately	very
inaccurate	inaccurate	nor inaccurate	accurate	accurate

1. Make people feel at ease (A+)
2. Have a rich vocabulary (O+)
3. Don't talk a lot (E-)
4. Have difficulty understanding abstract ideas (O-)
5. Am interested in people (A+)
6. Feel comfortable around people (E+)
7. Follow a schedule (C+)
8. Insult people (A-)
9. Get chores done right away (C+)
10. Make a mess of things (C-)
11. Sympathize with others' feelings (A+)
12. Don't mind being the center of attention (E+)
13. Keep in the background (E-)
14. Leave my belongings around (C-)
15. Feel little concern for others (A-)
16. Change my mood a lot (ES-)
17. Often forget to put things back in their proper place (C-)
18. Am full of ideas (O+)
19. Feel others' emotions (A+)
20. Have a soft heart (A+)
21. Pay attention to details (C+)
22. Shirk (i.e. skip out on) my duties (C-)
23. Am not interested in other people's problems (A-)
24. Am the life of the party (E+)

25. Am always prepared (C+)
26. Get irritated easily (ES-)
27. Have excellent ideas (O+)
28. Use difficult words (O+)
29. Get stressed out easily (ES-)
30. Start conversations (E+)
31. Get upset easily (ES-)
32. Do not have a good imagination (O-)
33. Am relaxed most of the time (ES+)
34. Often feel blue (ES-)
35. Talk to a lot of different people at parties (E+)
36. Have frequent mood swings (ES-)
37. Take time out for others (A+)
38. Spend time reflecting on things (O+)
39. Have a vivid imagination (O+)
40. Am not interested in abstract ideas (O-)
41. Don't like to draw attention to myself (E-)
42. Like order (C+)
43. Seldom feel blue (ES+)
44. Have little to say (E-)
45. Worry about things (ES-)
46. Am exacting in my work (C+)
47. Am quick to understand things (O+)
48. Am easily disturbed (ES-)
49. Am quiet around strangers (E-)
50. Am not really interested in others (A-)

Appendix G

Fit/Integration Items

Please indicate the extent to which you agree with the following statements about your school.

1	2	3	4	5
Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

Academic Fit

1. The courses available at this university match my interests
2. I know other students here whose academic interests match my own
3. My current courses are not really what I would like to be doing
4. All things considered, my current major suits me
5. I feel like my current major is not the right academic program for me
6. I feel that my academic goals and needs are met by the faculty at this school
7. I'm sure there must be another major for which I am better suited
8. I am able to use my talents, skills, and competencies in my current courses

Social Fit

9. The social activities on campus suit me
10. I have a lot in common with the students around me
11. My ideas of fun are not shared by the students around me
12. There are students here who really understand me

Financial Fit

13. I am in a similar financial position as most students here
14. Sometimes my college friends and I can't do things together because of money
15. The things I can afford are different from what my college friends can afford

Appendix H

Family support scale

Please indicate the extent to which you agree with the following statements about your school.

1	2	3	4	5
Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

1. My family supports my decision to attend this school
2. My family supports my decision to get a college degree
3. My family supports me emotionally if I'm having a hard time in school
4. My family supports me financially if I'm having a hard time in school
5. My family supported me throughout the college application process
6. My family wanted me to attend this school more than any other school
7. If I left this school to go to another, I feel like I would be letting my family down
8. Going to this school is part of a family tradition

Appendix I

Commitment scales

Please indicate the extent to which you agree with the following statements.

1	2	3	4	5
Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

Goal (degree) commitment

1. It is hard to take the goal of graduating from college seriously
2. It is unrealistic to expect that I will graduate from college
3. I might rethink my goal of graduating from college, if things go differently than I expect
4. Quite frankly, I don't care if I graduate from college or not
5. I am strongly committed to pursuing the goal of graduating from college
6. It would not take much for me to abandon the goal of graduating from college
7. I think that the goal of graduating from college is a good goal to shoot for
8. I am willing to put forth a great deal of effort, beyond what I would normally do, to graduate from college
9. I will not gain much by trying to achieve the goal of graduating from college

Institutional Commitment

1. I would be very happy to graduate from THIS particular school
2. I enjoy discussing my school with people outside it
3. I really feel as if this school's problems are also my own
4. I think that I could easily become as attached to another school as I am to this one
5. I do not feel "emotionally attached" to this school
6. This school has a great deal of personal meaning for me
7. I do not feel a strong sense of belonging to my school
8. I am afraid of what might happen if I dropped out of this school without being accepted somewhere else first (OMITTED)
9. It would be very hard for me to leave this school right now, even if I wanted to
10. Too much in my life would be disrupted if I decided I wanted to leave this school right now
11. I would not lose many credits or money if I left this school now
12. I feel that I have too few options to consider leaving this school (OMITTED)
13. I do not believe that a person must always be loyal to his or her school
14. I believe in the value of remaining loyal to one school
15. I think alumni should remain actively involved in their school's activities
16. I believe alumni should continue to contribute financially to their school

Appendix J

Satisfaction Items

1	2	3	4	5
Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

Academic Satisfaction

1. I'm satisfied with the intelligence of my teachers here
2. I'm satisfied with the extent to which my education will be useful for getting future employment
3. I'm happy with the amount I learn in my classes
4. I am satisfied with the extent to which attending this school will have a positive effect on my future career
5. I generally enjoy my coursework here
6. All in all, I'm satisfied with the education I get at this school

Social Satisfaction

7. I'm satisfied with the number of social activities I have had since attending this school
8. I'm satisfied with the number of friends I have here
9. The friendships I have developed with other students at this school have been personally satisfying
10. I'm satisfied with the extent to which I've made friends I can talk to about my problems
11. It is satisfying to spend time with other students at this school
12. Overall, I'm satisfied with my social life at this school

Financial Satisfaction

13. I have to hold a job outside of school just to make ends meet
14. I often feel upset about my financial situation
15. I am dissatisfied with the amount of time I have to spend working at a job outside of school
16. I worry about having enough money to pay my bills
17. I'm satisfied with the amount of college debt I am accumulating
18. In general, I'm satisfied with my financial situation

Appendix K

Academic Self-Efficacy Items

Using the following response scale, please indicate how accurately these statements reflect your perceptions.

1	2	3	4	5
not true at all	not true	somewhat true	true	very true

1. I am confident in my ability to succeed as a college student
2. I believe I can achieve good grades in college
3. I worry that I won't be successful in college
4. I have the ability to excel in school

Appendix L

Thoughts of leaving

Please indicate the extent to which you agree with the following statements about your school.

1	2	3	4	5
Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

1. I am considering transferring to another school.
2. I am considering other job options instead of continuing in school.

Appendix M

Intentions to withdraw

Please indicate the extent to which you agree with the following statements about your school.

1	2	3	4	5
Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

1. I intend to be enrolled at this school 6 months from today
2. I intend to transfer to a different school at or before the end of this academic year
3. I intend to leave school and get a job at or before the end of this academic year

Appendix N

Search Behaviors

Please indicate the extent to which you agree with the following statements about your school.

1	2	3	4	5
Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree

1. I am gathering lots of information about other schools I could transfer to.
2. I am gathering lots of information about job options as opposed to continuing in school.

Appendix O

Shock scale items

Below you will see a list of events that could happen to a college student. For each event, indicate whether this has happened to you and/or to a friend/significant other during college (you may check both). If the event has not happened to you or a friend/significant other, check "neither of the above."

☐ This happened to me.

☐ This happened to a friend or significant other.

☐ Neither of the above.

1. Was the victim of theft
2. Was the victim of assault
3. Became pregnant
4. Was recruited by another job or institution
5. Receive an unexpectedly bad grade
6. Had roommate conflicts
7. Lost financial aid
8. Became ill
9. Death or illness of a family member
10. Became clinically depressed
11. A close friend or significant other left school
12. Became addicted to a substance
13. Conflict with a faculty member
14. Came into a large sum of money
15. Family member lost job, family in need of financial help
16. Lost job that was needed to pay tuition
17. Large increase in tuition/living costs
18. Experienced a significant injury
19. Became engaged or married, or entered a civil union
20. Received a job offer
21. Was unable to enter intended major at school

Appendix P

Table 1. Demographics for Entry, Semester 1, Semester 2, Semester 3, and GPA/Graduation Samples.

	<u>Entry Sample</u>		<u>Semester 1</u>		<u>Semester 2</u>	
	N	%	N	%	N	%
<i>Gender</i>						
Male	945	34.8	391	34.0	340	34.1
Female	1692	62.3	758	66.0	654	65.9
<i>Race/Ethnicity</i>						
White	1460	53.8	738	64.2	650	65.5
Black	652	24.0	123	10.9	95	9.5
Asian	201	7.4	130	11.3	110	11.0
Hispanic	152	5.7	63	5.5	49	4.9
Other	156	5.7	90	8.0	90	9.0
<i>Age at entry</i>						
18	2336	86.0	1008	87.7	861	86.4
19	247	9.1	118	10.3	115	11.5
≥ 20	49	1.8	23	2.0	21	2.1

Table 1 Continued.

	<u>Semester 3</u>		<u>2008 GPA Sample</u>	
	N	%	N	%
<i>Gender</i>				
Male	301	34.9	632	33.3
Female	562	65.1	1265	66.7
<i>Race/Ethnicity</i>				
White	570	66.0	1211	64.0
Black	67	7.8	346	18.3
Asian	111	12.9	161	8.5
Hispanic	43	5.0	67	3.5
Other	72	8.3	107	5.7
<i>Age at entry</i>				
18	745	86.3	0	0
19	88	10.2	0	0
≥20	16	1.7	1894	99.8

Table 2 Timeline of the Variables Collected.

	Wave 1 (beginning of college)	Wave 2 (end of first semester)	Wave 3 (end of second semester)	Wave 4 (end of third semester)
Biodata (Knowledge, Perseverance, Careers, Social/Cultural Involvement)	X			
Goal Orientation	X			
Personality	X			
Academic Self-Efficacy	X		X	X
GPA	HS	College	College	College
Commitment		X	X	X
Satisfaction		X	X	X
Integration		X	X	X
Family Support		X	X	X
Withdrawal Cognitions and Behaviors		X	X	X
Shocks		X	X	X

Table 3 Early Attrition Model Scale Intercorrelations.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Agreeableness	4.00	.57	.89											
2. Conscientiousness	3.56	.61	.25**	.90										
3. Emotional Stability	3.28	.72	.14**	.15**	.92									
4. Knowledge	3.15	.47	.20**	.41**	.13**	.67								
5. Careers	3.33	.65	.10**	.27**	.09**	.23**	.79							
6. Perseverance	3.73	.49	.31**	.49**	.19**	.49**	.41**	.75						
7. Mastery GO	2.98	.48	.28**	.28**	.13**	.30**	.35**	.41**	.77					
8. Perf. App. GO	3.19	.44	.28**	.29**	.06*	.22**	.32**	.37**	.67**	.80				
9. Perf. Avoid GO	1.70	.52	-.27**	-.24**	-.23**	-.20**	-.23**	-.38**	-.57**	-.41**	.84			
10. Social/Cultural Involvement	2.79	.75	.31**	.09**	.04*	.29**	.20**	.31**	.21**	.19**	-.18**	.79		
11. Academic Integration (W2)	3.71	.58	.12**	.15**	.15**	.16**	.30**	.17**	.10*	.09**	-.09**	.05	.80	
12. Social Integration (W2)	3.64	.74	.17**	.04	.23**	.00	.09**	.11**	.12*	.11**	-.10**	.05	.39**	.79
13. Financial Integration (W2)	2.98	.72	.01	.10**	.08**	-.02	-.05	-.01	-.07*	-.04	.06*	-.06*	.14**	.17**
14. Family Support (W2)	3.75	.54	.05	.07*	.12**	-.02	.00	.02	.00	.04	.01	-.03	.16**	.20**
15. Shocks (W2)	0.68	.47	.01	.00	-.11**	-.04	.05	.04	.05	.05	-.02	.03	-.08*	-.11**
16. Academic Self Efficacy (W1)	4.16	.66	.16**	.27**	.27**	.23**	.27**	.36**	.30**	.24**	-.35**	.07*	.21**	.15**
17. GPA (Self-Report)	2.99	.92	.08**	.05*	-.01	.29**	-.17**	.09**	-.14**	.01	.02	.20**	.08*	.00
18. Academic Satisfaction (W2)	4.15	.52	.16**	.13**	.12**	.14**	.05	.15**	.07*	.08**	-.10**	.05	.48**	.33**

Table 3 Continued.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
20. Financial Satisfaction (W2)	3.13	0.86	-0.03	.09**	.18**	.06*	-0.03	0.02	-.07*	-0.05	-0.01	-0.01	.19**	.12**
21. Institutional Commitment (W2)	3.47	0.52	.12**	0.04	0.05	0.04	.10**	.11**	.15**	.13**	-0.03	.07*	.32**	.50**
22. Goal Commitment (W2)	4.57	0.44	.21**	.20**	.12**	.21**	.16**	.28**	.11**	.15**	-.17**	.12**	.34**	.21**
23. Gathering Info (W2)	1.62	0.74	-.06*	-0.03	-.07*	-.09**	.06*	0.01	.09**	0.05	-0.04	-0.04	-.35**	-.35**
24. Thoughts of Leaving (W2)	1.79	0.81	-.08**	-.10**	-.10**	-.11**	-0.02	-.06*	0.01	0	0.01	-.07*	-.41**	-.41**
25. Intent to Leave (W2)	1.37	0.61	-.07*	-0.04	-.12**	-0.04	0	-.06*	0.02	-0.02	0.05	-.07*	-.32**	-.33**
26. Dropout (Year 1)	0.12	0.32	.04*	-.04*	-0.02	.06*	0.02	.07*	.06*	0.02	-.10**	.20**	-0.03	-0.02

Table 3 Continued.

	13	14	15	16	17	18	19	20	21	22	23	24	25	26
13. Financial Integration (W2)	.48													
14. Family Support (W2)	.19**	.68												
15. Shocks (W2)	-.08*	-.10**	NA											
16. Academic Self Efficacy (W1)	.09**	.12**	-.05	.82										
17. GPA (Self-Report)	.07**	.02	-.08*	-.04	NA									
18. Academic Satisfaction (W2)	.14**	.21**	-.04	.15**	.12**	.81								
19. Social Satisfaction (W2)	.08*	.15**	-.14**	.15**	-.02	.32**	.91							
20. Financial Satisfaction (W2)	.36**	.24**	-.11**	.17**	.18**	.15**	.08*	.83						
21. Institutional Commitment (W2)	.03	.26**	-.05	.04	.01	.41**	.45**	.01	.84					
22. Goal Commitment (W2)	.10**	.16**	.01	.24**	.18**	.34**	.16**	.18**	.23**	.77				
23. Gathering Info (W2)	-.15**	-.20**	.09*	-.10**	-.23**	-.40**	-.31**	-.21**	-.45**	-.37**	$r=.43$			
24. Thoughts of Leaving (W2)	-.15**	-.25**	.08*	-.13**	-.21**	-.38**	-.38**	-.21**	-.53**	-.40**	.82**	$r=.37$		
25. Intent to Leave (W2)	-.14**	-.19**	.09*	-.13**	-.17**	-.34**	-.32**	-.14**	-.42**	-.33**	.67**	.67**	.76	
26. Dropout (Year 1)	-.07*	-.04	-.05*	.00	.13**	.12**	.01	-.03	.11**	.04	-.02	-.02	-.02	NA

Note: * $p \leq .05$. ** $p \leq .01$.

Table 4. Longitudinal model scale intercorrelations.

	Mean	SD	1	2	3	4	5	6	7	8
1. Agreeableness	4.00	0.57	0.89							
2. Conscientiousness	3.56	0.61	.25**	0.90						
3. Emotional Stability	3.28	0.72	.14**	.15**	0.92					
4. Knowledge	3.15	0.47	.20**	.41**	.13**	0.67				
5. Careers	3.33	0.65	.10**	.27**	.09**	.23**	0.79			
6. Perseverance	3.73	0.49	.31**	.49**	.19**	.49**	.41**	0.75		
7. Mastery GO	2.98	0.48	.28**	.28**	.13**	.30**	.35**	.41**	0.77	
8. Perf. App. GO	3.19	0.44	.28**	.29**	.06*	.22**	.32**	.37**	.67**	0.80
9. Perf. Avoid GO	1.70	0.52	-.27**	-.24**	-.23**	-.20**	-.23**	-.38**	-.57**	-.41**
10. Social/Cultural Involvement	2.79	0.75	.31**	.09**	.04*	.29**	.20**	.31**	.21**	.19**
11. Academic Integration (W2)	3.71	0.58	.12**	.15**	.15**	.16**	.30**	.17**	.10**	.09**

Table 4 Continued.

	Mean	SD	1	2	3	4	5	6	7	8
12. Social Integration (W2)	3.64	0.74	.17**	0.04	.23**	0.00	.09**	.11**	.12**	.11**
13. Financial Integration (W2)	2.98	0.72	0.01	.10**	.08**	-0.02	-0.05	-0.01	-.07*	-0.04
14. Family Support (W2)	3.75	0.54	0.05	.07*	.12**	-0.02	0.00	0.02	0.00	0.04
15. Shocks (W2)	0.68	0.47	0.01	0.00	-.11**	-0.04	0.05	0.04	0.05	0.05
16. Academic Self Efficacy (W3)	3.96	0.67	.09**	0.12	.19**	.08*	.14**	.17**	.12**	0.06
17. GPA (University)	3.31	0.73	0.05	.06*	-0.01	.25**	-.12**	.07*	-.09**	-0.03
18. Academic Satisfaction (W3)	4.07	0.54	.11**	.07*	.12**	.10**	.10**	.11**	0.05	0.03
19. Social Satisfaction (W3)	3.77	0.86	.12**	0.02	.19**	-0.03	.10**	.09**	.10**	.09**
20. Financial Satisfaction (W3)	3.24	0.94	-0.02	0.03	.20**	0.06	-0.03	0.00	-0.05	-0.06
21. Institutional Commitment (W3)	3.44	0.54	.07*	0.03	0.05	0.03	.11**	0.04	.10**	.08*
22. Goal Commitment (W3)	4.47	0.51	.21**	.18**	0.06	.17**	.17**	.23**	.12**	.13**

Table 4 Continued.

	Mean	SD	1	2	3	4	5	6	7	8
23. Gathering Info (W4)	1.59	0.78	-.09*	-.10*	-.11**	-.09*	-0.02	-.07*	-0.01	-0.05
24. Thoughts of Leaving (W4)	3.49	1.61	-.10*	-.12**	-.16**	-.09*	-0.04	-.09*	-0.03	-.07*
25. Intent to Leave (W4)	1.39	0.68	-.09*	-.10*	-.15**	-.07*	-0.03	-0.05	-0.02	-.08*
26. Dropout (Years 2-4)	0.11	0.32	0.02	0.01	-0.01	-0.03	0.00	-0.02	0.00	0.03

Table 4 Continued.

	Mean	SD	9	10	11	12	13	14	15	16
9. Perf. Avoid GO	1.70	0.52	0.84							
10. Social/Cultural Involvement	2.79	0.75	-.18**	0.79						
11. Academic Integration (W2)	3.71	0.58	-.09**	0.05	0.80					
12. Social Integration (W2)	3.64	0.74	-.10**	0.05	.39**	0.79				
13. Financial Integration (W2)	2.98	0.72	.06*	-.06*	.14**	.17**	0.48			
14. Family Support (W2)	3.75	0.54	0.01	-0.03	.16**	.20**	.19**	0.68		
15. Shocks (W2)	0.68	0.47	-0.02	0.03	-.08*	-.11**	-.08*	-.10**	NA	
16. Academic Self Efficacy (W3)	3.96	0.67	-.17**	-0.03	.26**	.14**	.15**	.11**	-0.06	0.82
17. GPA (University)	3.31	0.73	.05*	.17**	.12**	-0.03	.13**	0.02	-.09**	.24**
18. Academic Satisfaction (W3)	4.07	0.54	-0.04	.08*	.37**	.25**	.19**	.20**	-.07*	.35**

Table 4 Continued.

	Mean	SD	9	10	11	12	13	14	15	16
19. Social Satisfaction (W3)	3.77	0.86	-.10**	0.04	.31**	.60**	.12**	.14**	-.10**	.18**
20. Financial Satisfaction (W3)	3.24	0.94	0.03	0.00	.15**	.13**	.32**	.23**	-.13**	.27**
21. Institutional Commitment (W3)	3.44	0.54	-0.01	.10**	.24**	.44**	0.04	.23**	-0.03	.08*
22. Goal Commitment (W3)	4.47	0.51	-.12**	.09**	.26**	.15**	.11**	.17**	-0.05	.40**
23. Gathering Info (W4)	1.59	0.78	.08*	-0.05	-.25**	-.25**	-.09*	-.13**	0.06	-.15**
24. Thoughts of Leaving (W4)	3.49	1.61	.07*	-0.02	-.34**	-.30**	-.15**	-.19**	.07*	-.20**
25. Intent to Leave (W4)	1.39	0.68	.10**	-0.02	-.27**	-.26**	-.10**	-.16**	0.06	-.17**
26. Dropout (Years 2-4)	0.11	0.32	-0.01	-.05*	-.08*	-.12**	-.07*	-.10**	.09*	-0.03

Table 4 Continued.

	Mean	SD	17	18	19	20	21	22	23	24	25	26
17. GPA (University)	3.31	0.73	NA									
18. Academic Satisfaction (W3)	4.07	0.54	.18*	0.83								
19. Social Satisfaction (W3)	3.77	0.86	-0.03	.28**	0.90							
20. Financial Satisfaction (W3)	3.24	0.94	.28**	.22**	.12**	0.87						
21. Institutional Commitment (W3)	3.44	0.54	0.00	.35**	.42**	-0.02	0.83					
22. Goal Commitment (W3)	4.47	0.51	.26**	.35**	.17**	.17**	.21**	0.80				
23. Gathering Info (W4)	1.59	0.78	-.20**	-.33**	-.21**	-.18**	-.27**	-.30**	<i>r</i> = .57**			
24. Thoughts of Leaving (W4)	3.49	1.61	-.22**	-.36**	-.30**	-.24**	-.34**	-.33**	.84**	<i>r</i> = .41**		
25. Intent to Leave (W4)	1.39	0.68	-.18**	-.33**	-.26**	-.16**	-.29**	-.32**	.68**	.70**	.81**	
26. Dropout (Years 2-4)	0.11	0.32	-.41**	-.17**	-.13**	-.10**	-.26**	-0.06	.21**	.23**	.23**	NA

Note: * $p \leq .05$. ** $p \leq .01$.

Table 5. Revised Early Attrition Model Scale Intercorrelations.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Agreeableness	4.00	.57	.78										
2. Conscientiousness	3.56	.61	.25**	.78									
3. Emotional Stability	3.28	.72	.14**	.15**	.84								
4. Knowledge	3.15	.47	.20**	.41**	.13**	.63							
5. Careers	3.33	.65	.10**	.27**	.09**	.23**	.77						
6. Perseverance	3.73	.49	.31**	.49**	.19**	.50**	.41**	.71					
7. Mastery GO	2.98	.48	.28**	.28**	.13**	.30**	.35**	.41**	.78				
8. Perf. App. GO	3.19	.44	.28**	.29**	.06*	.22**	.32**	.37**	.67**	.74			
9. Perf. Avoid GO	1.70	.52	-.27**	-.24**	-.23**	-.20**	-.23**	-.38**	-.57**	-.42**	.80		
10. Social/Cultural Involvement	2.79	.75	.31**	.09**	.04*	.29**	.20**	.31**	.22**	.19**	-.18**	.78	
11. Academic Integration (W2)	3.71	.58	.12**	.15**	.15**	.16**	.30**	.17**	.10**	.09**	-.09**	.05	.81
12. Social Integration (W2)	3.64	.74	.17**	.04	.23**	.00	.09**	.11**	.12**	.11**	-.10**	.05	.39**
13. Family Support (W2)	2.98	.72	.05	.07*	.12**	-.02	.00	.02	.00	.04	.01	-.03	.16**
14. Shocks (W2)	0.68	.47	.01	.00	-.11**	-.04	.05	.04	.05	.05	-.02	.03	-.08*
15. GPA (W2)	2.99	.92	.08**	.05*	-.01	.29**	-.17**	.09**	-.14**	.01	.02	.20**	.09**
16. Academic SE (W1)	3.75	.54	.16**	.27**	.27**	.23**	.27**	.36**	.30**	.25**	-.35**	.07	.21**
17. Satisfaction (W2)	3.68	.52	.11**	.11**	.28**	.07*	.06	.13**	.05	.05	-.10**	.04	.44**
18. Commitment (W2)	3.92	.42	.21**	.14**	.12**	.12**	.16**	.23**	.17**	.17**	-.13**	.11**	.43**

Table 5 Continued.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
19. Withdrawal Cognitions/ Behaviors (W2)	1.58	0.65	-.07*	-0.05	-.10**	-.09**	0	-0.03	0.05	0.01	0	-.07*	-.41**
20. Dropout (Year 1)	0.12	0.32	.04*	-.04*	-0.02	.06*	0.02	.07*	.06*	0.02	-.10**	.20**	-0.03

Table 5 Continued.

	12	13	14	15	16	17	18	19	20
12. Social Integration (W2)	.79								
13. Family Support (W2)	.20**	.76							
14. Shocks (W2)	-.11**	-.10**	NA						
15. GPA (W2)	.00	.02	-.08**	NA					
16. Academic SE (W1)	.15**	.12**	-.05	-.04	.82				
17. Satisfaction (W2)	.62**	.31**	-.17**	.11**	.23**	.68			
18. Commitment (W2)	.53**	.28**	-.02	.08*	.16**	.48**	.73		
19. Withdrawal Cognitions/ Behaviors (W2)	-.41**	-.23**	.10**	-.21**	-.14**	-.48**	-.59**	.83	
20. Dropout (Year 1)	-.02	-.04	-.05	.13*	.00	.01	.10*	-.03	NA

Note: * $p \leq .05$. ** $p \leq .01$.

Table 6. Revised Longitudinal Model Scale Intercorrelations.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Agreeableness	4.00	.57	.78										
2. Conscientiousness	3.56	.61	.25**	.78									
3. Emotional Stability	3.28	.72	.14**	.15**	.84								
4. Knowledge	3.15	.47	.20**	.41**	.13**	.63							
5. Careers	3.33	.65	.10**	.27**	.09**	.23**	.77						
6. Perseverance	3.73	.49	.31**	.49**	.19**	.50**	.41**	.71					
7. Mastery GO	2.98	.48	.28**	.28**	.13**	.30**	.35**	.41**	.78				
8. Perf. App. GO	3.19	.44	.28**	.29**	.06*	.22**	.32**	.37**	.67**	.74			
9. Perf Avoid GO	1.70	.52	-.27**	-.24**	-.23**	-.20**	-.38**	-.57**	-.42**	-.80			
10. Social/Cultural Involvement	2.79	.75	.31**	.09**	.04*	.29**	.20**	.31**	.22**	.19**	-.18**	.78	
11. Academic Integration (W2)	3.71	.58	.12**	.15**	.15**	.16**	.30**	.17**	.10**	.09**	-.09**	.05	.81
12. Social Integration (W2)	3.64	.74	.17**	.04	.23**	.00	.09**	.11**	.12**	.11**	-.10**	.05	.39**
13. Family Support (W2)	2.98	.72	.05	.07*	.12**	-.02	.00	.02	.00	.04	.01	-.03	.16**
14. Shocks (W2)	0.68	.47	.01	.00	-.11**	-.04	.05	.04	.05	.05	-.02	.03	-.08*
15. GPA (University)	3.31	.73	.09*	.05*	-.03	.23**	-.12**	.09**	-.09**	.01	.01	.17**	.12**
16. Acad. SE (W3)	3.96	.67	.09*	.12**	.19**	.08*	.14**	.17**	.13**	.06	-.17**	-.03	.26**
17. Satisfaction (W3)	3.70	.53	.08*	.06	.26**	.06	.05	.09*	.03	.02	-.05	.03	.38**
18. Commitment (W3)	3.76	.44	.13**	.08*	.07*	.06	.16**	.12**	.13**	.12**	-.06	.10**	.29**

Table 6 Continued.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
19. Withdrawal Cognitions/ Behaviors (W4)	1.58	0.69	-.10**	-.11**	-.15**	.09**	-.003	.07*	-.002	-.07*	.11**	-.003	-.29**
20. Dropout (Years 2-4)	0.11	0.32	0.02	0.01	-0.01	-0.03	0	-0.02	0	0.03	-0.01	-.05*	-.08*

Table 6 Continued.

	Mean	SD	12	13	14	15	16	17	18	19	20
12. Social Integration (W2)	3.64	.74	.79								
13. Family Support (W2)	2.98	.72	.20**	.76							
14. Shocks (W2)	0.68	.47	-.11**	-.10**	NA						
15. GPA (University)	3.31	.73	.01	.07*	-.12**	NA					
16. Acad. SE (W3)	3.96	.67	.15**	.11**	-.06	.17**	.82				
17. Satisfaction (W3)	3.70	.53	.48**	.27**	-.14**	.17**	.37**	.63			
18. Commitment (W3)	3.76	.44	.44**	.25**	-.03	.06	.21**	.40**	.71		
19. Withdrawal Cognitions/ Behaviors (W4)	1.58	.69	-.28**	-.16**	.07	-.21**	-.17**	-.35**	-.37**	.89	
20. Dropout (Years 2-4)	0.11	.32	-.12**	-.10**	.09**	-.33**	-.03	-.18**	-.24**	.23**	NA

Note: *p ≤ .05. **p ≤ .01.

Table 7. Correlations of the Exogenous Latent Variables in the Early Attrition Model.

	1	2	3	4	5	6	7	8	9	10	13	14
1. Agreeableness	1.00											
2. Conscientiousness	.34	1.00										
3. Emotional Stability	.19	.22	1.00									
4. Knowledge	.28	.56	.15	1.00								
5. Careers	.14	.35	.13	.30	1.00							
6. Perseverance	.40	.65	.23	.70	.54	1.00						
7. Mastery GO	.35	.32	.17	.24	.38	.49	1.00					
8. Perf. App. GO	.33	.29	.11	.26	.34	.43	.83	1.00				
9. Perf. Avoid GO	-.31	-.31	-.29	-.29	-.29	-.48	-.72	-.55	1.00			
10. Social/Cultural Involvement	.39	.15	.05	.41	.23	.41	.26	.24	-.23	1.00		
11. Family Support (W2)	.19	.17	.21	.00	.01	.09	.04	.09	-.06	-.01	1.00	
12. Shocks (W2)	-.01	.00	-.12	-.06	.04	.05	.06	.05	-.04	.03	-.14	1.00

Table 8. Correlations of the Exogenous Latent Variables in the Longitudinal Model.

	1	2	3	4	5	6	7	8	9	10	11	12
1. Agreeableness	1.00											
2. Conscientiousness	.34	1.00										
3. Emotional Stability	.19	.22	1.00									
4. Knowledge	.28	.56	.15	1.00								
5. Careers	.14	.35	.13	.30	1.00							
6. Perseverance	.40	.65	.23	.70	.54	1.00						
7. Mastery GO	.35	.32	.18	.37	.38	.49	1.00					
8. Perf. App. GO	.33	.29	.11	.26	.34	.43	.83	1.00				
9. Perf. Avoid GO	-.32	-.31	-.29	-.29	-.29	-.48	-.72	-.55	1.00			
10. Social/Cultural Involvement	.39	.15	.42	.40	.23	.42	.26	.24	-.23	1.00		
11. Family Support (W2)	.18	.16	.20	.01	.02	.07	.03	.09	-.05	-.01	1.00	
12. Shocks (W2)	.00	.00	-.11	-.05	.05	.06	.06	.06	-.05	.04	-.14	1.00

Table 9. Intercorrelations Among the Observed Variables in the Early Attrition Model.

	N	Mean	S.D.	1	2	3	4	5	6	7
1. Knowl. P1	2716	3.13	0.53	1						
2. Knowl. P2	2714	3	0.8	0.45	1					
3. Knowl. P3	2714	3.35	0.54	0.4	0.32	1				
4. Pers. P1	2714	3.82	0.58	0.36	0.35	0.34	1			
5. Pers. P2	2714	3.63	0.67	0.24	0.22	0.29	0.55	1		
6. Pers. P3	2714	3.72	0.59	0.33	0.33	0.32	0.47	0.36	1	
7. Social/ Cult. Involve. P1	2716	2.83	0.86	0.25	0.16	0.2	0.25	0.25	0.19	1
8. Social/ Cult. Involve. P2	2714	3.02	0.91	0.24	0.18	0.19	0.25	0.28	0.19	0.62
9. Social/ Cult. Involve. P3	2714	3.28	0.89	0.21	0.12	0.2	0.21	0.22	0.14	0.57
10. Careers P1	2716	3.16	0.71	0.17	0.14	0.13	0.29	0.24	0.21	0.18
11. Careers P2	2714	3.74	0.85	0.16	0.16	0.13	0.37	0.32	0.28	0.12
12. Careers P3	2714	3.13	0.83	0.13	0.15	0.14	0.25	0.26	0.19	0.14
13. Mastery GO P1	2714	2.97	0.65	0.14	0.2	0.19	0.29	0.23	0.25	0.14
14. Mastery GO P2	2714	3.02	0.58	0.19	0.2	0.17	0.3	0.26	0.27	0.16
15. Mastery GO P3	2714	3.18	0.63	0.18	0.18	0.23	0.29	0.26	0.22	0.16
16. Perf. App. GO P1	2714	3.3	0.58	0.16	0.14	0.12	0.3	0.22	0.21	0.13
17. Perf. App. GO P2	2714	3.13	0.56	0.14	0.12	0.13	0.28	0.21	0.2	0.16
18. Perf. App. GO P3	2714	3.29	0.56	0.09	0.04	0.14	0.22	0.17	0.12	0.11
19. Perf. Avoid GO P1	2714	1.8	0.66	-0.13	-0.14	-0.17	-0.3	-0.19	-0.26	-0.12
20. Perf. Avoid GO P2	2714	1.68	0.63	-0.1	-0.1	-0.2	-0.3	-0.2	-0.24	-0.14

Table 9 Continued.

	N	Mean	S.D.	1	2	3	4	5	6	7
21. Perf. Avoid GO P3	2712	1.55	0.57	-0.17	-0.12	-0.22	-0.3	-0.25	-0.28	-0.2
22. Cons. P1	2712	3.43	0.78	0.24	0.28	0.12	0.35	0.21	0.32	0.05
23. Cons. P2	2712	3.74	0.71	0.29	0.31	0.24	0.42	0.26	0.39	0.1
24. Cons. P3	2712	3.56	0.68	0.35	0.29	0.28	0.42	0.3	0.32	0.12
25. Emot. Stab. P1	2712	3.18	0.87	0.08	0.13	0.12	0.09	0.06	0.3	0.04
26. Emot. Stab. P2	2711	3.64	0.83	0.03	0.07	0.1	0.12	0.05	0.28	0.03
27. Emot. Stab. P3	2711	3.04	0.77	0.05	0.08	0.11	0.09	0.04	0.23	0.04
28. Agree. P1	2712	4.05	0.61	0.18	0.18	0.11	0.28	0.23	0.25	0.22
29. Agree. P2	2712	3.98	0.76	0.13	0.11	0.11	0.2	0.19	0.15	0.2
30. Agree. P3	2712	3.94	0.7	0.13	0.11	0.11	0.2	0.17	0.16	0.22
31. Academic Fit P1	1131	3.77	0.67	0.08	0.06	0.17	0.14	0.09	0.08	0.08
32. Academic Fit P2	1130	3.78	0.67	0.11	0.09	0.12	0.14	0.09	0.12	0.04
33. Academic Fit P3	1128	3.51	0.74	0.13	0.11	0.15	0.15	0.09	0.13	0.06
34. Social Fit I1	1128	3.72	0.91	0.05	0	0.1	0.07	0.05	0.08	0.06
35. Social Fit I2	1123	3.65	0.95	0	0.01	-0.01	0.09	0.06	0.11	0.04
36. Social Fit I3	1127	3.47	1	-0.06	-0.04	0.02	0.03	0.03	0.06	0
37. Social Fit I4	1126	3.73	0.93	0.01	-0.02	0	0.12	0.09	0.07	0.05
38. Family Support I1	1121	4.52	0.7	-0.03	0.02	0.01	0.07	0.02	0.07	0
39. Family Support I2	1116	4.83	0.41	0.01	0.02	0.06	0.07	0.05	0.05	0.08
40. Family Support I3	1118	4.36	0.89	0	-0.01	-0.01	0.08	0	0.05	-0.03

Table 9 Continued.

	N	Mean	S.D.	1	2	3	4	5	6	7
41. Family Support										
I4	1120	4.28	0.99	-0.03	-0.02	-0.11	-0.03	-0.05	-0.01	0
42. Family Support										
I5	1115	4.25	0.95	-0.05	0	-0.02	0.07	0.03	0.03	-0.03
43. Acad. Self										
Efficacy I1	994	4.16	0.73	0.11	0.05	0.1	0.16	0.1	0.17	0.02
44. Acad. Self										
Efficacy I2	990	4.16	0.72	0.07	0.01	0.13	0.12	0.06	0.15	0
45. Acad. Self										
Efficacy I3	998	3.28	1.13	0	0	0.03	0.09	0.06	0.11	-0.05
46. Acad. Self										
Efficacy I4	996	4.22	0.66	0.12	0.01	0.18	0.14	0.1	0.16	-0.01
47. Acad. Sat. P1	1142	4.26	0.62	0.03	0.07	0.14	0.12	0.08	0.07	0.04
48. Acad. Sat. P2	1143	4.09	0.54	0.08	0.09	0.17	0.14	0.1	0.13	0.05
49. Social Sat. P1	1142	3.77	0.91	-0.01	0.03	0.01	0.13	0.11	0.11	0.07
50. Social Sat. P2	1142	3.86	0.9	-0.02	-0.02	-0.01	0.11	0.1	0.07	0.06
51. Fin. Sat. P1	1142	3.29	0.94	0.07	0.04	0.07	0.01	-0.02	0.1	0.01
52. Fin. Sat. P2	1142	2.96	0.94	0.03	0.03	0.06	0	-0.04	0.06	0
53. Goal Comm. P1	1149	4.43	0.63	0.16	0.14	0.16	0.22	0.15	0.21	0.14
54. Goal Comm. P2	1149	4.71	0.5	0.14	0.11	0.1	0.18	0.13	0.19	0.11
55. Goal Comm. P3	1149	4.58	0.49	0.12	0.13	0.16	0.25	0.16	0.21	0.08
56. Instit. Comm. P1	1148	3.89	0.63	0.07	0.06	0.07	0.12	0.08	0.08	0.07
57. Instit. Comm P2	1147	3.27	0.91	0.05	0.02	0.07	0.09	0.04	0.06	0.05
58. Instit. Comm P3	1147	3.69	0.8	0	-0.01	0.04	0.12	0.1	0.03	0.05
59. Instit. Comm. P4	1147	3.25	0.74	-0.02	0.03	-0.03	0.11	0.05	0.01	0.04

Table 9 Continued.

	N	Mean	S.D.	1	2	3	4	5	6	7
60. Instit. Comm P5	1146	3.35	0.79	0.01	0.04	0.01	0.08	0.06	0.07	0.1
61. Shocks	1186	0.68	0.47	-0.04	-0.03	-0.03	0.03	0.07	0	0.02
62. GPA (self-report)	2613	2.99	0.92	0.29	0.16	0.24	0.11	0.04	0.06	0.2
63. Gathing Info. I1	1148	1.79	1.04	-0.02	-0.03	-0.07	0.01	0.07	0.02	-0.03
64. Gathering Info. I2	1141	1.45	0.71	-0.1	-0.09	-0.1	-0.06	-0.01	-0.06	-0.08
65. Thoughts of Leaving I1	1131	2.07	1.2	-0.03	-0.03	-0.07	-0.03	0.01	0	-0.05
66. Thoughts of Leaving I2	1128	1.5	0.74	-0.15	-0.14	-0.12	-0.12	-0.05	-0.15	-0.11
67. Intent to Withdraw I1	1115	1.51	0.89	0.01	-0.01	-0.05	-0.03	0.01	-0.05	-0.05
68. Intent to Withdraw I2	1113	1.24	0.56	-0.07	-0.06	-0.04	-0.08	-0.04	-0.11	-0.1
69. Dropout (Year 1)	2787	0.12	0.32	0.05	0.04	0.06	0.05	0.09	0.03	0.2

Table 9 Continued.

	8	9	10	11	12	13	14	15	16	17	18
8. Social/ Cult. Involve. P2	1										
9. Social/ Cult. Involve. P3	0.44	1									
10. Careers P1	0.23	0.14	1								
11. Careers P2	0.18	0.06	0.53	1							
12. Careers P3	0.18	0.08	0.44	0.6	1						
13. Mastery GO P1	0.18	0.1	0.2	0.26	0.21	1					
14. Mastery GO P2	0.19	0.13	0.2	0.26	0.21	0.67	1				
15. Mastery GO P3	0.18	0.14	0.19	0.22	0.19	0.44	0.53	1			
16. Perf. App. GO P1	0.19	0.12	0.23	0.25	0.18	0.41	0.41	0.35	1		
17. Perf. App. GO P2	0.17	0.13	0.18	0.23	0.18	0.53	0.64	0.5	0.51	1	
18. Perf. App. GO P3	0.13	0.1	0.17	0.15	0.12	0.23	0.32	0.51	0.44	0.53	1
19. Perf. Avoid GO P1	-0.12	-0.09	-0.17	-0.22	-0.16	-0.51	-0.51	-0.35	-0.3	-0.39	-0.15
20. Perf. Avoid GO P2	-0.11	-0.14	-0.13	-0.18	-0.11	-0.39	-0.49	-0.41	-0.25	-0.41	-0.24
21. Perf. Avoid GO P3	-0.16	-0.15	-0.15	-0.19	-0.13	-0.28	-0.36	-0.41	-0.22	-0.29	-0.32
22. Cons. P1	0.06	0.03	0.18	0.25	0.19	0.16	0.19	0.15	0.2	0.16	0.09
23. Cons. P2	0.08	0.11	0.16	0.24	0.14	0.18	0.22	0.2	0.2	0.17	0.13
24. Cons. P3	0.14	0.11	0.17	0.21	0.16	0.15	0.17	0.19	0.22	0.19	0.18
25. Emot. Stab. P1	0.05	0.02	0.05	0.1	0.06	0.08	0.09	0.07	0.02	0.03	-0.01

Table 9 Continued.

	8	9	10	11	12	13	14	15	16	17	18
26. Emot. Stab. P2	0.02	0.01	0.04	0.11	0.05	0.13	0.15	0.12	0.08	0.13	0.06
27. Emot. Stab. P3	0.03	0.02	0.04	0.08	0.06	0.11	0.11	0.08	0.03	0.08	-0.01
28. Agree. P1	0.24	0.22	0.12	0.16	0.07	0.23	0.27	0.25	0.21	0.25	0.17
29. Agree. P2	0.22	0.25	0.05	0.08	0.02	0.13	0.18	0.19	0.15	0.18	0.15
30. Agree. P3	0.28	0.24	0.05	0.06	0.03	0.15	0.2	0.17	0.16	0.18	0.13
31. Academic Fit P1	0.04	0.03	0.09	0.21	0.18	0.07	0.07	0.08	0.06	0.04	0.04
32. Academic Fit P2	0.05	0.02	0.19	0.3	0.3	0.07	0.06	0.05	0.07	0.07	0.02
33. Academic Fit P3	0.06	0.03	0.15	0.27	0.25	0.08	0.07	0.07	0.08	0.08	0.04
34. Social Fit I1	0.05	0.05	0.06	0.12	0.08	0.05	0.04	0.05	0.08	0.06	0.09
35. Social Fit I2	0.04	0.04	0.01	0.12	0.1	0.09	0.07	0.04	0.1	0.09	0.04
36. Social Fit I3	0	0.02	0.02	0.04	0	0.08	0.05	-0.01	0.03	0.03	-0.01
37. Social Fit I4	0.07	0.06	0.04	0.1	0.05	0.09	0.11	0.07	0.1	0.11	0.03
38. Family Support I1	-0.03	0.01	-0.04	0.01	-0.05	0.06	0.04	0.01	0	0.03	0.06
39. Family Support I2	0.01	0.03	0.01	0.03	0	0.02	0.04	0.04	0.04	0.04	0.07
40. Family Support I3	-0.04	-0.03	-0.05	0.03	0.01	0.05	0.06	0.01	0.02	0.07	0.01
41. Family Support I4	-0.04	-0.02	-0.04	-0.01	-0.08	-0.03	-0.04	-0.07	0	-0.01	-0.07
42. Family Support I5	-0.03	-0.03	-0.04	0	-0.04	0.01	-0.03	0	0.02	0.06	0.06
43. Acad. Self Efficacy I1	0.03	0	0.09	0.13	0.08	0.13	0.12	0.07	0.05	0.08	0
44. Acad. Self Efficacy I2	-0.01	-0.03	0.08	0.11	0.08	0.12	0.11	0.07	0.03	0.1	0.02

Table 9 Continued.

	8	9	10	11	12	13	14	15	16	17	18
45. Acad. Self Efficacy I3	-0.04	-0.07	0.04	0.13	0.09	0.13	0.1	0.02	0.02	0.05	-0.03
46. Acad. Self Efficacy I4	0.03	-0.04	0.08	0.17	0.13	0.15	0.14	0.13	0.08	0.11	0.06
47. Acad. Sat. P1	0.05	0.05	0.01	0.06	0.02	0.04	0.06	-0.01	0.05	0.07	0.04
48. Acad. Sat. P2	0.05	0.05	0	0.05	0.05	0.07	0.05	0.02	0.04	0.06	0.02
49. Social Sat. P1	0.06	0.04	0.06	0.15	0.08	0.09	0.08	0.05	0.08	0.07	0.03
50. Social Sat. P2	0.07	0.07	0.05	0.12	0.07	0.08	0.08	0.03	0.06	0.06	0.02
51. Fin. Sat. P1	0	-0.04	-0.04	-0.03	-0.02	-0.04	-0.05	-0.04	-0.03	-0.01	-0.01
52. Fin. Sat. P2	-0.03	-0.02	-0.03	-0.02	-0.02	-0.04	-0.04	-0.03	-0.04	-0.03	-0.03
53. Goal Comm. P1	0.14	0.11	0.09	0.11	0.08	0.07	0.09	0.04	0.05	0.1	0.08
54. Goal Comm. P2	0.11	0.09	0.08	0.11	0.1	0.08	0.08	0.07	0.1	0.1	0.1
55. Goal Comm. P3	0.08	0.05	0.1	0.14	0.12	0.12	0.09	0.1	0.12	0.09	0.13
56. Instit. Comm. P1	0.08	0.06	0.07	0.08	0.07	0.09	0.09	0.07	0.11	0.09	0.06
57. Instit. Comm P2	0.04	0.06	0.01	0.04	0.04	0.05	0.06	-0.01	0.06	0.03	0.02
58. Instit. Comm P3	0.07	0.04	0.03	0.08	0.05	0.04	0.05	0.02	0.09	0.02	0.07
59. Instit. Comm. P4	0.02	0	0.07	0.1	0.07	0.1	0.06	0.02	0.07	0.03	0.03
60. Instit. Comm P5	0.12	0.05	0.12	0.1	0.1	0.19	0.16	0.11	0.1	0.13	0.07
61. Shocks	0.05	0.03	0.04	0.03	0.04	0.08	0.04	0	0.04	0.05	0.03
62. GPA (self-report)	0.14	0.15	-0.11	-0.18	-0.13	-0.11	-0.09	-0.03	0.05	-0.03	0.07
63. Gathering Info. I1	-0.01	-0.03	0.08	0.04	0.05	0.08	0.09	0.06	0.04	0.11	0.06
64. Gathering Info. I2	-0.06	-0.06	0.01	0.03	0.03	0.02	0.03	0.02	-0.03	0.01	-0.07
65. Thoughts of Leaving I1	-0.04	-0.02	0.04	-0.02	-0.02	0.03	0.05	0.03	0.03	0.06	0.06

Table 9 Continued.

	8	9	10	11	12	13	14	15	16	17	18
66. Thoughts of Leaving I2	-0.09	-0.08	-0.05	-0.03	-0.04	-0.04	-0.05	-0.03	-0.06	-0.04	-0.07
67. Intent to Withdraw I1	-0.04	-0.05	0.05	0.01	-0.01	0.02	0.04	0.01	0.02	0.03	-0.01
68. Intent to Withdraw I2	-0.1	-0.07	-0.02	-0.05	-0.04	-0.01	0	-0.05	-0.03	-0.04	-0.09
69. Dropout (Year 1)	0.16	0.11	0.02	0	0.03	0.06	0.07	0.05	0.03	0.02	0.01

Table 9 Continued.

	19	20	21	22	23	24	25	26	27	28	29
19. Perf. Avoid GO P1	1										
20. Perf. Avoid GO P2	0.63	1									
21. Perf. Avoid GO P3	0.5	0.58	1								
22. Cons. P1	-0.17	-0.13	-0.15	1							
23. Cons. P2	-0.22	-0.22	-0.23	0.63	1						
24. Cons. P3	-0.12	-0.14	-0.18	0.51	0.49	1					
25. Emot. Stab. P1	-0.18	-0.13	-0.12	0.12	0.22	0.02	1				
26. Emot. Stab. P2	-0.23	-0.21	-0.17	0.13	0.24	0.07	0.68	1			
27. Emot. Stab. P3	-0.21	-0.19	-0.1	0.06	0.13	-0.02	0.61	0.61	1		
28. Agree. P1	-0.2	-0.23	-0.24	0.22	0.29	0.21	0.17	0.23	0.11	1	
29. Agree. P2	-0.11	-0.16	-0.18	0.09	0.22	0.17	0.05	0.1	0	0.57	1
30. Agree. P3	-0.15	-0.19	-0.22	0.08	0.2	0.15	0.09	0.13	0.04	0.5	0.56
31. Academic Fit P1	-0.05	-0.07	-0.04	0.05	0.06	0.14	0.12	0.15	0.14	0.11	0.06
32. Academic Fit P2	-0.08	-0.07	-0.07	0.1	0.09	0.17	0.11	0.11	0.09	0.13	0.07
33. Academic Fit P3	-0.09	-0.1	-0.07	0.11	0.09	0.2	0.08	0.1	0.08	0.11	0.09
34. Social Fit I1	-0.04	-0.06	-0.05	-0.02	0.01	0.07	0.16	0.16	0.11	0.12	0.05
35. Social Fit I2	-0.06	-0.09	-0.03	0.02	0.05	0.08	0.19	0.24	0.21	0.16	0.1
36. Social Fit I3	-0.03	-0.07	-0.03	-0.02	-0.01	0.03	0.13	0.17	0.15	0.09	0.06
37. Social Fit I4	-0.07	-0.09	-0.02	0.03	0.04	0.1	0.12	0.17	0.13	0.16	0.13
38. Family Support I1	-0.04	-0.06	-0.04	0.09	0.11	0.11	0.09	0.13	0.1	0.13	0.1
39. Family Support I2	-0.02	-0.06	-0.1	0.04	0.12	0.08	0.06	0.08	0.05	0.14	0.11
40. Family Support	-0.05	-0.04	0	0.08	0.09	0.09	0.1	0.17	0.15	0.1	0.07

Table 9 Continued.

	19	20	21	22	23	24	25	26	27	28	29
41. Family Support I4	0.01	0.04	0.01	0.08	0.05	0.04	0.05	0.07	0.05	0.04	0.02
42. Family Support I5	-0.01	0	0.03	0.08	0.07	0.09	0.06	0.13	0.12	0.07	0.05
43. Acad. Self Efficacy I1	-0.13	-0.11	-0.08	0.07	0.12	0.09	0.14	0.18	0.15	0.1	0.07
44. Acad. Self Efficacy I2	-0.14	-0.14	-0.11	0.04	0.11	0.08	0.1	0.15	0.11	0.07	0.07
45. Acad. Self Efficacy I3	-0.12	-0.11	-0.06	0.09	0.11	0.02	0.14	0.16	0.18	0.07	0.04
46. Acad. Self Efficacy I4	-0.14	-0.12	-0.12	0.09	0.14	0.11	0.09	0.19	0.12	0.07	0.04
47. Acad. Sat. P1	-0.09	-0.07	-0.05	0.07	0.09	0.14	0.08	0.13	0.05	0.18	0.13
48. Acad. Sat. P2	-0.11	-0.05	-0.07	0.09	0.11	0.16	0.09	0.13	0.08	0.14	0.09
49. Social Sat. P1	-0.07	-0.07	-0.05	0.03	0.02	0.06	0.21	0.24	0.2	0.17	0.08
50. Social Sat. P2	-0.07	-0.08	-0.02	0.02	0.01	0.05	0.2	0.24	0.21	0.17	0.09
51. Fin. Sat. P1	0	-0.01	0.01	0.1	0.11	0.09	0.14	0.15	0.12	0.02	-0.02
52. Fin. Sat. P2	-0.01	-0.02	-0.02	0.05	0.07	0.05	0.16	0.15	0.14	-0.01	-0.06
53. Goal Comm. P1	-0.09	-0.14	-0.16	0.09	0.17	0.18	0.11	0.16	0.09	0.17	0.1
54. Goal Comm. P2	-0.08	-0.08	-0.12	0.15	0.19	0.2	0.05	0.12	0.04	0.17	0.14
55. Goal Comm. P3	-0.12	-0.11	-0.17	0.09	0.15	0.16	0.08	0.12	0.07	0.19	0.15
56. Instit. Comm. P1	-0.04	-0.03	-0.01	0.04	0.05	0.14	0.06	0.09	0.06	0.14	0.11
57. Instit. Comm P2	-0.02	-0.03	0	-0.03	0	0.06	0.08	0.1	0.08	0.08	0.03
58. Instit. Comm P3	0	-0.01	0.01	-0.01	-0.01	0.08	0.02	0.1	0.02	0.11	0.07
59. Instit. Comm. P4	-0.04	-0.01	-0.01	0.1	0.06	0.11	0.01	0.04	-0.02	0.13	0.07
60. Instit. Comm P5	-0.13	-0.07	-0.09	0.05	0	0.03	0.07	0.07	0.08	0.11	0.04

Table 9 Continued.

	19	20	21	22	23	24	25	26	27	28	29
61. Shocks	-0.02	-0.05	-0.01	0.01	-0.01	-0.01	-0.1	-0.1	-0.09	0	0.02
62. GPA (self-report)	0.06	0.01	-0.05	-0.03	0.02	0.17	0	-0.03	0.01	0.04	0.09
63. Gathing Info. I1	-0.07	-0.03	-0.05	0.04	0	-0.05	-0.07	-0.08	-0.03	-0.05	0.02
64. Gathering Info. I2	-0.03	0.03	0.06	-0.04	-0.06	-0.12	-0.06	-0.11	0	-0.12	-0.05
65. Thoughts of Leaving I1	-0.03	0	-0.06	-0.01	-0.02	-0.1	-0.09	-0.09	-0.04	-0.06	0.01
66. Thoughts of Leaving I2	0.05	0.06	0.1	-0.1	-0.13	-0.16	-0.09	-0.14	-0.03	-0.13	-0.07
67. Intent to Withdraw I1	0	0.03	-0.01	0.02	0	-0.04	-0.08	-0.12	-0.08	-0.08	0
68. Intent to Withdraw I2	0.01	0.08	0.1	-0.07	-0.07	-0.1	-0.09	-0.14	-0.05	-0.12	-0.06
69. Dropout (Year 1)	-0.08	-0.07	-0.11	-0.03	-0.04	-0.03	-0.02	-0.01	-0.04	0.04	0.04

Table 9 Continued.

	30	31	32	33	34	35	36	37	38	39	40
30. Agree. P3	1										
31. Academic Fit P1	0.06	1									
32. Academic Fit P2	0.09	0.51	1								
33. Academic Fit P3	0.08	0.56	0.66	1							
34. Social Fit I1	0.09	0.39	0.23	0.27	1						
35. Social Fit I2	0.15	0.39	0.23	0.28	0.57	1					
36. Social Fit I3	0.13	0.28	0.14	0.2	0.39	0.52	1				
37. Social Fit I4	0.2	0.33	0.19	0.24	0.47	0.59	0.39	1			
38. Family Support											
I1	0.11	0.21	0.15	0.13	0.18	0.2	0.17	0.17	1		
39. Family Support											
I2	0.11	0.15	0.13	0.11	0.12	0.06	0.09	0.09	0.47	1	
40. Family Support											
I3	0.05	0.2	0.13	0.13	0.15	0.19	0.15	0.15	0.42	0.37	1
41. Family Support											
I4	0.01	0.13	0.09	0.12	0.09	0.12	0.09	0.07	0.33	0.31	0.44
42. Family Support											
I5	0.07	0.16	0.11	0.15	0.18	0.22	0.16	0.16	0.43	0.33	0.55
43. Acad. Self											
Efficacy I1	0.06	0.19	0.18	0.23	0.15	0.14	0.11	0.09	0.15	0.15	0.14
44. Acad. Self											
Efficacy I2	0.08	0.17	0.15	0.21	0.15	0.14	0.11	0.09	0.14	0.14	0.1
45. Acad. Self											
Efficacy I3	0.02	0.17	0.2	0.24	0.11	0.09	0.08	0.1	0.15	0.09	0.13
46. Acad. Self											
Efficacy I4	0.04	0.17	0.14	0.2	0.11	0.12	0.07	0.05	0.13	0.13	0.12

Table 9 Continued.

	30	31	32	33	34	35	36	37	38	39	40
47. Acad. Sat. P1	0.14	0.44	0.34	0.28	0.33	0.34	0.26	0.27	0.33	0.26	0.21
48. Acad. Sat. P2	0.08	0.44	0.34	0.32	0.22	0.23	0.14	0.19	0.24	0.16	0.19
49. Social Sat. P1	0.13	0.36	0.19	0.25	0.64	0.59	0.41	0.58	0.17	0.08	0.17
50. Social Sat. P2	0.17	0.34	0.18	0.22	0.59	0.63	0.44	0.66	0.17	0.09	0.15
51. Fin. Sat. P1	-0.04	0.18	0.13	0.15	0.07	0.11	0.1	0.07	0.17	0.14	0.19
52. Fin. Sat. P2	-0.05	0.17	0.13	0.16	0.08	0.11	0.04	0.09	0.19	0.12	0.12
53. Goal Comm.											
P1	0.11	0.27	0.25	0.29	0.15	0.12	0.12	0.11	0.2	0.26	0.17
54. Goal Comm.											
P2	0.14	0.21	0.2	0.18	0.14	0.15	0.13	0.11	0.16	0.2	0.14
55. Goal Comm.											
P3	0.16	0.24	0.24	0.21	0.15	0.18	0.16	0.12	0.15	0.23	0.16
56. Instit. Comm.											
P1	0.11	0.35	0.25	0.22	0.36	0.4	0.29	0.35	0.24	0.14	0.18
57. Instit. Comm											
P2	0.07	0.36	0.2	0.25	0.45	0.43	0.33	0.36	0.24	0.13	0.17
58. Instit. Comm											
P3	0.07	0.3	0.18	0.18	0.37	0.36	0.25	0.33	0.22	0.15	0.1
59. Instit. Comm.											
P4	0.11	0.2	0.14	0.13	0.24	0.28	0.23	0.21	0.13	0.05	0.1
60. Instit. Comm											
P5	0.06	0.15	0.08	0.09	0.19	0.21	0.16	0.16	0.07	0.05	0.06
61. Shocks	0	-0.07	-0.08	-0.05	-0.14	-0.1	-0.04	-0.07	-0.08	-0.04	-0.11

Table 9 Continued.

	30	31	32	33	34	35	36	37	38	39	40
62. GPA (self-report)	0.07	0.09	0.03	0.08	0.06	-0.04	-0.01	-0.05	0.01	0.05	0.05
63. Gathing Info. I1	0	-0.36	-0.23	-0.23	-0.35	-0.3	-0.23	-0.23	-0.26	-0.16	-0.14
64. Gathing Info. I2	-0.09	-0.24	-0.24	-0.21	-0.21	-0.2	-0.19	-0.14	-0.23	-0.31	-0.16
65. Thoughts of Leaving I1	-0.01	-0.41	-0.25	-0.28	-0.4	-0.34	-0.26	-0.29	-0.26	-0.14	-0.15
66. Thoughts of Leaving I2	-0.11	-0.27	-0.26	-0.23	-0.19	-0.22	-0.21	-0.16	-0.25	-0.3	-0.18
67. Intent to Withdraw I1	-0.03	-0.31	-0.22	-0.22	-0.32	-0.29	-0.22	-0.22	-0.26	-0.15	-0.11
68. Intent to Withdraw I2	-0.1	-0.22	-0.19	-0.18	-0.19	-0.21	-0.11	-0.14	-0.23	-0.33	-0.15
69. Dropout (Year 1)	0.04	-0.04	0.02	-0.06	-0.01	-0.03	-0.01	-0.02	-0.06	-0.01	-0.05

Table 9 Continued.

	41	42	43	44	45	46	47	48	49	50
41. Family Support I4	1									
42. Family Support I5	0.44	1								
43. Acad. Self Efficacy I1	0.15	0.1	1							
44. Acad. Self Efficacy I2	0.11	0.07	0.82	1						
45. Acad. Self Efficacy I3	0.11	0.14	0.54	0.51	1					
46. Acad. Self Efficacy I4	0.11	0.07	0.63	0.66	0.43	1				
47. Acad. Sat. P1	0.13	0.17	0.16	0.14	0.15	0.12	1			
48. Acad. Sat. P2	0.12	0.17	0.17	0.11	0.17	0.12	0.64	1		
49. Social Sat. P1	0.09	0.2	0.12	0.1	0.14	0.07	0.38	0.23	1	
50. Social Sat. P2	0.07	0.19	0.11	0.1	0.13	0.06	0.36	0.21	0.85	1
51. Fin. Sat. P1	0.4	0.23	0.25	0.19	0.17	0.2	0.13	0.12	0.08	0.08
52. Fin. Sat. P2	0.36	0.21	0.25	0.23	0.2	0.21	0.12	0.13	0.06	0.06
53. Goal Comm. P1	0.13	0.12	0.26	0.21	0.18	0.22	0.25	0.23	0.11	0.11
54. Goal Comm. P2	0.09	0.09	0.15	0.13	0.09	0.17	0.22	0.22	0.13	0.11
55. Goal Comm. P3	0.1	0.12	0.21	0.19	0.1	0.17	0.3	0.29	0.15	0.14
56. Instit. Comm. P1	0.08	0.2	0.11	0.09	0.04	0.08	0.49	0.36	0.37	0.4
57. Instit. Comm P2	0.04	0.13	0.04	0.04	0.01	0.03	0.4	0.29	0.42	0.43
58. Instit. Comm P3	0.02	0.12	0.06	0.03	0.03	0.02	0.37	0.24	0.38	0.41
59. Instit. Comm. P4	0.05	0.07	-0.02	-0.04	0.01	-0.03	0.23	0.13	0.23	0.22
60. Instit. Comm P5	0.07	0.03	0.09	0.11	0.04	0.04	0.18	0.15	0.18	0.18

Table 9 Continued.

	41	42	43	44	45	46	47	48	49	50
61. Shocks	-0.12	-0.09	-0.04	-0.04	-0.08	-0.03	-0.05	-0.05	-0.14	-0.14
62. GPA (self-report)	0.08	0.01	0.16	0.12	0.08	0.08	0.09	0.11	-0.03	-0.04
63. Gathering Info. I1	-0.07	-0.11	-0.1	-0.13	-0.07	-0.06	-0.41	-0.25	-0.32	-0.32
64. Gathering Info. I2	-0.16	-0.15	-0.18	-0.19	-0.05	-0.15	-0.32	-0.24	-0.16	-0.17
65. Thoughts of Leaving I1	-0.08	-0.15	-0.08	-0.09	-0.09	-0.08	-0.39	-0.24	-0.41	-0.39
66. Thoughts of Leaving I2	-0.16	-0.16	-0.21	-0.2	-0.12	-0.16	-0.31	-0.25	-0.15	-0.18
67. Intent to Withdraw I1	-0.05	-0.12	-0.07	-0.08	-0.07	-0.05	-0.39	-0.22	-0.34	-0.32
68. Intent to Withdraw I2	-0.14	-0.18	-0.13	-0.14	-0.06	-0.14	-0.26	-0.16	-0.15	-0.16
69. Dropout (Year 1)	0.02	-0.1	-0.03	-0.04	-0.01	-0.04	0.08	0.12	0.01	0

Table 9 Continued.

	51	52	53	54	55	56	57	58	59	60
51. Fin. Sat. P1	1									
52. Fin. Sat. P2	0.67	1								
53. Goal Comm. P1	0.21	0.14	1							
54. Goal Comm. P2	0.15	0.11	0.54	1						
55. Goal Comm. P3	0.13	0.08	0.45	0.51	1					
56. Instit. Comm. P1	0.06	0.03	0.17	0.16	0.25	1				
57. Instit. Comm P2	0.05	0.02	0.21	0.15	0.17	0.61	1			
58. Instit. Comm P3	0.01	0	0.15	0.15	0.19	0.49	0.57	1		
59. Instit. Comm. P4	0.01	-0.01	0.09	0.14	0.15	0.35	0.44	0.38	1	
60. Instit. Comm P5	-0.01	0.01	0.09	0.1	0.13	0.29	0.31	0.2	0.32	1
61. Shocks	-0.1	-0.1	-0.03	0.03	0.01	-0.05	-0.08	-0.05	0.01	0.01
62. GPA (self-report)	0.18	0.16	0.23	0.1	0.09	0.06	0.05	0.04	-0.05	-0.09
63. Gathing Info. I1	-0.15	-0.12	-0.23	-0.16	-0.15	-0.46	-0.5	-0.5	-0.27	-0.07
64. Gathering Info. I2	-0.23	-0.18	-0.41	-0.38	-0.36	-0.21	-0.19	-0.22	-0.09	-0.06
65. Thoughts of Leaving I1	-0.14	-0.11	-0.22	-0.16	-0.15	-0.49	-0.57	-0.54	-0.32	-0.09
66. Thoughts of Leaving I2	-0.23	-0.18	-0.44	-0.44	-0.37	-0.24	-0.22	-0.24	-0.14	-0.09
67. Intent to Withdraw I1	-0.09	-0.09	-0.19	-0.16	-0.15	-0.42	-0.42	-0.5	-0.24	-0.07
68. Intent to Withdraw I2	-0.16	-0.11	-0.34	-0.32	-0.28	-0.42	-0.14	-0.19	-0.09	-0.07
69. Dropout (Year 1)	0	-0.06	0.07	0.01	0.01	-0.18	0.09	0.05	0.04	0.15

Table 9 Continued.

	61	62	63	64	65	66	67	68	69
61. Shocks	1								
62. GPA (self-report)	-0.08	1							
63. Gathing Info. I1	0.1	-0.19	1						
64. Gathering Info. I2	0.04	-0.22	0.43	1					
65. Thoughts of Leaving I1	0.1	-0.15	0.8	0.33	1				
66. Thoughts of Leaving I2	0.03	-0.21	0.36	0.76	0.35	1			
67. Intent to Withdraw I1	0.09	-0.13	0.72	0.27	0.72	0.25	1		
68. Intent to Withdraw I2	0.06	-0.17	0.29	0.52	0.28	0.48	0.39	1	
69. Dropout (Year 1)	-0.05	0.13	-0.01	-0.03	-0.01	-0.02	-0.03	-0.01	1

Table 10. Standardized Regression Coefficients in the Early Attrition and Longitudinal Models.

	Early attrition		Longitudinal	
STAGE 1 -- STAGE 2	r	b	r	b
Perf. Avoid GO -- Acad. Int.	-.09	-.15**	-.09	-.09
Perf. App GO -- Acad. Int.	.09	.07	.09	.11
Mast. GO -- Acad. Int.	.10	-.15	.10	-.26*
Knowledge -- Acad. Int.	.16	.07	.16	.23**
Careers -- Acad. Int.	.30	.35**	.30	.41**
Perseverance -- Acad. Int.	.17	.06	.17	-.19*
Conscientiousness -- Acad. Int.	.15	.05	.15	.01
Agreeableness -- Acad. Int.	.12	.09**	.12	.15**
Emot. Stab. -- Acad. Int.	.15	.14**	.15	.12**
Soc./Cult. Involvement -- Soc. Int.	.05	.01	.05	.01
Conscientiousness -- Soc. Int.	.04	-.04	.04	-.05
Agreeableness -- Soc. Int.	.17	.22**	.17	.20**
Emot. Stab. -- Soc. Int.	.23	.27**	.23	.25**
STAGE 2 -- STAGE 3				
Acad. Int. -- Satisfaction	.44	.03	.38	.08*
Acad. Int. -- Ac. SE	.21	.47**	.26	.32**
Acad. Int. -- Commitment	.43	.23**	.29	.16**
Soc. Int. -- Satisfaction	.62	.88**	.48	.67**
Soc. Int. -- Commitment	.53	.57**	.44	.56**
Family Support -- Commitment	.28	.13**	.25	.12**
Family Support--Satisfaction	.31	.02	.27	.07*
Acad. SE -- GPA	-.04	-.04	.17	.21**
Shocks -- Satisfaction	-.17	-.06**	-.14	-.02
Shocks -- Dropout	-.05	-.02	.09	.04
STAGE 3 -- STAGE 4				
GPA -- Withdrawal Cog./Beh.	-.21	-.24**	-.21	-.45**
Satisfaction -- Withdrawal Cog./Beh.	-.48	-.09**	-.35	-.10**
Comm. -- Withdrawal Cog./Beh.	-.59	-.62**	-.38	-.41**
STAGE 4 -- STAGE 5				
Withdrawal Cog./Beh. -- Dropout	-.03	-.07*	.23	.45**

* $p \leq .05$. ** $p \leq .01$.

Table 11. Squared Multiple Correlations in the Models.

Independent Variables	Dependent Variable	Early Attrition R ²	Longitudinal R ²
Performance Avoid GO, Performance Approach GO, Mastery GO, Knowledge, Career Orientation, Perseverance, Conscientiousness, Agreeableness, Emotional Stability	Academic Int.	.31	.21
Conscientiousness, Agreeableness, Emotional Stability, Social/cultural Involvement	Social Int.	.13	.11
Academic Integration	Academic SE	.22	.10
Academic SE	GPA	.00	.05
Academic Int., Social Int., Family Support	Satisfaction	.78	.49
Academic Int., Social Int., Family Support	Commitment	.44	.39
	Withdrawal Cognitions/Behaviors		
GPA, Satisfaction, Commitment		.51	.42
Withdrawal Cognitions/Behaviors	Withdrawal	.01	.20

Table 12. Intercorrelations Among the Observed Variables in the Longitudinal Model.

	N	Mean	S.D.	1	2	3	4	5	6	7	8
1. Knowl. P1	2716	3.13	0.53	1							
2. Knowl. P2	2714	3	0.8	0.45	1						
3. Knowl. P3	2714	3.35	0.54	0.4	0.32	1					
4. Pers. P1	2714	3.82	0.58	0.36	0.35	0.34	1				
5. Pers. P2	2714	3.63	0.67	0.24	0.22	0.29	0.55	1			
6. Pers. P3	2714	3.72	0.59	0.33	0.33	0.32	0.47	0.36	1		
7. Social/ Cult. Involve. P1	2716	2.83	0.86	0.25	0.16	0.2	0.25	0.25	0.19	1	
8. Social/ Cult. Involve. P2	2714	3.02	0.91	0.24	0.18	0.19	0.25	0.28	0.19	0.62	1
9. Social/ Cult. Involve. P3	2714	3.28	0.89	0.21	0.12	0.2	0.21	0.22	0.14	0.57	0.44
10. Careers P1	2716	3.16	0.71	0.17	0.14	0.13	0.29	0.24	0.21	0.18	0.23
11. Careers P2	2714	3.74	0.85	0.16	0.16	0.13	0.37	0.32	0.28	0.12	0.18
12. Careers P3	2714	3.13	0.83	0.13	0.15	0.14	0.25	0.26	0.19	0.14	0.18
13. Mastery GO P1	2714	2.97	0.65	0.14	0.2	0.19	0.29	0.23	0.25	0.14	0.18
14. Mastery GO P2	2714	3.02	0.58	0.19	0.2	0.17	0.3	0.26	0.27	0.16	0.19
15. Mastery GO P3	2714	3.18	0.63	0.18	0.18	0.23	0.29	0.26	0.22	0.16	0.18
16. Perf. App. GO P1	2714	3.3	0.58	0.16	0.14	0.12	0.3	0.22	0.21	0.13	0.19
17. Perf. App. GO P2	2714	3.13	0.56	0.14	0.12	0.13	0.28	0.21	0.2	0.16	0.17
18. Perf. App. GO P3	2714	3.29	0.56	0.09	0.04	0.14	0.22	0.17	0.12	0.11	0.13
19. Perf. Avoid GO P1	2714	1.8	0.66	-0.13	-0.14	-0.17	-0.3	-0.19	-0.26	-0.12	-0.12
20. Perf. Avoid GO P2	2714	1.68	0.63	-0.1	-0.1	-0.2	-0.3	-0.2	-0.24	-0.14	-0.11
21. Perf. Avoid GO P3	2712	1.55	0.57	-0.17	-0.12	-0.22	-0.3	-0.25	-0.28	-0.2	-0.16
22. Cons. P1	2712	3.43	0.78	0.24	0.28	0.12	0.35	0.21	0.32	0.05	0.06
23. Cons. P2	2712	3.74	0.71	0.29	0.31	0.24	0.42	0.26	0.39	0.1	0.08
24. Cons. P3	2712	3.56	0.68	0.35	0.29	0.28	0.42	0.3	0.32	0.12	0.14
25. Emot. Stab. P1	2712	3.18	0.87	0.08	0.13	0.12	0.09	0.06	0.3	0.04	0.05

Table 12 Continued.

	N	Mean	S.D.	1	2	3	4	5	6	7	8
26. Emot. Stab. P2	2711	3.64	0.83	0.03	0.07	0.1	0.12	0.05	0.28	0.03	0.02
27. Emot. Stab. P3	2711	3.04	0.77	0.05	0.08	0.11	0.09	0.04	0.23	0.04	0.03
28. Agree. P1	2712	4.05	0.61	0.18	0.18	0.11	0.28	0.23	0.25	0.22	0.24
29. Agree. P2	2712	3.98	0.76	0.13	0.11	0.11	0.2	0.19	0.15	0.2	0.22
30. Agree. P3	2712	3.94	0.7	0.13	0.11	0.11	0.2	0.17	0.16	0.22	0.28
31. Academic Fit P1	1131	3.77	0.67	0.08	0.06	0.17	0.14	0.09	0.08	0.08	0.04
32. Academic Fit P2	1130	3.78	0.67	0.11	0.09	0.12	0.14	0.09	0.12	0.04	0.05
33. Academic Fit P3	1128	3.51	0.74	0.13	0.11	0.15	0.15	0.09	0.13	0.06	0.06
34. Social Fit I1	1128	3.72	0.91	0.05	0	0.1	0.07	0.05	0.08	0.06	0.05
35. Social Fit I2	1123	3.65	0.95	0	0.01	-0.01	0.09	0.06	0.11	0.04	0.04
36. Social Fit I3	1127	3.47	1	-0.06	-0.04	0.02	0.03	0.03	0.06	0	0
37. Social Fit I4	1126	3.73	0.93	0.01	-0.02	0	0.12	0.09	0.07	0.05	0.07
38. Family Support I1	1121	4.52	0.7	-0.03	0.02	0.01	0.07	0.02	0.07	0	-0.03
39. Family Support I2	1116	4.83	0.41	0.01	0.02	0.06	0.07	0.05	0.05	0.08	0.01
40. Family Support I3	1118	4.36	0.89	0	-0.01	-0.01	0.08	0	0.05	-0.03	-0.04
41. Family Support I4	1120	4.28	0.99	-0.03	-0.02	-0.11	-0.03	-0.05	-0.01	0	-0.04
42. Family Support I5	1115	4.25	0.95	-0.05	0	-0.02	0.07	0.03	0.03	-0.03	-0.03
43. Acad. Self Efficacy I1	994	4.16	0.73	0.11	0.05	0.1	0.16	0.1	0.17	0.02	0.03
44. Acad. Self Efficacy I2	990	4.16	0.72	0.07	0.01	0.13	0.12	0.06	0.15	0	-0.01
45. Acad. Self Efficacy I3	998	3.28	1.13	0	0	0.03	0.09	0.06	0.11	-0.05	-0.04
46. Acad. Self Efficacy I4	996	4.22	0.66	0.12	0.01	0.18	0.14	0.1	0.16	-0.01	0.03
47. Acad. Sat. P1	990	3.7	0.91	-0.04	-0.01	-0.01	0.09	0.06	0.06	0.05	0.06
48. Acad. Sat. P2	989	3.89	0.87	-0.05	-0.05	-0.01	0.07	0.06	0.07	0.04	0.05
49. Social Sat. P1	990	4.04	0.61	0.08	0.03	0.13	0.1	0.07	0.05	0.09	0.1
50. Social Sat. P2	990	4.1	0.58	0.09	0.02	0.08	0.11	0.04	0.08	0.05	0.05

Table 12 Continued.

	N	Mean	S.D.	1	2	3	4	5	6	7	8
51. Fin. Sat. P1	985	3.34	2.81	0.04	0.01	0.07	-0.04	-0.02	0.06	0.01	0
52. Fin. Sat. P2	984	3.1	2.15	0.04	0.03	0.07	-0.03	-0.01	0.05	0.01	0.01
53. Goal Comm. P1	985	4.44	0.63	0.12	0.09	0.12	0.16	0.11	0.15	0.1	0.08
54. Goal Comm. P2	986	4.47	0.62	0.11	0.09	0.08	0.17	0.12	0.13	0.05	0.09
55. Goal Comm. P3	985	4.5	0.59	0.14	0.09	0.08	0.2	0.17	0.14	0.06	0.1
56. Instit. Comm. P1	993	3.86	0.69	0.05	0.02	0.08	0.07	0.04	0.07	0.11	0.1
57. Instit. Comm P2	993	3.34	0.81	-0.01	0.02	0.05	0.04	0.06	0.05	0.06	0.07
58. Instit. Comm P3	993	3.63	0.85	0.02	0.01	0.03	-0.02	-0.05	-0.03	0.1	0.08
59. Instit. Comm. P4	992	3.05	0.71	-0.05	0	-0.02	0.03	0.01	0	0.04	0.06
60. Instit. Comm P5	993	3.3	0.82	0.01	0.01	0.06	0.04	0.04	0.03	0.13	0.1
61. Shocks	1186	0.68	0.47	-0.04	-0.03	-0.03	0.03	0.07	0	0.02	0.05
62. GPA (University)	1533	3.31	0.73	0.24	0.17	0.18	0.09	0.02	0.05	0.19	0.12
63. Gathing Info. I1	853	1.7	0.98	-0.04	-0.04	-0.06	-0.08	0.03	-0.08	-0.05	-0.01
64. Gathering Info. I2	856	1.5	0.78	-0.11	-0.06	-0.13	-0.06	-0.03	-0.11	-0.04	-0.02
65. Thoughts of Leaving I1	860	1.93	1.11	-0.02	-0.06	-0.1	-0.08	0.01	-0.09	-0.02	0.01
66. Thoughts of Leaving I2	853	1.56	0.79	-0.08	-0.07	-0.05	-0.05	-0.02	-0.12	-0.04	-0.02
67. Intent to Withdraw I1	857	1.5	0.91	-0.02	-0.03	-0.1	-0.06	0	-0.07	-0.01	0
68. Intent to Withdraw I2	855	1.29	0.63	-0.07	-0.01	-0.12	-0.01	0	-0.09	-0.01	-0.02
69. Dropout (Years 2-4)	2787	0.11	0.32	-0.01	-0.03	-0.02	0.01	-0.02	-0.03	-0.05	-0.03

Table 12 Continued.

	9	10	11	12	13	14	15	16	17	18	19
9. Social/ Cult. Involve. P3	1										
10. Careers P1	0.14	1									
11. Careers P2	0.06	0.53	1								
12. Careers P3	0.08	0.44	0.6	1							
13. Mastery GO P1	0.1	0.2	0.26	0.21	1						
14. Mastery GO P2	0.13	0.2	0.26	0.21	0.67	1					
15. Mastery GO P3	0.14	0.19	0.22	0.19	0.44	0.53	1				
16. Perf. App. GO P1	0.12	0.23	0.25	0.18	0.41	0.41	0.35	1			
17. Perf. App. GO P2	0.13	0.18	0.23	0.18	0.53	0.64	0.5	0.51	1		
18. Perf. App. GO P3	0.1	0.17	0.15	0.12	0.23	0.32	0.51	0.44	0.53	1	
19. Perf. Avoid GO P1	-0.09	-0.17	-0.22	-0.16	-0.51	-0.51	-0.35	-0.3	-0.39	-0.15	1
20. Perf. Avoid GO P2	-0.14	-0.13	-0.18	-0.11	-0.39	-0.49	-0.41	-0.25	-0.41	-0.24	0.63
21. Perf. Avoid GO P3	-0.15	-0.15	-0.19	-0.13	-0.28	-0.36	-0.41	-0.22	-0.29	-0.32	0.5
22. Cons. P1	0.03	0.18	0.25	0.19	0.16	0.19	0.15	0.2	0.16	0.09	-0.17
23. Cons. P2	0.11	0.16	0.24	0.14	0.18	0.22	0.2	0.2	0.17	0.13	-0.22
24. Cons. P3	0.11	0.17	0.21	0.16	0.15	0.17	0.19	0.22	0.19	0.18	-0.12
25. Emot. Stab. P1	0.02	0.05	0.1	0.06	0.08	0.09	0.07	0.02	0.03	-0.01	-0.18
26. Emot. Stab. P2	0.01	0.04	0.11	0.05	0.13	0.15	0.12	0.08	0.13	0.06	-0.23
27. Emot. Stab. P3	0.02	0.04	0.08	0.06	0.11	0.11	0.08	0.03	0.08	-0.01	-0.21
28. Agree. P1	0.22	0.12	0.16	0.07	0.23	0.27	0.25	0.21	0.25	0.17	-0.2
29. Agree. P2	0.25	0.05	0.08	0.02	0.13	0.18	0.19	0.15	0.18	0.15	-0.11
30. Agree. P3	0.24	0.05	0.06	0.03	0.15	0.2	0.17	0.16	0.18	0.13	-0.15
31. Academic Fit P1	0.03	0.09	0.21	0.18	0.07	0.07	0.08	0.06	0.04	0.04	-0.05
32. Academic Fit P2	0.02	0.19	0.3	0.3	0.07	0.06	0.05	0.07	0.07	0.02	-0.08

Table 12 Continued.

	9	10	11	12	13	14	15	16	17	18	19
33. Academic Fit P3	0.03	0.15	0.27	0.25	0.08	0.07	0.07	0.08	0.08	0.04	-0.09
34. Social Fit I1	0.05	0.06	0.12	0.08	0.05	0.04	0.05	0.08	0.06	0.09	-0.04
35. Social Fit I2	0.04	0.01	0.12	0.1	0.09	0.07	0.04	0.1	0.09	0.04	-0.06
36. Social Fit I3	0.02	0.02	0.04	0	0.08	0.05	-0.01	0.03	0.03	-0.01	-0.03
37. Social Fit I4	0.06	0.04	0.1	0.05	0.09	0.11	0.07	0.1	0.11	0.03	-0.07
38. Family Support I1	0.01	-0.04	0.01	-0.05	0.06	0.04	0.01	0	0.03	0.06	-0.04
39. Family Support I2	0.03	0.01	0.03	0	0.02	0.04	0.04	0.04	0.04	0.07	-0.02
40. Family Support I3	-0.03	-0.05	0.03	0.01	0.05	0.06	0.01	0.02	0.07	0.01	-0.05
41. Family Support I4	-0.02	-0.04	-0.01	-0.08	-0.03	-0.04	-0.07	0	-0.01	-0.07	0.01
42. Family Support I5	-0.03	-0.04	0	-0.04	0.01	-0.03	0	0.02	0.06	0.06	-0.01
43. Acad. Self Efficacy I1	0	0.09	0.13	0.08	0.13	0.12	0.07	0.05	0.08	0	-0.13
44. Acad. Self Efficacy I2	-0.03	0.08	0.11	0.08	0.12	0.11	0.07	0.03	0.1	0.02	-0.14
45. Acad. Self Efficacy I3	-0.07	0.04	0.13	0.09	0.13	0.1	0.02	0.02	0.05	-0.03	-0.12
46. Acad. Self Efficacy I4	-0.04	0.08	0.17	0.13	0.15	0.14	0.13	0.08	0.11	0.06	-0.14
47. Acad. Sat. P1	0.04	0.05	0.11	0.09	0.1	0.07	0.07	0.08	0.07	0.03	-0.07
48. Acad. Sat. P2	0.02	0.04	0.1	0.07	0.07	0.07	0.04	0.1	0.07	0.04	-0.06
49. Social Sat. P1	0.05	0	0.06	0.09	0.06	0.03	0.01	0	0.02	-0.01	-0.04
50. Social Sat. P2	0.02	0.05	0.09	0.13	0.09	0.06	-0.01	0.06	0.06	0	-0.08
51. Fin. Sat. P1	-0.03	-0.03	-0.03	0	-0.02	-0.01	-0.05	-0.04	0	-0.06	0.02
52. Fin. Sat. P2	-0.05	-0.07	-0.03	-0.01	-0.03	-0.03	-0.02	-0.05	0	-0.07	0.02
53. Goal Comm. P1	0.06	0.03	0.09	0.06	0.07	0.07	0.08	0.01	0.05	0.09	-0.03
54. Goal Comm. P2	0.04	0.09	0.16	0.16	0.11	0.1	0.09	0.11	0.13	0.12	-0.07
55. Goal Comm. P3	-0.01	0.12	0.19	0.17	0.1	0.13	0.06	0.11	0.08	0.07	-0.09
56. Instit. Comm. P1	0.07	0.03	0.11	0.08	0.09	0.09	0.02	0.07	0.07	0.04	-0.03
57. Instit. Comm P2	0.05	0.02	0.08	0.09	0.05	0.06	0.01	0.01	0.03	0	-0.01

Table 12 Continued.

	9	10	11	12	13	14	15	16	17	18	19
58. Instit. Comm P3	0.02	-0.02	0	0.04	-0.03	-0.03	0.05	0.02	0	0.01	0.06
59. Instit. Comm. P4	0.01	0.05	0.11	0.09	0.09	0.05	0.06	0.03	0.02	0	-0.02
60. Instit. Comm P5	0.06	0.11	0.15	0.13	0.16	0.15	0.05	0.1	0.1	0.04	-0.13
61. Shocks	0.03	0.04	0.03	0.04	0.08	0.04	0	0.04	0.05	0.03	-0.02
62. GPA (University)	0.12	-0.07	-0.13	-0.1	-0.05	-0.07	-0.04	-0.01	-0.03	0.01	0.08
63. Gathering Info. I1	-0.06	0.02	-0.04	-0.05	-0.01	-0.01	-0.03	-0.01	-0.03	-0.04	0.01
64. Gathering Info. I2	-0.05	0.03	-0.01	-0.03	-0.02	-0.07	-0.05	-0.04	-0.07	-0.07	0.07
65. Thoughts of Leaving I1	-0.04	0.03	-0.05	-0.09	-0.04	-0.01	-0.04	-0.03	-0.05	-0.05	0.03
66. Thoughts of Leaving I2	-0.02	0.02	-0.03	-0.03	-0.06	-0.09	-0.03	-0.06	-0.07	-0.05	0.08
67. Intent to Withdraw I1	-0.06	0.04	-0.04	-0.07	-0.04	-0.03	-0.06	-0.02	-0.09	-0.08	0.04
68. Intent to Withdraw I2	-0.06	-0.02	-0.01	-0.06	-0.02	-0.04	-0.05	0.02	-0.08	-0.1	0.06
69. Dropout (Years 2-4)	-0.02	0.01	-0.01	-0.01	0	-0.01	0	0.04	0	0.01	-0.02

Table 12 Continued.

	20	21	22	23	24	25	26	27	28	29
20. Perf. Avoid GO P2	1									
21. Perf. Avoid GO P3	0.58	1								
22. Cons. P1	-0.13	-0.15	1							
23. Cons. P2	-0.22	-0.23	0.63	1						
24. Cons. P3	-0.14	-0.18	0.51	0.49	1					
25. Emot. Stab. P1	-0.13	-0.12	0.12	0.22	0.02	1				
26. Emot. Stab. P2	-0.21	-0.17	0.13	0.24	0.07	0.68	1			
27. Emot. Stab. P3	-0.19	-0.1	0.06	0.13	-0.02	0.61	0.61	1		
28. Agree. P1	-0.23	-0.24	0.22	0.29	0.21	0.17	0.23	0.11	1	
29. Agree. P2	-0.16	-0.18	0.09	0.22	0.17	0.05	0.1	0	0.57	1
30. Agree. P3	-0.19	-0.22	0.08	0.2	0.15	0.09	0.13	0.04	0.5	0.56
31. Academic Fit P1	-0.07	-0.04	0.05	0.06	0.14	0.12	0.15	0.14	0.11	0.06
32. Academic Fit P2	-0.07	-0.07	0.1	0.09	0.17	0.11	0.11	0.09	0.13	0.07
33. Academic Fit P3	-0.1	-0.07	0.11	0.09	0.2	0.08	0.1	0.08	0.11	0.09
34. Social Fit I1	-0.06	-0.05	-0.02	0.01	0.07	0.16	0.16	0.11	0.12	0.05
35. Social Fit I2	-0.09	-0.03	0.02	0.05	0.08	0.19	0.24	0.21	0.16	0.1
36. Social Fit I3	-0.07	-0.03	-0.02	-0.01	0.03	0.13	0.17	0.15	0.09	0.06
37. Social Fit I4	-0.09	-0.02	0.03	0.04	0.1	0.12	0.17	0.13	0.16	0.13
38. Family Support I1	-0.06	-0.04	0.09	0.11	0.11	0.09	0.13	0.1	0.13	0.1
39. Family Support I2	-0.06	-0.1	0.04	0.12	0.08	0.06	0.08	0.05	0.14	0.11
40. Family Support I3	-0.04	0	0.08	0.09	0.09	0.1	0.17	0.15	0.1	0.07
41. Family Support I4	0.04	0.01	0.08	0.05	0.04	0.05	0.07	0.05	0.04	0.02
42. Family Support I5	0	0.03	0.08	0.07	0.09	0.06	0.13	0.12	0.07	0.05
43. Acad. Self Efficacy I1	-0.11	-0.08	0.07	0.12	0.09	0.14	0.18	0.15	0.1	0.07

Table 12 Continued.

	20	21	22	23	24	25	26	27	28	29
44. Acad. Self Efficacy I2	-0.14	-0.11	0.04	0.11	0.08	0.1	0.15	0.11	0.07	0.07
45. Acad. Self Efficacy I3	-0.11	-0.06	0.09	0.11	0.02	0.14	0.16	0.18	0.07	0.04
46. Acad. Self Efficacy I4	-0.12	-0.12	0.09	0.14	0.11	0.09	0.19	0.12	0.07	0.04
47. Acad. Sat. P1	-0.1	-0.02	0	0	0.02	0.15	0.19	0.16	0.13	0.04
48. Acad. Sat. P2	-0.09	-0.02	0.02	0.02	0.04	0.16	0.2	0.16	0.14	0.07
49. Social Sat. P1	-0.01	-0.03	0.04	0.08	0.03	0.1	0.07	0.03	0.09	0.04
50. Social Sat. P2	-0.01	0.01	0.04	0.07	0.05	0.12	0.13	0.08	0.13	0.08
51. Fin. Sat. P1	0.02	0.01	-0.01	0.02	0.05	0.15	0.19	0.16	0.01	-0.05
52. Fin. Sat. P2	0.03	0.01	0.02	0.03	0.06	0.18	0.2	0.16	0.03	-0.04
53. Goal Comm. P1	-0.07	-0.1	0.08	0.11	0.15	0.05	0.1	0.04	0.14	0.13
54. Goal Comm. P2	-0.1	-0.11	0.09	0.1	0.13	0.03	0.09	0	0.17	0.14
55. Goal Comm. P3	-0.07	-0.11	0.17	0.13	0.17	0.02	0.1	0.01	0.19	0.13
56. Instit. Comm. P1	-0.02	0	0.03	0.02	0.03	0.1	0.11	0.07	0.1	0.09
57. Instit. Comm P2	-0.03	0.02	0	0.02	0.03	0.08	0.08	0.07	0.07	0.03
58. Instit. Comm P3	0.06	0.04	-0.01	-0.03	0.06	-0.07	-0.06	-0.08	0.03	0.01
59. Instit. Comm. P4	0.02	0.08	0.07	0.01	0.03	0.02	0.01	0.02	0.04	0
60. Instit. Comm P5	-0.03	0	0.02	0	0	0.08	0.09	0.09	0.05	-0.01
61. Shocks	-0.05	-0.01	0.01	-0.01	-0.01	-0.1	-0.1	-0.09	0	0.02
62. GPA (University)	0.05	-0.01	-0.01	0.02	0.16	-0.01	-0.01	0.02	0.02	0.06
63. Gathering Info. I1	0.07	-0.01	-0.04	-0.01	-0.09	-0.04	-0.16	-0.11	-0.05	0.02
64. Gathering Info. I2	0.06	0.09	-0.1	-0.11	-0.15	-0.05	-0.13	-0.06	-0.12	-0.08
65. Thoughts of Leaving I1	0.07	-0.01	-0.04	-0.05	-0.08	-0.09	-0.2	-0.15	-0.09	0.01

Table 12 Continued.

	20	21	22	23	24	25	26	27	28	29
66. Thoughts of Leaving I2	0.06	0.04	-0.1	-0.12	-0.15	-0.08	-0.13	-0.06	-0.12	-0.11
67. Intent to Withdraw I1	0.1	0.03	-0.05	-0.06	-0.1	-0.07	-0.17	-0.12	-0.08	0.01
68. Intent to Withdraw I2	0.09	0.11	-0.05	-0.08	-0.14	-0.1	-0.17	-0.1	-0.12	-0.05
69. Dropout (Years 2-4)	0	-0.01	0.01	0.02	-0.01	-0.01	-0.01	-0.01	0	0.04

Table 12 Continued.

	30	31	32	33	34	35	36	37	38	39
30. Agree. P3	1									
31. Academic Fit P1	0.06	1								
32. Academic Fit P2	0.09	0.51	1							
33. Academic Fit P3	0.08	0.56	0.66	1						
34. Social Fit I1	0.09	0.39	0.23	0.27	1					
35. Social Fit I2	0.15	0.39	0.23	0.28	0.57	1				
36. Social Fit I3	0.13	0.28	0.14	0.2	0.39	0.52	1			
37. Social Fit I4	0.2	0.33	0.19	0.24	0.47	0.59	0.39	1		
38. Family Support I1	0.11	0.21	0.15	0.13	0.18	0.2	0.17	0.17	1	
39. Family Support I2	0.11	0.15	0.13	0.11	0.12	0.06	0.09	0.09	0.47	1
40. Family Support I3	0.05	0.2	0.13	0.13	0.15	0.19	0.15	0.15	0.42	0.37
41. Family Support I4	0.01	0.13	0.09	0.12	0.09	0.12	0.09	0.07	0.33	0.31
42. Family Support I5	0.07	0.16	0.11	0.15	0.18	0.22	0.16	0.16	0.43	0.33
43. Acad. Self Efficacy I1	0.06	0.19	0.18	0.23	0.15	0.14	0.11	0.09	0.15	0.15
44. Acad. Self Efficacy I2	0.08	0.17	0.15	0.21	0.15	0.14	0.11	0.09	0.14	0.14
45. Acad. Self Efficacy I3	0.02	0.17	0.2	0.24	0.11	0.09	0.08	0.1	0.15	0.09
46. Acad. Self Efficacy I4	0.04	0.17	0.14	0.2	0.11	0.12	0.07	0.05	0.13	0.13
47. Acad. Sat. P1	0.1	0.36	0.2	0.22	0.5	0.53	0.38	0.47	0.17	0.13
48. Acad. Sat. P2	0.13	0.36	0.18	0.2	0.47	0.52	0.4	0.48	0.17	0.14
49. Social Sat. P1	0.06	0.29	0.22	0.18	0.2	0.12	0.08	0.07	0.19	0.18
50. Social Sat. P2	0.08	0.38	0.28	0.26	0.28	0.27	0.2	0.16	0.26	0.21
51. Fin. Sat. P1	-0.03	0.14	0.11	0.12	0.09	0.12	0.08	0.08	0.17	0.12
52. Fin. Sat. P2	-0.04	0.16	0.11	0.12	0.1	0.15	0.1	0.06	0.19	0.12
53. Goal Comm. P1	0.13	0.15	0.14	0.18	0.06	0.07	0.06	0.05	0.15	0.21

Table 12 Continued.

	30	31	32	33	34	35	36	37	38	39
54. Goal Comm. P2	0.16	0.2	0.19	0.22	0.18	0.17	0.15	0.1	0.19	0.22
55. Goal Comm. P3	0.17	0.2	0.16	0.17	0.12	0.16	0.18	0.07	0.13	0.2
56. Instit. Comm. P1	0.08	0.35	0.19	0.19	0.4	0.42	0.3	0.32	0.23	0.09
57. Instit. Comm P2	0.07	0.31	0.14	0.15	0.39	0.43	0.34	0.34	0.21	0.09
58. Instit. Comm P3	0.03	0.09	0.07	0.04	0.13	0.12	0.1	0.11	0.06	0.11
59. Instit. Comm. P4	0.01	0.16	0.05	0.06	0.25	0.27	0.22	0.22	0.13	0.05
60. Instit. Comm P5	0.02	0.14	0.1	0.07	0.16	0.2	0.14	0.16	0.06	0.04
61. Shocks	0	-0.07	-0.08	-0.05	-0.14	-0.1	-0.04	-0.07	-0.08	-0.04
62. GPA (University)	0.04	0.11	0.06	0.14	0.02	-0.03	-0.04	-0.06	0.05	0.06
63. Gathing Info. I1	-0.05	-0.24	-0.19	-0.21	-0.27	-0.25	-0.22	-0.18	-0.17	-0.17
64. Gathering Info. I2	-0.14	-0.15	-0.15	-0.15	-0.13	-0.12	-0.08	-0.08	-0.18	-0.23
65. Thoughts of Leaving I1	-0.05	-0.29	-0.25	-0.24	-0.31	-0.27	-0.24	-0.2	-0.23	-0.14
66. Thoughts of Leaving I2	-0.12	-0.21	-0.2	-0.19	-0.13	-0.17	-0.09	-0.14	-0.2	-0.23
67. Intent to Withdraw I1	-0.05	-0.24	-0.17	-0.2	-0.28	-0.25	-0.21	-0.17	-0.18	-0.16
68. Intent to Withdraw I2	-0.14	-0.19	-0.16	-0.16	-0.14	-0.14	-0.1	-0.11	-0.18	-0.25
69. Dropout (Years 2-4)	0.01	-0.08	-0.03	-0.08	-0.1	-0.11	-0.1	-0.08	-0.12	-0.05

Table 12 Continued.

	40	41	42	43	44	45	46	47	48	49
40. Family Support I3	1									
41. Family Support I4	0.44	1								
42. Family Support I5	0.55	0.44	1							
43. Acad. Self Efficacy I1	0.14	0.15	0.1	1						
44. Acad. Self Efficacy I2	0.1	0.11	0.07	0.82	1					
45. Acad. Self Efficacy I3	0.13	0.11	0.14	0.54	0.51	1				
46. Acad. Self Efficacy I4	0.12	0.11	0.07	0.63	0.66	0.43	1			
47. Acad. Sat. P1	0.21	0.07	0.17	0.2	0.17	0.13	0.16	1		
48. Acad. Sat. P2	0.18	0.06	0.15	0.18	0.16	0.09	0.14	0.86	1	
49. Social Sat. P1	0.14	0.15	0.13	0.31	0.24	0.18	0.26	0.2	0.17	1
50. Social Sat. P2	0.22	0.2	0.21	0.36	0.29	0.24	0.31	0.31	0.28	0.64
51. Fin. Sat. P1	0.2	0.41	0.24	0.24	0.22	0.22	0.17	0.12	0.12	0.17
52. Fin. Sat. P2	0.19	0.4	0.25	0.25	0.23	0.21	0.19	0.11	0.09	0.19
53. Goal Comm. P1	0.05	0.09	0.13	0.36	0.33	0.28	0.35	0.11	0.11	0.22
54. Goal Comm. P2	0.15	0.16	0.19	0.27	0.26	0.19	0.27	0.15	0.16	0.21
55. Goal Comm. P3	0.16	0.17	0.14	0.33	0.3	0.18	0.32	0.14	0.18	0.28
56. Instit. Comm. P1	0.21	0.12	0.19	0.18	0.15	0.07	0.16	0.41	0.41	0.29
57. Instit. Comm P2	0.18	0.06	0.15	0.1	0.1	0.07	0.08	0.45	0.42	0.2
58. Instit. Comm P3	0.01	0.01	0	0.04	0.03	-0.1	0.02	0.15	0.13	0.13
59. Instit. Comm. P4	0.13	0.01	0.05	-0.01	-0.03	-0.03	-0.02	0.24	0.23	0.09
60. Instit. Comm P5	0.11	0.06	-0.01	0.09	0.09	0.06	0.08	0.2	0.17	0.12
61. Shocks	-0.11	-0.12	-0.09	-0.04	-0.04	-0.08	-0.03	-0.1	-0.1	-0.06
62. GPA (University)	0.07	0.1	0.04	0.24	0.21	0.16	0.21	-0.03	-0.03	0.14
63. Gathing Info. I1	-0.11	-0.1	-0.09	-0.16	-0.12	-0.06	-0.12	-0.26	-0.24	-0.22

Table 12 Continued.

	40	41	42	43	44	45	46	47	48	49
64. Gathering Info. I2	-0.1	-0.11	-0.09	-0.12	-0.13	-0.08	-0.15	-0.09	-0.12	-0.2
65. Thoughts of Leaving I1	-0.14	-0.09	-0.14	-0.2	-0.15	-0.09	-0.18	-0.32	-0.29	-0.22
66. Thoughts of Leaving I2	-0.16	-0.12	-0.11	-0.18	-0.14	-0.11	-0.15	-0.16	-0.18	-0.2
67. Intent to Withdraw I1	-0.11	-0.08	-0.15	-0.16	-0.11	-0.04	-0.1	-0.28	-0.26	-0.2
68. Intent to Withdraw I2	-0.06	-0.1	-0.14	-0.19	-0.19	-0.09	-0.19	-0.14	-0.14	-0.22
69. Dropout (Years 2-4)	-0.05	-0.05	-0.06	-0.03	-0.02	-0.03	-0.02	-0.13	-0.12	-0.11

Table 12 Continued.

	50	51	52	53	54	55	56	57	58	59
50. Social Sat. P2	1									
51. Fin. Sat. P1	0.18	1								
52. Fin. Sat. P2	0.21	0.78	1							
53. Goal Comm. P1	0.24	0.15	0.13	1						
54. Goal Comm. P2	0.27	0.14	0.15	0.54	1					
55. Goal Comm. P3	0.34	0.11	0.12	0.51	0.57	1				
56. Instit. Comm. P1	0.43	0.05	0.08	0.18	0.26	0.31	1			
57. Instit. Comm P2	0.35	0.05	0.06	0.1	0.2	0.18	0.66	1		
58. Instit. Comm P3	0.18	-0.11	-0.07	0.05	0.12	0.17	0.29	0.21	1	
59. Instit. Comm. P4	0.16	-0.06	-0.03	-0.07	0.06	0.09	0.4	0.44	0.34	1
60. Instit. Comm P5	0.17	-0.01	0	0	0.08	0.09	0.36	0.38	0.1	0.41
61. Shocks	-0.06	-0.11	-0.13	-0.04	-0.05	-0.01	-0.03	-0.05	-0.01	-0.02
62. GPA (University)	0.18	0.27	0.25	0.26	0.18	0.22	0.08	0.01	0	-0.04
63. Gathing Info. I1	-0.3	-0.14	-0.13	-0.19	-0.17	-0.21	-0.37	-0.31	-0.18	-0.16
64. Gathering Info. I2	-0.28	-0.18	-0.16	-0.26	-0.25	-0.26	-0.2	-0.16	-0.07	-0.04
65. Thoughts of Leaving I1	-0.33	-0.16	-0.17	-0.2	-0.19	-0.22	-0.41	-0.4	-0.21	-0.21
66. Thoughts of Leaving I2	-0.28	-0.24	-0.21	-0.26	-0.3	-0.27	-0.16	-0.15	-0.08	-0.04
67. Intent to Withdraw I1	-0.28	-0.08	-0.1	-0.19	-0.2	-0.19	-0.37	-0.32	-0.2	-0.16
68. Intent to Withdraw I2	-0.34	-0.19	-0.2	-0.29	-0.29	-0.28	-0.18	-0.15	-0.07	0
69. Dropout (Years 2-4)	-0.18	-0.08	-0.1	-0.02	-0.06	-0.08	-0.26	-0.23	-0.19	-0.15

Table 12 Continued.

	60	61	62	63	64	65	66	67	68	69
60. Instit. Comm P5	1									
61. Shocks	0.02	1								
62. GPA (University)	-0.09	-0.09	1							
63. Gathering Info. I1	-0.04	0.08	-0.16	1						
64. Gathering Info. I2	0.02	0.01	-0.22	0.57	1					
65. Thoughts of Leaving I1	-0.12	0.08	-0.16	0.81	0.46	1				
66. Thoughts of Leaving I2	0.01	0.04	-0.23	0.46	0.74	0.41	1			
67. Intent to Withdraw I1	-0.1	0.05	-0.12	0.7	0.39	0.75	0.32	1		
68. Intent to Withdraw I2	-0.01	0.04	-0.22	0.4	0.56	0.35	0.56	0.52	1	
69. Dropout (Years 2-4)	-0.06	0.09	-0.41	0.23	0.13	0.23	0.14	0.28	0.09	1

Table 13 Summary of Model Support.

	Early		Early		Longitud.		Support	
	Attrition	Corr.	Longitud.	Attrition	Corr.	Longitud.	Attrition	Corr.
STAGE 1 -- STAGE 2								
Perf. Avoid GO -- Acad. Int.	X		X	X				Partial (mixed)
Perf. App GO -- Acad. Int.	X		X					Partial (corr. only)
Mast. GO -- Acad. Int.	X		X					Uncertain
Knowledge -- Acad. Int.	X		X			X		Partial (mixed)
Careers -- Acad. Int.	X		X	X		X		Full
Perseverance -- Acad. Int.	X		X					Uncertain
Conscientiousness -- Acad. Int.	X		X					Partial (corr. only)
Agreeableness -- Acad. Int.	X		X	X		X		Full
Emot. Stab. -- Acad. Int.	X		X	X		X		Full
Soc./Cult. Involvement -- Soc. Int.								None
Conscientiousness -- Soc. Int.								None
Agreeableness -- Soc. Int.	X		X	X		X		Full
Emot. Stab. -- Soc. Int.	X		X	X		X		Full
STAGE 2 -- STAGE 3								
Acad. Int. -- Satisfaction	X		X			X		Partial (mixed)
Acad. Int. -- Ac. SE	X		X	X		X		Full
Acad. Int. -- Commitment	X		X	X		X		Full

Table 13 Continued.

	Early Attrition Corr.	Longitud. Corr.	Early Attrition Beta	Longitud. Beta	Support
Soc. Int. -- Commitment	X	X	X	X	Full
Family Support -- Commitment	X	X	X	X	Full
Family Support--Satisfaction	X	X	X	X	Full
					Partial (mixed)
Shocks -- Satisfaction	X	X	X		Partial (mixed)
Shocks -- Dropout	X				Partial (corr. only)
STAGE 3 -- STAGE 4					
GPA -- Withdrawal Cog./Beh.	X	X	X	X	Full
Satisfaction -- Withdrawal Cog./Beh.	X	X	X	X	Full
Comm. -- Withdrawal Cog./Beh.	X	X	X	X	Full

Table 14. Standardized Regression Coefficients in the Modified Early Attrition Model.

STAGE 1 -- STAGE 2	r	b
Perf. Avoid GO -- Acad. Int.	-.09	-.11
Perf. App GO -- Acad. Int.	.09	.12
Mast. GO -- Acad. Int.	.10	-.30**
Knowledge -- Acad. Int.	.16	.23**
Careers -- Acad. Int.	.30	.41**
Perseverance -- Acad. Int.	.17	-.19**
Conscientiousness -- Acad. Int.	.15	-.01
Agreeableness -- Acad. Int.	.12	.16**
Emot. Stab. -- Acad. Int.	.15	.12**
Agreeableness -- Soc. Int.	.17	.23**
Emot. Stab. -- Soc. Int.	.23	.27**
Perf. Avoid GO -- Acad. SE	-.35	-.18**
Perf. App GO -- Acad. SE	.25	.05
Mast. GO -- Acad. SE	.30	-.04
Knowledge -- Acad. SE	.23	.02
Careers -- Acad. SE	.27	.15**
Perseverance -- Acad. SE	.36	.21**
Conscientiousness -- Acad. SE	.27	.04
Agreeableness -- Acad. SE	.16	-.01
Emot. Stab. -- Acad. SE	.27	.16**
STAGE 2 -- STAGE 3		
Acad. Int. -- Satisfaction	.44	.02
Acad. Int. -- Commitment	.43	.22**
Soc. Int. -- Satisfaction	.62	.88**
Soc. Int. -- Commitment	.53	.58**
Acad. SE -- GPA	-.04	-.04*
Family Support -- Commitment	.28	.13**
Family Support--Satisfaction	.31	.02
Shocks -- Satisfaction	-.17	-.06**
STAGE 3 -- STAGE 4		
GPA -- Withdrawal Cog./Beh.	-.21	-.24**
Satisfaction -- Withdrawal Cog./Beh.	-.48	-.09**
Comm. -- Withdrawal Cog./Beh.	-.59	-.62**
STAGE 4 -- STAGE 5		
Withdrawal Cog./Beh. -- Dropout	-.03	-.06*

* $p \leq .05$. ** $p \leq .01$.

Table 15. Squared Multiple Correlations for the Revised Early Attrition Model.

Independent Variables	Dependent Variable	Early Attrition R^2
Performance Avoid GO, Performance Approach GO, Mastery GO, Knowledge, Career Orientation, Perseverance, Conscientiousness, Agreeableness, Emotional Stability	Academic Int.	.21
Conscientiousness, Agreeableness, Emotional Stability, Social/cultural Involvement	Social Int.	.13
Performance Avoid GO, Performance Approach GO, Mastery GO, Knowledge, Career Orientation, Perseverance, Conscientiousness, Agreeableness, Emotional Stability	Academic SE	.28
Academic SE	GPA	.00
Academic Int., Social Int., Family Support	Satisfaction	.78
Academic Int., Social Int., Family Support	Commitment Withdrawal Cognitions/ Behaviors	.44
GPA, Satisfaction, Commitment		.51
Withdrawal Cognitions/Behaviors	Withdrawal	.01

Table 16. Standardized Regression Coefficients in the Modified Longitudinal Model.

STAGE 1 -- STAGE 2	r	b
Perf. Avoid GO -- Acad. Int.	-.09	-.10
Perf. App GO -- Acad. Int.	.09	.13
Mast. GO -- Acad. Int.	.10	-.29*
Knowledge -- Acad. Int.	.16	.25**
Careers -- Acad. Int.	.30	.40**
Perseverance -- Acad. Int.	.17	-.20*
Conscientiousness -- Acad. Int.	.15	.00
Agreeableness -- Acad. Int.	.12	.15**
Emot. Stab. -- Acad. Int.	.15	.12**
Agreeableness -- Soc. Int.	.17	.18**
Emot. Stab. -- Soc. Int.	.23	.25**
STAGE 2 -- STAGE 3		
Acad. Int. -- Satisfaction	.38	.08*
Acad. Int. -- Ac. SE	.26	.32**
Acad. Int. -- Commitment	.29	.16**
Soc. Int. -- Satisfaction	.48	.67**
Soc. Int. -- Commitment	.44	.56**
Family Support -- Commitment	.25	.13**
Family Support--Satisfaction	.27	.07*
Acad. SE -- GPA	.17	.21**
Shocks -- Satisfaction	-.14	-.03
Shocks -- Dropout	.09	.03
STAGE 3 -- STAGE 4		
GPA -- Withdrawal Cog./Beh.	-.21	-.45**
Satisfaction -- Withdrawal Cog./Beh.	-.35	-.10**
Comm. -- Withdrawal Cog./Beh.	-.38	-.41**
STAGE 4 -- STAGE 5		
Withdrawal Cog./Beh. -- Dropout	.23	.45**

* $p \leq .05$. ** $p \leq .01$.

Table 17. Fit Indices Across the Tested Models.

	χ^2	DF	χ^2/DF	CFI	RMSEA	AIC
Early Attrition Model (original)	13788.13	2188	6.30	.80	.04	14380.13
Longitudinal Model (original)	10786.96	2188	4.93	.83	.04	11380.96
Early Attrition Model (modified)	12805.36	1995	6.42	.80	.04	13369.36
Longitudinal Model (modified)	10309.99	2002	5.15	.82	.04	10859.99

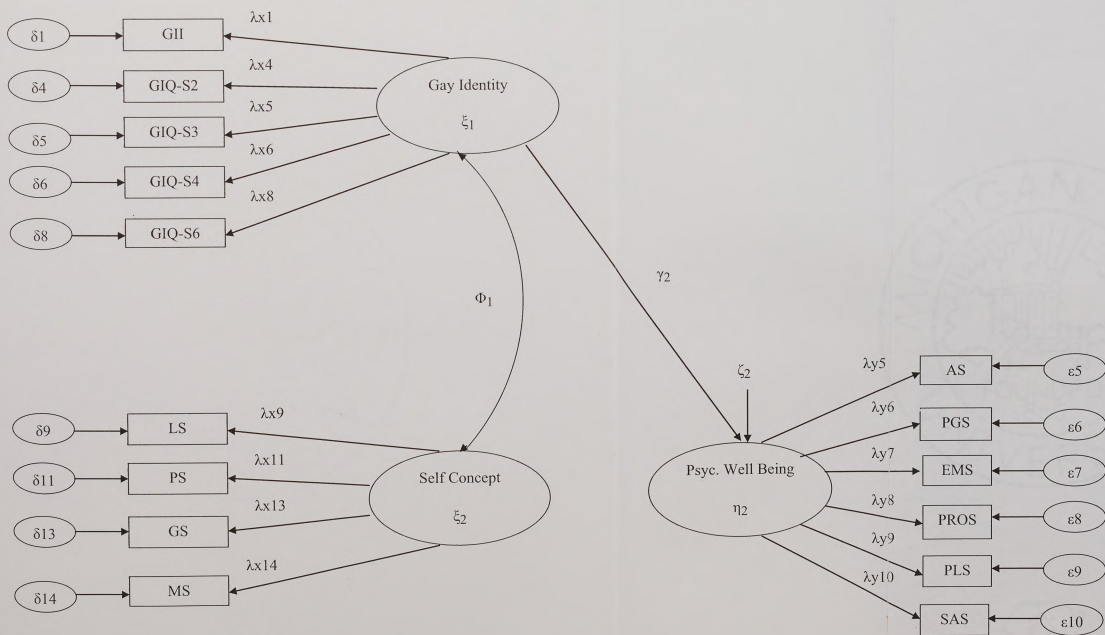


Figure 10. Full Model: Modified Model V

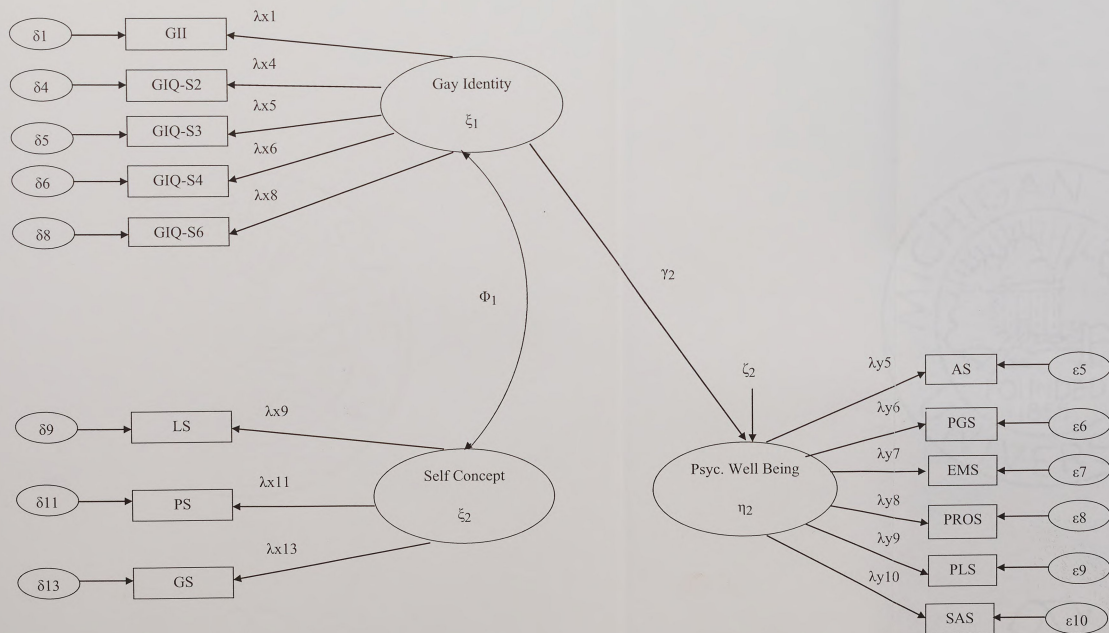
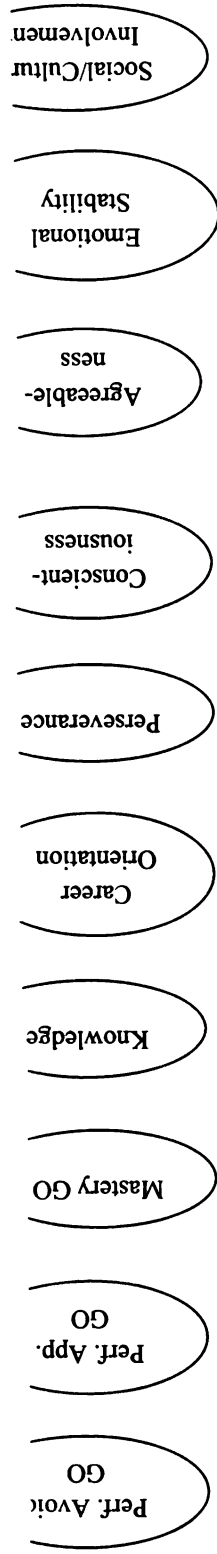
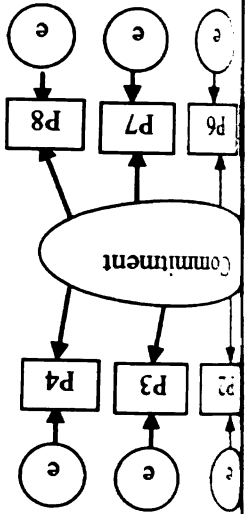


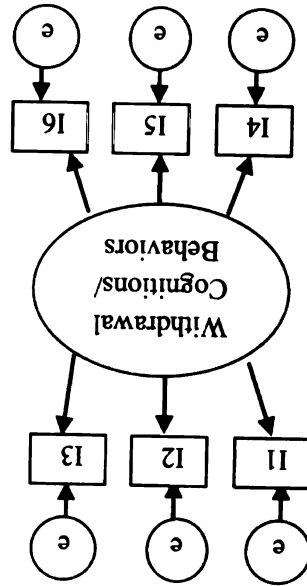
Figure 11. Full Model: Modified Model VI

Figure 2 Cont





GPA



Withdrawal

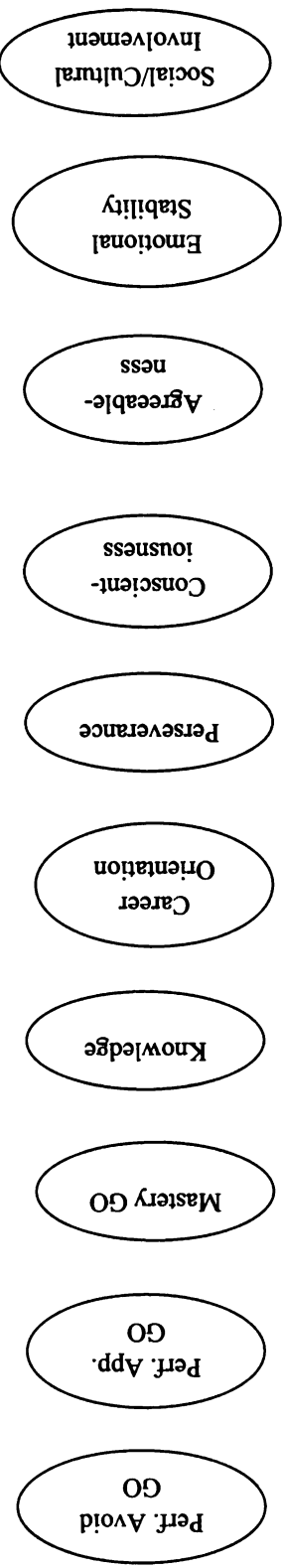
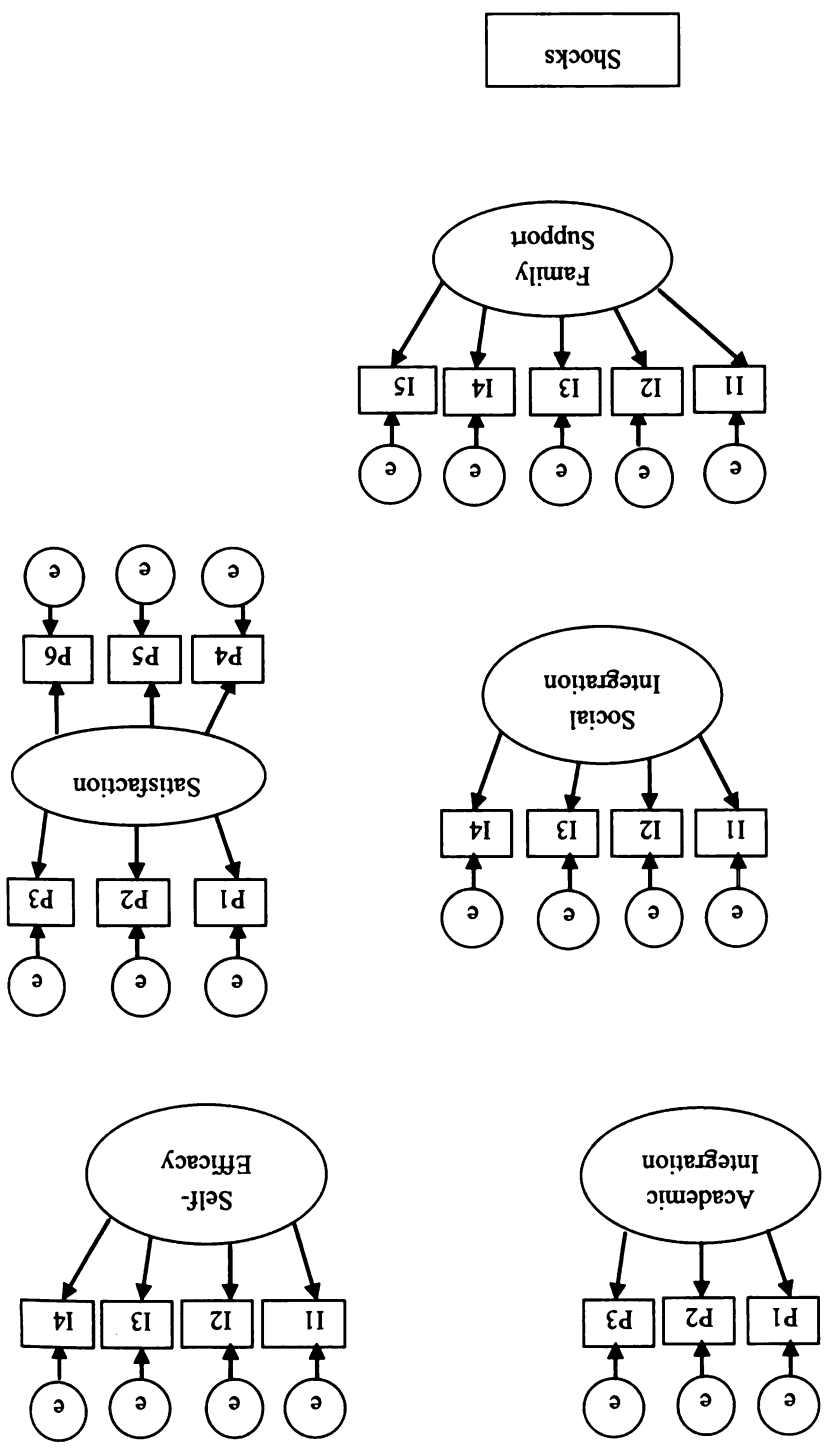


Figure 2 Continued.



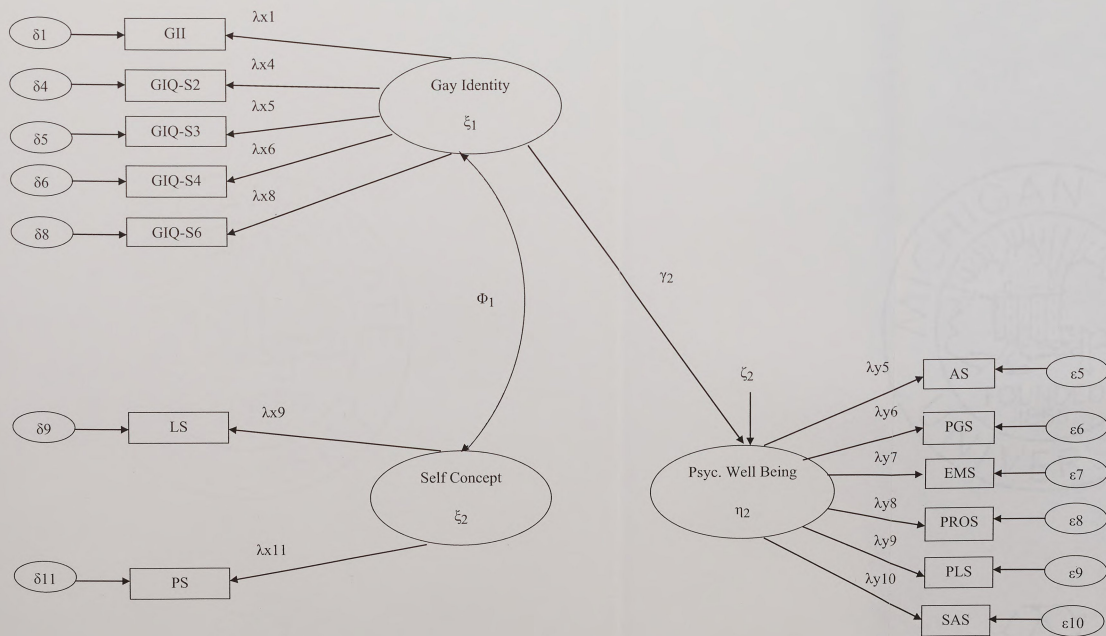


Figure 12. Full Model: Modified Model VII



Figure 4

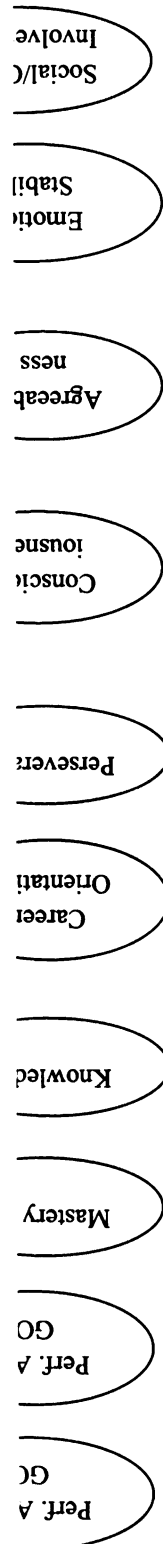


Figure 5. Sta

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Figure 6. Sta

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