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ACHIEVEMENT MOTIVATION, INTERNAL LOCUS OF CONTROL, GOAL ORIENTATION, AND ACADEMIC SELF-EFFICACY AS OUTCOME MEASURES FOR A COURSE DESIGNED TO POSITIVELY AFFECT STUDENT ACADEMIC PERFORMANCE

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SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

Doctor of Philosophy

By

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A DISSERTATION APPROVED FOR THE
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

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Table of Contents

List of Tables……. vii

Abstract…….. viii

Introduction……1

Method..……. 14

Results…….....26

Discussion……..30

References……..39

Tables…….46

Appendix A: Rotter's Locus of Control Scale…….....51

Appendix B: Academic Self-efficacy Scale…….. 56

Appendix C: Goal Orientation Scale..…….... 57

Appendix D: Achievement Motivation Scale……... 58

Appendix E: Pre-Course Questionnaire.…….....59

Appendix F: Post-Course Questionnaire…….. 64

Appendix G: Academic and Social Integration Questions……... 66

Appendix H: Student Feedback Form…….……...70

Appendix I: Prospectus…….72

List of Tables

Table 1 Correlations Between Academic and Social Integration …… 46

Table 2 Summary of Paired-Samples *t*-tests Results …….. 47

Table 3 . Sequential Logistic Regression Analysis:
Variables Predicting Course Grade of C or Higher . …… 48

Table 4 Correlations Between Pre-test Variables …….. 49

Table 5 Hierarchal Multiple Regression:
Variables Predicting Semester Grade Point Average…… 50

Abstract

This study attempted to expand our understanding of possible psychosocial predictive measures of student success and the effectiveness psychosocial outcome measures of an intervention course designed to assist at-risk students in becoming academically successful. Participants were from a large, southwest university and included traditional college age students who had been placed on academic probation by the university the previous semester. Based on Bandura's (1997) social cognitive theory, Deci and Ryan's (1991) self-determination theory and Tinto's (1975) model of student persistence, the study first compared pre- and post-test measures of achievement motivation, internal locus of control, academic self-efficacy, goal orientation, and academic and social integration. Paired-samples t-tests were used to analyze the data. The study also analyzed these measures for their predictive value of successful course and semester completion, using both logistical and multiple regression analyses. Outcomes were considered for program development and enhancement.

Introduction

Researchers, faculty, and administrators in higher education have attempted for years to fit the many pieces of the puzzle together regarding college student persistence and academic success. Throughout the literature on student retention, multiple social and psychological factors affecting academic success have been cited. Research in the field of higher education began to catch fire in the mid- to late-1970's with Tinto (1975), Pascarella (1980), and Astin (1984) gradually building on one another's theory in developing models of student attrition, attempting to understand the conundrum of why some students persist in college, while others withdraw. Tinto and Pascarella uncovered varied interactions between students' goals, expectations, and commitments to higher education that they believe would indirectly affect student persistence through the impact these factors had on academic and social integration into the institution. In contrast, Astin's (1984, 1993) theory focused more directly on student involvement, believing that the quality and quantity of time and energy students invest in their college experience is directly related to positive outcomes. He specified that this investment includes both time spent with other students and time spent connecting with faculty. Impacted by Astin's research, Pascarella (1985) later expanded his model to include the quality of effort that students expend in their interactions with the college environment.

However, there are limitations and missing pieces to these theories. Tinto's (1975) model focused on the impact of background factors, as well as the impact of social and academic integration into the university environment, in

understanding why some students succeed while others do not. "Other things being equal, the greater the individual's level of social and academic integration, the greater his or her subsequent commitment to the institution" and to degree completion (Pascarella & Terenzini, 1983, p. 215). It is the "other things being equal" that raises issues when applying the model. It would appear that "other things" are not equal in individual students' lives, and these are the factors that may complicate individual students' academic performance and ability to succeed.

In fact, researchers have acknowledged the possibility that alternative explanations may exist and that at least some variables that are not accounted for in Tinto's model may be important determinants of academic success when students are faced with academic challenges. Pascarella and Terenzini (1983) stated that "perhaps a major portion of persistence/withdrawal behavior is idiosyncratic, in terms of external circumstances and personal propensities, that it is difficult to capture in any rational explanatory model" (p. 99). Building on the research regarding student persistence, the current study incorporated Bandura's (1997) concepts of social cognitive theory and Deci and Ryan's (1991) self-determination theory, attempting to fill in missing pieces to the puzzle of why some students fail academically, while others succeed.

This study specifically looks at the impact of an intervention course that extends over a full semester on the development and enhancement of students' academic self-efficacy, achievement motivation, goal orientation, and locus of control. These constructs have been selected based on the research discussed

below, as well as the manner in which the curriculum of the course intervention in this study focuses on the development of these constructs.

Creating Interventions to Account for the Missing Pieces

College administrators and faculty at both two- and four-year institutions have attempted various programs for several decades to improve student success rates and increase student retention. Programs have ranged from study-skills workshops to extensive multi-day orientation programs, attempting to prepare new or at-risk students for the challenges of the college curriculum and lifestyle. Kulik, Kulik, and Schwalb (1983) completed a meta-analysis on studies of programs created to support students having academic difficulties. In general, they found an increase in academic performance and retention among students who participate in programs relative to students who do not participate in the programs. Research on community college students has demonstrated the cost-effectiveness of targeting students for early academic intervention. This finding may have been due to the large number of students who experienced negative academic outcomes and appeared to be less able to identify with academics than successful students (Osborne, 1997). Thus, increasing this level of academic identity, which is part of the focus of the courses, appears to contribute to their success.

Based on the review of research previously discussed, curricula for these courses may have also increased success rates by assisting students in identifying social, psychosocial, and psychological factors that may have impacted their personal success. Colquitt, LePine, and Noe (2000) completed a meta-analysis that emphasized the importance of studying the effects of tailored interventions for

students to promote the development of non-cognitive predictors. The research calls for college personnel to develop tailored interventions that identify specific barriers for individual students and engage the student in actively working through these barriers. One way to do this is reported by Hirsch (2001) who found the most effective approach for helping students is encouraging them to develop a genuinely warm and empathic relationship with a professor or mentor who in turn helps the students use more cognitively and behaviorally structured interventions to invoke insight into the causes of academic difficulties.

Constructs, Implications, and Integration in the Course

The intervention course examined in the present study is a two-credit-hour course that is required for students who have been placed on academic probation. The course curriculum followed the book, *On Course: Strategies for Creating Success in College and in Life* (4th edition), by Skip Downing (2005). Topics of the course included personal responsibility, discovering motivating purposes, planning and taking effective actions, building mutually supportive relationships, gaining heightened self-awareness, becoming life-long learners, developing emotional maturity, and believing in one's self. The curriculum addressed the four constructs that were the focus of the study (i.e., locus of control, achievement motivation, goal orientation, and academic self-efficacy) in subtle, but distinct ways. Students attended a lecture course once a week, but also attended smaller discussion groups of approximately fifteen to twenty students once a week to process the information from the lecture on a more personal level. The discussion groups were led by individuals with various backgrounds, some of which included

previous experience in leading group processes. All of the discussion leaders received some training in group facilitation and were provided with a set curriculum for each session.

Locus of control. In this study, the researcher focused on internal locus of control, defined as individuals' perceived control over their own performance, in contrast to external locus of control, defined as the perceived control of environmental, interpersonal, or other external factors over individuals' performance. A primary theme throughout the book and the course was that of "adopting a creator role," which incorporated the constructs of locus of control and self-efficacy through the language of "self-responsibility," imbedding Deci and Ryan's (1991) self-determinism theory in the curriculum. The text provided vignettes of students blaming stringent grading or other external factors on not passing, rather than acknowledging their own responsibility for not studying or not doing the work. Downing (2005) described *Creators* as individuals who "change their beliefs and behaviors to create the best results they can," while *Victims* are individuals who "keep doing what they've been doing even when it doesn't work" (p. 27). He stated that "adopting a Creator role" means "believing that you always have a way to improve your present situation" and that this belief could "motivate you to look for it and by looking you'll often discover options you would never have found otherwise" (p. 28). The concepts of Creators and Victims paralleled the construct of locus of control, as well as implying a need for self-efficacy in believing students are capable of actively changing their world.

Academic self-efficacy. This study's definition of academic self-efficacy was a belief in one's ability to succeed academically given the constraints within the context, not a measurement of the perceived control or impact of the external factors. Zimmerman (2000) demonstrated that teaching strategies like the one in this course can impact change in the way students think about their abilities. Additionally, self-efficacy beliefs have been found to be sensitive to subtle interventions that change the educational context for the student, acting as a mediator for academic achievement. By measuring pre- and post-course levels of academic self-efficacy, the researcher hoped that these findings could be duplicated, demonstrating the curriculum as a means to impact positive change in academic self-efficacy beliefs.

The message of believing in yourself was given throughout Downing's (2005) book, making self-efficacy beliefs a primary theme throughout the course. In defining and discussing self-esteem in the book, it incorporated self-efficacy and self-concept into the definition. Self-efficacy was also approached more directly in the discussions about "flow states," when referencing the work of Csikszentmihalyi (1990). Downing (2005) found the key to developing flow in the interaction between the challenge presented to students and the related skills they believe they possess, thus making students' experiences relevant only to what they believe to be true. This description of "flow" related directly to this study's definition of academic self-efficacy. The curriculum also offered strategies for enhancing self-efficacy beliefs by visualizing purposeful actions, creating a success identity, and celebrating success and talents.

Goal orientation. Goal orientation was considered dichotomous in this study and throughout the literature, consisting of both mastery and performance orientations. Mastery goal orientation was defined in the study as the development of goals that are personally directed based on the student's own dreams, interests, and aspirations. Performance goal orientation was characterized by goals that are developed based on rewards or the desire to gain acceptance or approval from significant others in the student's life. These are further delineated by considering whether the goals are driven either by avoidance of negative consequences or the desire to seek or approach positive consequences or outcomes.

Research by Bandura and Schunk (1981) found that completion of proximal, short-term goals, that seem to be a reflection of the "action list" utilized in this course's curriculum, provide students with evidence of growing capability, and thus work to boost self-efficacy beliefs. Schunk (1985) later suggested that students who were verbally encouraged to set goals demonstrate enhanced commitment to attaining the goals, which in turn positively impact self-efficacy beliefs and academic achievement. The course curriculum drew connections between self-efficacy and goal setting by helping students understand how goals can direct and motivate action, which in turn can lead to successful academic experiences. The course challenged students to develop both proximal and long-term goals, as well as creating "next action lists" that help the students keep on track with their goals (Downing, 2005). Through lecture and text content, the program educated students on how to create effective goals that are their own (mastery orientation), contributing to their personal dreams, and not for the

purposes of external rewards or recognitions from family or influential sources (performance orientation). The focus on developing goals that reflect the students' personal dreams seemed directly related to the construct of mastery goal orientation, as defined in this study. Greene and Miller (1996) reported that interventions like these enhance academic achievement, suggesting that goal orientation and self-efficacy be focused on in developing interventions.

Achievement motivation. Due to the inherent difficulty of measuring motivation from an internal perspective, engagement was used as an external, behavioral indicator by which achievement motivation was measured in this study, defined as the combination of effort toward educational tasks plus value attributed to educational tasks.

Weinstein and Mayer (1986) found interventions that involved meaningful (i.e., elaborate) processing enhanced students' abilities to integrate new information with existing knowledge, creating clearer understandings of themselves and the world around them (as cited by Greene et al., 2004). Achievement motivation was thus approached in both subtle and direct ways throughout the curriculum. The course lectures and small group discussions incorporated opportunities for processing the content of the course and applying it to the students' personal circumstances. The discussion that occurred throughout the course allowed students the opportunity to think through the content and challenges them to apply the strategies to their own lives in meaningful ways.

One quote in the text under the heading, "Student Wisdom," stated, "When I set goals that mean something to me, I feel my energy go up" (Downing, 2005, p.

180). This implied a connection between setting mastery-oriented goals and motivation to achieve academically. The text suggested that students use visualizations to see themselves in their ideal career as a means of remaining motivated as they "encounter delays and disappointments on the path" to their goal (p. 66). This again suggested that personal, intrinsically motivated goals impact motivation, better than simply looking toward external rewards like a degree or a job. Through this application, it seemed that students were presented with the opportunity to enhance the study's primary constructs, leading to increased possibility in future academic and vocational success.

Academic and social integration. Although the focus of the study was on the primary psychosocial measures described above, it seemed necessary to account for academic and social integration with this population, based on Tinto's (1975) model. One goal of intervention courses has been to help students create a connection to the institution. Strage (1999) identified a link between students' ability to persist and their comfort level in the environment, particularly in the face of challenge; therefore, making the focus on enhancing integration into the institutional environment a priority in helping students become successful. Tiedman (1967) stated that the transition for students from their pre-collegiate identity to the collegiate experience requires students to have knowledge of the collegiate environment and expectations. The process entailed both the student seeking the information and the institution providing ample opportunity for the student to be exposed to the information. This suggested these courses should include general orientation information regarding the institution, policies and

procedures, support services, and student activities, all of which assist the student in adapting to the new environment, taking advantage of all the campus has to offer, and developing an academic aspect to their identity.

Purpose of this Study

The motivation for this study was grounded in a desire to expand the understanding of possible psychosocial predictive measures of student success and the effectiveness of an intervention course designed to assist at-risk students in becoming academically successful. The participating public institution was one of few across the nation that requires students who have been placed on academic probation to complete an intervention course in order to continue taking classes at the institution. In an attempt to integrate Bandura's (1997) social cognitive theory and Deci and Ryan's (1991) research on self-determination theory with Tinto's (1975) theory, the study evaluated changes in four primary psychosocial constructs over the duration of the course: locus of control, achievement motivation, goal orientation, and academic self-efficacy. The study also explored the possibility that these constructs may be predictive measures of successful completion of the course intervention and the semester overall. The goal of the study was to continue to develop and enhance both assessments and interventions to further increase retention and degree completion rates at colleges and universities.

Predicted Outcomes and Hypotheses

It was predicted that the course intervention would create significant positive changes in the primary psychosocial constructs from the pre- to post-test measures, while accounting for academic and social integration based on Tinto's

model of student attrition. This included increased levels of academic self-efficacy, achievement motivation, and internal locus of control. With regard to goal orientation, the scores for mastery- and performance goal orientations were separated. Therefore, for the purposes of this study, a positive impact was indicated by a significant increase in mastery or performance goal orientation. Data were analyzed using paired-samples *t*-tests for each of the constructs. A Bonferroni adjustment procedure, as suggested by Stevens (2002), was used to control for Type I error (i.e., the false rejection of the null) when using multiple independent *t*-tests. Working from an original alpha = .05, this required $p < .007$ for significant change to be identified.

Hypothesis 1: There would be significant positive changes in each of the four primary constructs from pre- to post-test measures, specifically indicated by:

a. significant positive change in the level of academic self-efficacy in comparing pre- and post-test scores.

b. significant positive change in the level of achievement motivation in comparing pre- and post-test scores.

c. significant positive change in the internal locus of control in comparing pre- and post-test scores.

d. significant positive change in mastery goal-orientation in comparing pre- and post-test scores.

e. significant positive change in performance goal-orientation in comparing pre- and post-test scores.

A second set of hypotheses investigated the predictive value of the constructs by comparing pre-test scores to successful completion of the course and improvement of overall grade point average at the end of the semester. Successful completion of the course was indicated by using a sequential, logistic regression analysis, accounting for the confounding academic and social integration measures first, and then analyzing the predictive value of the four primary psychosocial constructs. It was believed that students with significantly higher pre-test scores on academic self-efficacy, achievement motivation, internal locus of control, and mastery and performance goal orientations would be more likely to successfully complete the course with a grade of C or higher. A hierarchical multiple regression analysis was used to address whether students with higher levels of the variables were more likely to complete the semester with a grade point average higher than 2.0, compared to students with lower scores on the four psychosocial measures. University policy at the participating institution placed students on academic probation if their grade point average fell below a 2.0 and students were then required to complete the course intervention to resume enrollment at the university. Thus, a grade point average higher than 2.0 at the end of the semester indicated improvement in the students' academic achievement.

Hypothesis 2a: The pre-test scores on the four primary constructs will significantly predict successful completion of the course (i.e., a grade of C or higher), after accounting for the effects of academic and social integration.

a. Academic self-efficacy pre-test scores would significantly predict successful completion of the course.

b. Achievement motivation pre-test scores would significantly predict successful completion of the course.

c. Internal locus of control pre-test scores would significantly predict successful completion of the course.

d. Mastery goal-orientation pre-test scores would significantly predict successful completion of the course.

e. Performance goal-orientation pre-test scores would significantly predict successful completion of the course.

Hypothesis 2b: The pre-test scores on the four primary constructs will significantly predict successful completion of the semester (i.e., a grade point average above a 2.0), after accounting for the effects of academic and social integration.

a. Academic self-efficacy pre-test scores would significantly predict successful completion of the semester.

b. Achievement motivation pre-test scores would significantly predict successful completion of the semester.

c. Internal locus of control pre-test scores would significantly predict successful completion of the semester.

d. Mastery goal-orientation pre-test scores would significantly predict successful completion of the semester.

e. Performance goal-orientation pre-test scores would significantly predict successful completion of the semester.

Method

This study intended to measure the effectiveness of a course at the university level designed to enhance student academic success, particularly targeting students who had been placed on academic probation. The constructs examined were locus of control, academic motivation, goal orientation, and academic self-efficacy. These constructs appeared to be identifiable risk-factors for withdrawal or academic failure, based on previous research, and thus the theoretical overlap with the concepts of persistence and attrition. The curriculum was designed for students who feel detached from academia or who question their ability to succeed in a collegiate setting, based on concerns regarding their own ability, competence, and control in the environment. The study attempted to account for changes in academic and social integration while still focusing on the psychosocial constructs of interest. The four primary constructs represented important psychosocial issues of students at risk for withdrawal or academic failure, and allowed for possible measurement of the effectiveness of a course designed to develop these constructs and enhance student success.

The study was causal-comparative in nature, attempting to identify a change in measures after the course had been completed as the intervention applied to the participants. The study also attempted to identify the predictive nature of the four psychosocial constructs in successful completion of the course and improvement of grade point average for this population.

Participants

The selection of participants for the study was purposive in order to evaluate the outcomes of a specific university course intervention on the students enrolled in the course. The course was offered at a large public university in a small, southwestern city during the spring semester of 2007. Students enrolled in the course had recently been placed on academic probation, due to a cumulative grade point average below a 2.0, and were required to take the course to continue enrollment at the university. The course extended over a full sixteen-week semester and consisted of a one-hour lecture once a week and a one-hour discussion group once a week. There were approximately 325 students enrolled in the course at the beginning of the semester. Of these students, 234 participants completed the study's pre-test and 182 completed the post-test. A total of 144 complete data sets (i.e., matching data on pre- and post-tests) were collected.

Of the 234 participants who completed the pre-test, 137 were male and 97 were female. The mean age was 18.7, with a range from 18 – 26 years old. All participants reported their marital status as single with no children. The participants were mostly Caucasian (70.9%), with the remaining consisting of 7.3% African American, 6.4% American Indian, 4.7% Asian American, 3.4 % Hispanic/Latino, and 1.7% indicating an ethnicity other than those listed above. The remaining participants (4.7%) reported being multiracial or multiethnic. Only 3.4% of the participants reported a language other than English as their primary language.

From the employment and financial information requested of participants, 35.5% of the participants reported working part-time, 2.2% reported working full-time, and 62.3% of participants reported not working while enrolled in college. Financial support by a family member was reported by 76.1% of the participants. Parental education level was primarily bimodal with 27.4% reporting the highest education level for either parent being a high school diploma, while another 27.8% reported a Bachelor's degree. Other levels of parent education were reported as follows: 2.1% did not complete high school, 3.8% had completed a GED, 11.1% had completed an Associate's degree, 17.5% had completed a Master's degree, and 10.3% had completed a Doctoral level degree.

Based on the focus of academic performance, participants were also asked to report academic history information. All but one of the participants reported graduating from high school with a diploma versus a GED. The mean for self-reported high school grade point average for the participants was 3.46, ranging from 2.2 to 4.12. Ninety-eight percent of the participants reported that they had first enrolled in college immediately following high school graduation. Only 3% of participants reported transferring from another institution. Just under 7% reported being required to take at least one developmental-level course upon initial enrollment in college.

Measures

Instrumentation for the study was drawn from the literature regarding the four constructs of achievement motivation, goal orientation, academic self-efficacy, and locus of control, as well as for the constructs of academic and social

integration. The demographics questionnaire was developed by the researcher based on the information desired by various stakeholders, including the researcher and the faculty and staff of the institution where the course was offered.

Internal locus of control. To measure the construct of locus of control, the instrument developed by Rotter (1966) was utilized to indicate the generalized expectations of internal versus external control over performance. Internal control was defined as individuals' perceived control over their own performance, whereas external control was defined as the perceived control of environmental, interpersonal, or other external factors over individuals' performance. The final version of Rotter's instrument had 29 items and was a forced-choice questionnaire. There were six irrelevant items included in the instrument to assist with making the purpose of the assessment more ambiguous (Rotter). The instrument was normed on undergraduate college students, although the wording on some items in the final version was adjusted to make the inventory more applicable to non-college adults and upper level high school students (Rotter). The instrument was scored by counting the total number of internally focused items selected by the individual. Rotter developed the items to focus exclusively on an individual's general beliefs about the fundamental nature of the world, attempting to tap the participant's expectations about control over the various events in his or her life. The assessment was therefore focused on the participant's generalized expectance in regard to daily events and interpersonal interactions. There were no questions that directly addressed internal or external control (Rotter).

Internal consistency results for the instrument were reported as "relatively stable," with Kuder-Richardson correlations ranging from .65 to .79 (Franklin, 1963, as cited by Rotter, 1966; Rotter, 1966). Rotter commented that due to the items not being comparable or additive on the instrument, the split-half or matched-half reliability tended to underestimate the internal consistency. He also noted the limitations of the Kuder-Richardson reliabilities due to the forced-choice scale. Test-retest reliability appeared consistent at one month on two differing samples, ranging from .60 to .83 (Rotter). In the current study, the Cronbach alpha coefficient was .74.

Rotter (1966) and Franklin (1963) both completed factor analyses on the instrument and found similar results, indicating a single general factor that accounted for approximately 53% of the variance in both analyses (as cited by Rotter). Rotter reported that the test demonstrates reasonable homogeneity or internal consistency. He also reported that the significant evidence of construct validity was provided by a series of studies that looked at the connection between locus of control and predicted differences in behavior. These results demonstrated that an individual with strong beliefs in his ability to control the outcomes of his performance would be more alert to his environment, take action to improve his environment, value achievement reinforcements more highly, and demonstrate greater resistance to attempts to influence him (Rotter).

Academic self-efficacy. To measure the construct of academic self-efficacy, the instrument developed by Tschannen-Moran, Woolfolk-Hoy, and Hoy (1998) was utilized in a modified version. These researchers studied the

relationship between teacher self-efficacy and student achievement, demonstrating that students in courses taught by teachers with high self-efficacy tended to be more academically successful than students taught by teachers with lower self-efficacy. Based on the psychological theories of Rotter (1966) and Bandura (1997), self-efficacy was measured in two parts, competence and contingency. The instrument measured competence by assessing the self-perceptions of the teacher, reviewing individuals' strengths and characteristics (i.e., skills, knowledge, strategies, personality traits) and comparing these with personal weaknesses in a particular teaching context (Tschannen-Moran, Woolfolk-Hoy, & Hoy, p. 228). In accordance with Bandura, Tschannen-Moran, Woolfolk-Hoy, and Hoy named this Personal Teaching Efficacy (PTE).

The measurement of contingency was assessed by identifying and assessing the importance of factors that may inhibit the facilitation of learning in some way. The sub-construct inferred the level of difficulty in overcoming these factors to be successful, and was named General Teacher Efficacy (GTE; Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). Contingency in this case needed to be differentiated from the concept of locus of control. The ability of a teacher to be effective within a given context was not defined in the same way as the teacher's perceived locus of control. Instead, it indicated a measure of belief in one's ability to be effective given the constraints within the context, not a measurement of the perceived control or impact of the external factors.

Based on previous research studies (Gibson & Dembo, 1984; Soodak & Podell, 1993; Woolfolk & Hoy, 1990), Hoy and Woolfolk (1993) developed an

abbreviated version of the self-efficacy measurement that was the original version of the one used in this study with ten items, five that measure PTE and five that measure GTE. Reliability was found for both sub-constructs to be within the range found for the full-length version (alpha = .77 for PTE, .72 for GTE). The questions for the current study were modified to read from a student perspective, based on the work of Hardré, Ge, and Thomas (2007). In the current study, the Cronbach alpha coefficient was .78.

Mastery versus performance goal orientation. To measure the construct of goal orientation, the five mastery goal questions and three approach-oriented performance goal questions were taken from an instrument utilized by Greene, Miller, Crowson, Duke, and Akey (2004). Greene and colleagues reported modifying a survey developed and validated by Miller**,** Greene, Montalvo, Ravindran, and Nicholls (1996). Greene et al. found a Cronbach *alpha* reliability coefficient of .86 for mastery goals and .76 for performance goals, sufficiently high values to demonstrate evidence of internal consistency of the measures. The questions for mastery and performance goals were found to be correlated with a Pearson product-moment correlation value of .33, significant at $p < .01$. In the current study, the Cronbach alpha coefficients for mastery goals and approach-oriented performance goals were .80 and .81, respectively.

Achievement motivation. To measure the construct of achievement motivation, a seven-item instrument was used to measure students' perceptions of their own effort toward the course and the value placed on learning and school-related activity. The instrument was taken from the research by Reeve and

Sickenius (1994) and Hardré and Reeve (2003), and was anchored in the theory of self-determination with the combination of effort and value creating the level of engagement of an individual in a task. Engagement was thus defined as the external, behavioral indicator by which achievement motivation was measured in this study.

Hardré and Reeve (2003) found the measurement of perceived value to be internally consistent (*alpha* = .80) and significantly correlated with scores from Ryan Connell, and Grolnick's (1992) Academic Self-Regulation Questionnaire's (ASRQ) identified regulation scale ($r = .69$, $p < .01$). The ASRQ was noted by Deci, Vallerand, Pelletier, and Ryan (1991) to be one of the most relevant scales to the construct of motivation in education. In the current study, the Cronbach alpha coefficient was .78.

Academic and social integration. The study also explored the confounding nature of academic and social integration on the four primary psychosocial constructs, based on Tinto's (1975) model of student attrition. Nora (1993) suggested that academic integration was associated with the strength of students' affiliation with the academic environment of an institution. Academic integration was determined by combining measures of intent to persist, academic connection to the institution, and connection to faculty variables. Refer to Table 1 for correlations. In this study, the Cronbach alpha coefficient for the academic integration questions was .81.

Intent to leave college has been found to be the strongest single predictor of attrition (Bean, 1982; Bean & Metzner, 1985). Based on previous research and the

need to have positively directed variables, the researcher utilized the opposite concept and called the variable *intent to persist*. Intent to persist included intent to graduate from the institution (versus intent to transfer), time spent studying, declaration of a major, and expectancy to graduate. These components of intent to persist were drawn from the National Survey of Student Engagement's 2005 Annual Report as factors that contribute to students' persistence in college.

Connections to faculty and institution have also been strongly supported in the research as contributing to academic integration. Items to measure these relationships were drawn from Lotkowski, Robbins, and Noeth's (2004) research regarding the role for academic and non-academic factors in affecting college retention. Some specific items were taken from the research of Whitt, Pascarella, Elkins-Nesheim, Marth, and Pierson (2003) in regard to supportive relationships with faculty and feelings of connection to the institution overall. Items assessed specifically students' connection to the specific institution, rather than a general level of commitment to higher education, based on these constructs being differentiated throughout the literature.

Social integration was determined by combining connection to peers and perception of safety variables. In this study, the Cronbach alpha coefficient for the social integration questions was .70. In attempting to measure connection to peers, items were taken from Whitt, Edison, Pascarella, Nora, and Terenzini (1999), who created a questionnaire that measured peer interactions in both course-related (*alpha* = .79) and non-course-related issues (*alpha* = .84). Additional items were incorporated from the National Survey of Student Engagement 2005 Annual

Report, which found student engagement in academic activity a primary factor in measuring student persistence and completion. Whitt et al. also suggested that students' locations of residence while in college (i.e., residence halls, fraternity or sorority houses, off-campus apartments) also contributed to feelings of connection to peers in the college environment. Thus, an item regarding housing arrangement was also included in the measurement of connection to peers.

Safety concerns were included as an aspect of social integration, due to research by Pascarella et al. (1997) suggesting that the perception of negative attitudes of peers or others toward women in the form of prejudice, discrimination, or aggressive action had significant negative effects on cognitive outcomes for female students. Other research on minority students also suggested safety and security needs as a priority for successful academic outcomes. Specific items were taken from Whitt et al. (2003) regarding safety and security issues of students.

Criterion variables for Hypothesis II. The criterion variables consisted of two categories of academic performance, based on the institution's policy of academic standing. At this particular institution, students who received a 2.0 or lower grade point average during their first semester were placed on academic probation, thus the cut-off point for the groups. The hierarchical multiple regression used grade point average as a continuous criterion variable, measuring successful completion of the semester as receiving above a 2.0 semester grade point average. Whereas, the logistical regression analysis tested whether the predictor variables could significantly predict successful completion (i.e., a grade

of C or higher) and unsuccessful completion of the course (i.e., a grade of D, F, or W).

Procedure

Permission was granted by the course instructor and appropriate division administrators to approach the students and request participation in the project. With this permission granted, approval was then given by the Institutional Review Board at the university where the program exists.

The course instructor asked that the researcher request participation at the beginning of the second class period, due to the instructor having a lengthy agenda of material to cover in the first class period. The primary researcher attended the beginning of the second class period, verbally provided the entire class with information about the study along with reviewing a written copy of the consent form, and requested voluntary participation from the students. The instructor included participation in the study as one of several ways to obtain extra credit in the course.

Students who chose to participate read and signed the informed consent form, submitted it to the primary researcher, and were then given an assessment packet. To protect the confidentiality of participants, but to also provide for the matching of pre- and post-test scores, the assessment packets had a cover page on which the participants provided their first and last names. This information was used by the researcher to code the packets and was then destroyed. This cover sheet also allowed the researcher to provide a list of the participants' names to the course instructor for the purposes of receiving extra credit. This procedure was

explained in the consent form and agreed to by the participants. Once they completed the packet, they returned it to the researcher. This procedure occurred during the first twenty minutes of the second class period and prior to any of the actual course material being presented to students.

Assessment packets were scored by the researcher and feedback sheets were completed and returned to the participants at the next class period. The feedback form has been included in Appendix H. It provided information to the students regarding their scores on each of the constructs and an explanation of the constructs. The course instructor and assistant dean overseeing the program requested that this be a part of the project's procedure, hoping that the personal information might assist the participants in getting more out of the course intervention. Despite efforts by the researcher, some participants did not receive their feedback forms, due to those students not regularly attending class. The researcher maintained as a part of the data information whether the feedback form was received by each individual participant. Although this information was not directly related to the primary research questions, it was used in post hoc analyses to see if a difference existed between the group that received feedback and the group that did not.

The researcher returned to the class at the sixteenth class session, one week prior to the final, and requested post-test participation from the students at the end of that class period. Informed consent was reviewed with written copies provided and signed again by participants prior to completing post-test assessment packets. Because participants received extra credit points for completing the post-test

assessment packet, any student was allowed to complete the post-test packet, regardless of whether they participated in the pre-test assessment. However, those post-test scores of participants who did not complete the pre-test assessments were not used in reporting the results. The researcher provided a list of participants to the course instructor so that extra credit could be provided to students who completed the assessment.

Results

Hypothesis I

The first hypothesis predicted significant positive change in the psychosocial constructs from pre- to post-test. A paired-samples *t*-test was conducted for each variable, including the four primary psychosocial constructs, as well as both academic and social integration. A Bonferroni adjustment for an *alpha* = .05 required the $p < .007$ for the individual *t*-tests to be considered significant, as suggested by Stevens (2002) to control for Type I error (i.e., the false rejection of the null) when using multiple independent *t*-tests. A calculation of *eta* squared for effect size was also completed on each of the *t*-tests. Table 2 details the results for each construct.

A statistically significant increase was found in participants' levels of academic integration from pre-test (M = 102.5, SD = 14.2) to post-test (M = 106.4, SD = 15.9, $t\ (143) = -4.05$, $p < .001$). The *eta* squared statistic (.10) indicated a moderate effect size, based on guidelines suggested by Cohen (1988). Achievement motivation (e.g., engagement) [$M_{pre} = 33.1$, $M_{pst} = 31.8$, $SD_{pre} = 6.97$, $SD_{pst} = 7.05$, $t\ (145) = 2.684$, $p = .008$] and academic self-efficacy [$M_{pre} =$

38.7, M_{pst} = 36.9, SD_{pre} = 6.36, SD_{pst} = 6.68, t (133) = 3.131, p = .002] also demonstrated significant change from pre- to post-test; however, not in the predicted positive direction. Refer to Table 2 for results on each of the paired-samples *t*-tests.

Hypothesis II

For the second set of hypotheses, the four primary psychosocial constructs were used to predict successful completion of the course (e.g., indicated by a grade of C or higher) and to predict successful completion of the semester (e.g., indicated by a grade point average), and were analyzed by using sequential logistic regression and hierarchical multiple regression, respectively.

Sequential logistic regression was used to analyze whether the constructs predicted students would receive a grade of C or higher in the course, and account for academic and social integration. In the first sequence, academic integration and social integration were entered. Two hundred and thirty cases were included in the analysis, excluding 4 missing cases. The categorical dependent variable differentiated between a grade of A, B, or C (e.g., indicated as 1) and a grade of D, F, or a withdrawal (e.g., indicated as 0). The Omnibus Tests of Model Coefficients, one of the goodness of fit tests, indicated a good model fit on the basis of these two constructs alone, X^2 (2, N = 230) = 8.478, p = .014. The Hosmer and Lemeshow Test also supported good fit of the model both before [X^2 (8, N = 230) = 6.604, p = .580) and after [X^2 (8, N = 230) = 6.250, p = .62] the addition of the psychosocial factors using a deviance criterion. After addition of the five psychosocial predictors, X^2 (7, N=230) = 16.710, p = .019, Nagelkerke R^2 = .104,

suggesting that these five variables made a significant contribution to the model after accounting for academic and social integration. Comparisons of the models with and without the psychosocial measures demonstrated enhanced predictive ability with the addition of the psychosocial predictors, [X^2 (5, N = 230) = 8.322, p < .05]. However, the classification was somewhat unimpressive with no change in the overall classification rate before (74.3%) and after (74.3%) the addition of the psychosocial constructs to the model.

In considering the predictive value of the independent variables, the pre-test scores on social integration [Wald (1) = 5.205, p = .023, *beta* = -.054] were statistically significant in predicting the final grade, suggesting that the higher the social integration level, the less likely the student was to complete with a C or higher. Achievement motivation [Wald (1) = 3.587, p = .058, *beta* = .059] approached statistical significance in predicting the final grade in the course. Refer to Table 3 for further detail.

A hierarchical multiple regression was utilized to determine the predictive ability of the psychosocial measures in determining end-of-semester grade point average, after accounting for academic and social integration. The various assumptions of regression analysis appeared to be met. Multicollinearity of the sample was discounted due to the levels of correlation between the predictor variables being no higher than .45. Refer to Table 4 for the correlation matrix. Criterion set by Pallant (2005) regarding Tolerance (ranging from .792 to .956) and Variance Inflation Factor (ranging from 1.047 to 1.262) scores were checked, also discounting the existence of multicollinearity. Assumptions of normal

distribution and independence were verified as met with the use of a Normal Probability Plot and a residuals scatter plot.

When entering only academic and social integration as predictor variables, the model was not found to be predictive of end of semester grade point average [$F(2, 219) = .983$, $p = .376$, $R^2 = .01$]. However, when the psychosocial factors were added to the model, it demonstrated statistically significant predictive value [$F(7, 214) = 2.435$, $p = .020$, $R^2 = .074$], accounting for 7.4% of the variance. In exploring the contributions of individual variables, two variables appeared to make a statistically significant contribution. In order of importance, these are Motivation (e.g., engagement) [*beta* = .201, $p = .017$, CI (95) = .006, .056] and Approach Performance Goal Orientation [*beta* = .166, $p = .029$, CI (95) = .004, .065]. Refer to Table 5 for further detail.

Post-hoc Analyses

Post-hoc analyses attempted to identify any confounding variables that may have affected the results of the study. These included multivariate analyses of variance with categorical independent variables of gender, ethnicity, parental education level, and whether or not the student was receiving financial support. An analysis of employment status was also attempted, but the data violated assumptions of homogeneity of variance and therefore was not valid. Interactions between these variables based on previous findings in the literature were also investigated with multivariate analyses of variance, including interactions of gender and ethnicity, parental education level and ethnicity, employment and ethnicity, employment and financial support, and ethnicity and financial support.

To control for Type I error, Tabachnick and Fidell (2001) recommend a more stringent alpha be used, based on a Bonferonni type adjustment. Approximately 35 different post-hoc analyses were conducted, attempting to look at all possible variables that may be contributing to effects. With this number, the Bonferonni adjustment calculated an *alpha* of $p < .001$. The only significant results found in any of these analyses was an effect on the post-test scores of Approach-Performance Goal Orientation in relation to the interaction of parental education level and ethnicity: $F(2, 113) = 2.810$, $p=.001$, partial $eta^2 = .297$. However, the post-hoc Tukey HSD test indicated no significant differences in means between groups.

Multiple regressions were also utilized for the same post-hoc purposes with the continuous independent variables of self-reported high school grade point average, age, and hours reported working per week. A more stringent alpha level of $p < .001$ was also used in considering these results to avoid increased Type I error. Despite the low alpha level, self-reported high school grade point average appeared to have significant effects on post-test scores of Internal Locus of Control [*beta* = ..323, $p = .000$, CI (95) = 1.69, 5.69] and Achievement Motivation [*beta* = .265, $p = .003$, CI (95) = 1.53, 8.48]. No other significant results were found in these analyses.

Discussion

Based on the statistical analysis, it appeared that the first set of hypotheses were not supported by the data with no statistically positive change found from pre- to post-test on the primary psychosocial factors. However, a moderate,

positive effect was found in regard to academic integration, suggesting that some increase in the participants' perceptions of being academically integrated into the institution's environment occurred over the course of the semester. It is not possible to demonstrate causation at this point, thus the change cannot be directly attributed to the course intervention. However, this may be a question to be considered in future research.

Hirsch (2001) discussed a "flash point" and the importance of the timing of interventions for at-risk students. He referred to this time as the "flash point of change," the point at which the student's achievement goals do not match his or her academic performance. The distress creates motivation for the student to begin taking action. Hirsch suggested that the student "will begin to 'catch fire,' gaining insight into her difficulties and finding the motivation to act constructively to address her concerns" (p. 9). It seemed plausible that the course intervention may have impacted the students at a poignant time, creating a shift in their concepts of themselves as a part of the academic environment. Course content appeared to support the development of an academically-based component of identity by discussing successful student strategies and orienting students to the various services and supports available on campus.

There may be several reasons that significant results were not found. As for the statistically negative outcomes for achievement motivation and academic self-efficacy, speculation on the timing of the pre- and post-test assessments may also have impacted the results, due to students having unrealistic expectations for change at the beginning of the semester. Considering that 30.8 % of the

participants did not successfully complete the semester and were suspended from the university, while another 32.1% remained on some level of probationary status, it appears that students may have started the semester with feelings of being motivated and hopeful that they could improve on their previous academic performance, being given an opportunity to participate in the course intervention and continue enrollment at the university. However, as Hirsch (2001) has noted, many students can acknowledge problems with academic behaviors, but have no real idea how to implement change in these behaviors. Thus, one plausible explanation for the negative results may have been an inflated sense of motivation and self-efficacy that existed at the beginning of the semester due to the impact of being placed on probationary status, and the impending deflation of these psychosocial measures as students struggled with their own unrealistic expectations for changing behaviors. It may be helpful for the curriculum to address this discrepancy with future students as a part of acknowledging at the beginning of the course intervention the difficulties students generally have in making positive shifts in their academic behaviors. A possible direction for future research might include an exploratory qualitative study that interviewed students who did not complete the course, looking for common themes or concepts that might lead to enhancements in the intervention's ability to positively affect more students.

As for the potential of the variables to predict course completion with a C or higher and semester grade point average, it appears that the psychosocial measures did have some predictive value. Comparisons of the regression analyses

with and without the psychosocial measures demonstrated enhanced predictive ability with the addition of the psychosocial predictors, after accounting for academic and social integration effects. In considering predictive ability of the individual variables, social integration demonstrated statistically significant predictive value with an inverse relationship between social integration and receiving a grade of C or higher in the course. This may have been representative of the struggle students often have in balancing the importance of social involvement and belonging with academic goals for achievement in college.

Although the predictive value of the variables in regard to course grade was fairly weak, the predictive value in regard to semester grade point average demonstrated somewhat greater promise. With academic and social integration measures accounted for in the hierarchical regression model, the psychosocial constructs demonstrated statistically significant predictive value. These results suggested that the model could be used to predict successful completion of the course and aid in identifying students who are at higher risk of not successfully completing the semester, and thus being suspended from the university. However, the model only accounted for 7.4% of the variance, and would need further investigation to more accurately provide intervention information.

Conclusions and Suggestions for Further Program Development

As Pascarella and Terenzini (1991) have noted, understanding why some students succeed academically and others do not is a conundrum, the dynamics of which continue to exist as missing pieces of the puzzle to researchers, faculty, and administrators in higher education. However, continued research and development

of interventions such as this one may contribute to the overall understanding of students' college experiences.

In considering the possible contribution of the study's findings on the course intervention, it was important to recall that Strage (1999) identified a link between students' ability to persist and their comfort level in the environment, making the focus on enhancing integration into the institutional environment a priority in helping students become successful. A course that extends over several weeks allowed students time to become connected to the institution, as well as the opportunity and support to begin to identify with academia and the concept of being in college. Tiedman (1967) stated that the transition for students from their pre-collegiate identity to the collegiate experience requires students to have knowledge of the collegiate environment and expectations. The process entails both the student seeking the information and the institution providing ample opportunity for the student to be exposed to the information. The curriculum was designed for students who feel detached from academia or who question their ability to succeed in a collegiate setting, based on concerns regarding their own ability, competence, and control in the environment. One possible interpretation of the results suggests that the course may offer a transitional period at a vital point of change, just as the students have been confronted with poor academic performance.

Possible future areas of exploration and program development may incorporate the research of Colquitt, LePine, and Noe (2000), emphasizing the importance of studying the effects of tailored interventions for students to promote

development of non-cognitive predictors. The research called for college personnel to develop tailored interventions that would identify specific barriers for individual students and engage students in actively working through these barriers. Hirsch (2001) cited research that found the most effective approach for helping students utilized the development of a genuinely warm and empathic relationship with more cognitive and behavioral structured interventions to invoke insight into the causes of academic difficulties. Based on the results of this study in combination with previous research, it may be worthwhile to expand the program to provide more personalized interventions based on pre-test assessment scores. This might be accomplished by placing students in discussion groups based on lowered assessment scores on the various psychosocial measures. Specialized curriculum developed to address deficiencies in the various psychosocial measures might provide the individualized intervention approach that has been recommended in the research and enhance the effectiveness of the course. Colquitt, LePine, and Noe (2000) suggested college personnel develop tailored interventions that identify specific barriers for individual students and engage the student in actively working through these barriers.

It may also be helpful to consider the skill level of the discussion leaders in their ability to facilitate discussion and assist students in engaging in a deeper level of processing, applying the information in the course more specifically to themselves and their individualized circumstances. Recruiting discussion leaders with group processing experience and strong interpersonal skills could assist in students developing the genuinely warm, empathic relationships referred to by

Hirsch (2001). He suggested that these relationships can assist students in using more cognitively and behaviorally structured interventions to invoke insight into the causes of academic difficulties. Random samples of participants assigned to small groups as they currently exist versus small groups with a more psychosocial and individualized-needs focus might offer comparison measures and insights into the possible impact of more individualized course interventions.

Limitations to the Study

Limitations to the generalizability of the results exist. This study was based on the curriculum developed by a particular set of faculty at a particular institution. Despite the common elements in the curriculum of courses like this being offered at universities and colleges throughout the country, each course is slightly different and the recruitment of students for the courses is different. The expectations students had when enrolling in the course, as well as whether the course was recommended or required as a part of the academic program are all elements that may have affected the generalizability of the results.

Attempting to demonstrate causality presented another limitation to this study. Although individual characteristics (i.e., gender, ethnicity, parental education level) were accounted for, as well as factors contributing to academic and social integration, causality remained elusive and difficult to determine with certainty.

Another limitation was the lack of multiple treatment groups or a control group. Although the researcher discussed the possibility of a control group with the institution, it was not possible to identify one that would be appropriately

comparable. A control group would have allowed for further discrimination of any possible results, ruling out effects of events occurring in the lives of students or within the institution that may have impacted any changes found in the variables.

Due to limited resources, it was not possible to use a researched measure of academic and social integration. The assessments used for these variables were developed by the researcher based on Tinto's theory of student persistence, as well as studies conducted by respected researchers in the field. The low levels of correlation between the subscales on measures suggested the need for further research and development of the assessments. Although items on the measures fall into the five subscales appropriately, the measures of academic and social integration for this study were theoretically based, in combining the five subscales into the two primary variables.

It may also be important to consider the possible effects of high school grade point average and the interaction of parental education level (i.e., socio-economic status) and ethnicity in future research, considering the results found in the post-hoc analyses. High school grade point average has traditionally been used by many institutions as a criterion for admission and may have an effect on the results of this study. However, it also seems important to consider the possibility of invalid reporting, due to this study relying on self-reported data. Future research should include collecting actual high school grade point average data from transcript information, rather than relying on self-report by participants. Previous research has supported the possible effects of parental education level and ethnicity on student's rates of academic success, mainly based on theories

related to access to adequate educational preparation at the primary and secondary levels. These factors may also be important to consider in future research based on the results of the post-hoc analyses.

A final limitation was the knowledge that the primary instructor and at least one of the discussion leaders had about the constructs of the study. It would have been impossible to study this specific population without the knowledge of the instructor. However, the primary instructor and discussion group leaders were not aware of the specifics of the instruments. Since the four primary constructs were directly related to the objectives of the course, it seemed irrelevant whether the instructor would be purposefully lecturing toward creating these outcomes or simply carrying through with the objectives of the curriculum. Although this could be viewed as a bias or conflict in the study, it seemed insignificant when considering that the ultimate goal of the course was to impact student success and achievement.

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Table 1

Correlations Between Academic and Social Integration Subscales (n = 234)

Subscale	1	2	3	4	5
1. Intent to Persist	--	.112	.290	.021	-.068
2 Connection to Faculty		--	.451	.195	.036
3. Connection to Institution			--	.318	-.001
4. Connection to Peers				--	-.129
5. Safety and Security					--

Table 2

Summary of Paired-Samples *t*-tests Results

Variable Pairs (Pre- to post-test)	*N*	Mean (Pretest)	SD (Pretest)	Mean (Post-test)	SD (Post-test)	*t*	*df*	Sig. (2-tailed)	eta^2
Academic Integration	144	102.5	14.2	106.4	15.9	4.051	143	.000	.103
Social Integration	144	53.7	7.14	53.9	7.60	.398	143	.691	.001
Achievement Motivation	146	33.1	6.97	31.8	7.05	-2.68	145	.008	.048
Mastery Goal Orientation	145	29.5	4.22	29.5	4.82	.053	144	.958	.000
Performance Goal Orientation (Approach)	145	16.4	3.88	16.3	3.65	-.467	144	.641	.002
Internal Locus of Control	144	13.4	4.13	13.0	4.09	-1.47	143	.145	.015
Academic Self-efficacy	134	38.7	6.36	36.9	6.68	-3.13	133	.002	.069

Higher scores on each of the above scales indicate a higher level of the construct.

Table 3

Sequential Logistic Regression: Variables Predicting Course Grade of C or Higher (n = 230)

Variable	B	S.E.	Exp(B)
Step 1			
Academic Integration	.017	.011	1.017
Social Integration	-.061	.023	.941
Step 2			
Academic Integration	.001	.013	1.001
Social Integration	-.054	.023	.948
Achievement Motivation	.059	.031	1.061
Mastery Goal Orientation	.009	.043	1.009
Performance Goal Orientation	.037	.036	1.038
Internal Locus of Control	.019	.044	1.019
Academic Self-efficacy	-.038	.030	.962

Table 4

Correlations Between Pre-test Variables (n = 234)

Variables	1	2	3	4	5	6	7
1. Academic Integration	--	.247	.454	.355	.294	.222	.133
2. Social Integration		--	.075	.034	-.014	.053	.192
3. Achievement Motivation			--	.441	.160	.402	.195
4. Mastery Goal Orientation				--	.448	.223	.175
5. Performance Goal Orientation					--	.045	.018
6. Internal Locus of Control						--	.209
7. Academic Self-efficacy							--

Table 5

Hierarchical Multiple Regression: Variables Predicting Semester Grade Point Average (n = 234)

Variables	B	S.E.	*Beta*
Step 1			
Academic Integration	.005	.005	.071
Social Integration	-.011	.010	-.082
Step 2			
Academic Integration	-.005	.006	-.072
Social Integration	-.007	.010	-.048
Achievement Motivation	.031	.013	.201
Mastery Goal Orientation	-.008	.019	-.035
Performance Goal Orientation	.034	.016	.166
Internal Locus of Control	.019	.019	.075
Academic Self-efficacy	-.012	.011	-.075

Appendix A

Rotter's Locus Of Control Scale

Please circle either a or b for each item based on the statement with which you most agree.

1. a. Children get into trouble because their parents punish them too much.

   b. The trouble with most children nowadays is that their parents are too easy on them.

2. a. Many of the unhappy things in people's lives are partly due to bad luck.

   b. People's misfortunes result from the mistakes they make.

3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.

   b. There will always be wars, no matter how hard people try to prevent them.

4. a. In the long run people get the respect they deserve in this world.

   b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he/she tries.

5. a. The idea that teachers are unfair to students is nonsense.

   b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. a. Being an effective leader requires a great deal of good luck.

   b. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. a. No matter how hard you try some people just don't like you.

   b. People who can't get others to like them don't understand how to get along with others.

8. a. Heredity plays the major role in determining one's personality.

   b. It is our experiences in life which determine what we are like as individuals.

9. a. I have often found that what is going to happen will happen.

   b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10. a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.

    b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11. a. Becoming a success is a matter of hard work; luck has nothing to do with it.

    b. Getting a good job depends mainly on being in the right place at the right time.

12. a. The average citizen can have an influence in government decisions.

    b. This world is run by the few people in power, and there is not much the little guy can do about it.

13. a. When I make plans, I am almost certain that I can make them work.

    b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. a. There are certain people who are just no good.

    b. There is some good in everybody.

15. a. In my case getting what I want has little or nothing to do with luck.

    b. Many times we might just as well decide what to do by flipping a coin.

16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

    b. Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.

17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.

    b. By taking an active part in political and social affairs, people can control world events.

18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.

    b. There really is no such thing as "luck."

19. a. One should always be willing to admit mistakes.

    b. It is usually best to cover up one's mistakes.

20. a. It is hard to know whether or not a person really likes you.

    b. How many friends you have depends upon how nice a person you are.

21. a. In the long run the bad things that happen to us are balanced by the good ones.

    b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. a. With enough effort we can wipe out political corruption.

    b. It is difficult for people to have much control over the things politicians do in office.

23. a. Sometimes I can't understand how teachers arrive at the grades they give.

    b. There is a direct connection between how hard I study and the grades I get.

24. a. Good leaders expect people to decide for themselves what they should do.

    b. Good leaders make it clear to everyone what their jobs are.

25. a. Many times I feel that I have little influence over the things that happen to me.

    b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. a. People are lonely because they don't try to be friendly.

    b. There's not much use in trying too hard to please people; if they like you, they like you.

27. a. There is too much emphasis on athletics in high school.

    b. Team sports are an excellent way to build character.

28. a. What happens to me is my own doing.

    b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29. a. Most of the time I can't understand why politicians behave the way they do.

    b. In the long run the people are responsible for bad government on a national as well as on a local level.

Source: Rotter, 1966

Appendix B

Academic Self-efficacy Scale

Please rate each of the statements below as to how they relate to your own beliefs.

Please use the following scoring scale for each item on this page:

1	2	3	4	5	6
Strongly disagree	Moderately disagree	Disagree slightly more than agree	Agree slightly more than disagree	Moderately agree	Strongly agree

1.	The amount I can learn is primarily related to my family background.	1	2	3	4	5	6
2.	I believe I can manage most academic challenges.	1	2	3	4	5	6
3.	I am limited in what I can achieve academically because my at-home environment has a large influence on my achievement.	1	2	3	4	5	6
4.	If an assignment is especially complex, I believe I can handle the challenge.	1	2	3	4	5	6
5.	When I really try, I can complete challenging assignments most of the time.	1	2	3	4	5	6
6.	If the material in a class is especially challenging, I believe I can find ways to understand it.	1	2	3	4	5	6
7.	I can usually access strategies to solve even the most challenging assignments.	1	2	3	4	5	6
8.	When it comes right down to it, the effort I put into completing an assignment will not make a difference in how I do on the assignment.	1	2	3	4	5	6

Source: contextualized version of teaching competence scale from Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998; Hardré, Ge, & Thomas (2007).

Appendix C

Goal Orientation Scale

Please rate each of the statements below as to how they relate to your own beliefs.

	No, Not at all						Yes, Very Much
I want to improve my understanding of the ideas and/or skills.	1	2	3	4	5	6	7
I don't want others to think I'm not smart.	1	2	3	4	5	6	7
I like to understand what I study in class.	1	2	3	4	5	6	7
I want to look smart to my friends.	1	2	3	4	5	6	7
I want to learn new ideas and skills.	1	2	3	4	5	6	7
I like to get better grades than other students.	1	2	3	4	5	6	7
Learning the ideas and skills in this class is enjoyable.	1	2	3	4	5	6	7
I like to perform better than other students.	1	2	3	4	5	6	7
I like learning new ideas and skills.	1	2	3	4	5	6	7

Source: Greene, Miller, Crowson, Duke, & Akey, 2004

Appendix D

Achievement Motivation Scale

Please rate each of the statements below as to how they relate to your own beliefs.

	No, Not at all						Yes, Very Much
If it were up to me, I would do just what my professor asked me to do and no more.	1	2	3	4	5	6	7
I participate a lot—get involved—in classroom activities.	1	2	3	4	5	6	7
I put forth high effort in school-related activities.	1	2	3	4	5	6	7
Most of what I learn in school is valuable.	1	2	3	4	5	6	7
Most of what I do in school is really pointless and a big waste of my time.	1	2	3	4	5	6	7
It is very clear to me how valuable and how useful what I am learning in school will be in my career.	1	2	3	4	5	6	7
I value school-related activity and work.	1	2	3	4	5	6	7

Source: Reeve & Sickenius, 1994

Appendix E

Pre-Course Questionnaire

Please mark the appropriate box or fill in the blank.

1. What is your marital status?
   - ☐ Single
   - ☐ Married
   - ☐ Divorced
   - ☐ Widowed

2. What is your age? _____

3. What is your ethnicity?
   - ☐ African American/Black
   - ☐ American Indian or Alaska Native
   - ☐ Asian
   - ☐ Caucasian/White
   - ☐ Hispanic/Latino
   - ☐ Multiracial and/or Multiethnic
   - ☐ Other Please Specify: _____

4. Do you have children? ☐ Yes ☐ No

   If "Yes," how many? _____

   If "Yes," are you a single parent? ☐ Yes ☐ No

5. What is your primary language?
   ☐ English ☐ Other Please specify: _____

6. Did you obtain a standard high school diploma? ☐ Yes ☐ No

   a. If "No", did you complete a GED? ☐ Yes ☐ No

   b. If "Yes," please answer the following questions:
      a. What was your high school grade point average (GPA)? _____
      b. What was the size of your high school graduating class? _____
      c. In what type of area was your high school?
         - ☐ Rural
         - ☐ Suburban
         - ☐ City

7. What was the highest level of education achieved by your parents?
   - ☐ Did not complete high school
   - ☐ High school diploma
   - ☐ GED
   - ☐ Associate's degree
   - ☐ Bachelor's degree
   - ☐ Master's degree
   - ☐ Doctorate degree (MD, JD, PhD, PsyD, EdD, etc.)

8. Where do you live?
   - ☐ On campus in a residence hall
   - ☐ In a fraternity or sorority house
   - ☐ Off-campus, but within walking distance from campus
   - ☐ Off-campus, but not within walking distance from campus

9. If you live off campus, do you commute 30 minutes or more to attend classes?

   ☐ Yes ☐ No

10. Do you work? ☐ Yes ☐ No

    If "Yes," do you work part-time or full-time?
    - ☐ Part-time
    - ☐ Full-time

    How many hours per week do you work on average? _____

11. Do you receive financial support from a spouse, partner, or family member?

    ☐ Yes ☐ No

12. Did you enroll in college immediately following your completion of high school?

    ☐ Yes ☐ No

13. Have you been required to take any developmental courses as a part of your college education (i.e. reading or writing courses prior to taking Composition I)?

    ☐ Yes ☐ No

    If "Yes," what did you take? _____

14. Did you transfer to OU from another college or university? ☐ Yes ☐ No

    If "Yes," what kind of institution was it?
    - ☐ Community College
    - ☐ Vocational/Technical School
    - ☐ 4-year institution that was larger than OU
    - ☐ 4-year institution that was smaller than OU

    Why did you transfer? _____

15. How many overall college credit hours have you attempted prior to this semester? ___

16. How many college credit hours have you successfully completed (with a grade of D or higher) prior to this semester? _____

17. How many credit hours are you enrolled in currently? _____

18. What is your current academic goal at OU:
    - ☐ Complete a bachelor's degree
    - ☐ Take courses to transfer to another 4-year institution
    - ☐ Take courses for personal interest

19. How would you rate the overall quality of instruction at OU thus far?
    - ☐ Excellent
    - ☐ Above Average
    - ☐ Average
    - ☐ Below Average
    - ☐ Poor

20. How many hours per week do you spend studying outside of class?
    - ☐ 0 to 5 hours
    - ☐ 5 to 10 hours
    - ☐ 10 to 15 hours
    - ☐ 15 to 20 hours
    - ☐ 20 to 25 hours
    - ☐ More than 25 hours

21. Do you believe you have a positive, supportive relationship with at least one faculty member on campus? ☐ Yes ☐ No

If "Yes," please answer the following questions. If "No," please move on to Question 22.

a. How often do you talk with this faculty member?
   - ☐ Once a week
   - ☐ Once every few weeks
   - ☐ Once a month
   - ☐ Occasionally during a semester
   - ☐ Occasional contact by email

b. Are you currently enrolled in a class this faculty member teaches?

   ☐ Yes ☐ No

c. When not enrolled in a class this faculty member teaches, how frequently do you talk with this faculty member?
   - ☐ Once a week
   - ☐ Once every two weeks
   - ☐ Once a month
   - ☐ Occasionally during a semester
   - ☐ Occasional contact by email

22. Was OU your first choice, second choice, third choice or less than third choice when deciding to attend college?
   - ☐ First choice
   - ☐ Second choice
   - ☐ Third choice
   - ☐ Less than third choice

23. How many years total do you expect it to take for you to complete a bachelor's degree?
   - ☐ 4 years
   - ☐ 5 years
   - ☐ 6 years
   - ☐ More than 6 years

24. Have you declared a major? ☐ Yes ☐ No

If so, what is it? _____

25. Have you changed your major since starting college? ☐ Yes ☐ No

If "Yes," how many times?_____

26. Are you involved in clubs, organizations, or other activities on campus? If so, what?

_____
_____
_____
_____

27. What are three goals you would like to accomplish by taking this course?

1. _____
   _____
2. _____
   _____
3. _____
   _____

Appendix F

Post-Course Questionnaire

Please mark the appropriate box or fill in the blank.

1. Gender: ☐ Male ☐ Female

2. What is your current academic goal at OU:
   - ☐ Complete a bachelor's degree
   - ☐ Take courses to transfer to another 4-year institution
   - ☐ Take courses for personal interest

3. How many hours per week do you spend studying outside of class?
   - ☐ 0 to 5 hours
   - ☐ 5 to 10 hours
   - ☐ 10 to 15 hours
   - ☐ 15 to 20 hours
   - ☐ 20 to 25 hours
   - ☐ More than 25 hours

4. Have you declared a major? ☐ Yes ☐ No

   If so, what is it? _____

5. How would you rate the overall quality of instruction at OU thus far?
   - ☐ Excellent
   - ☐ Above Average
   - ☐ Average
   - ☐ Below Average
   - ☐ Poor

6. Do you believe you have a positive, supportive relationship with at least one faculty member on campus? ☐ Yes ☐ No

If "Yes," please answer the following questions. If "No," please move on to Question 7.

a. How often do you talk with this faculty member?
   - ☐ Once a week
   - ☐ Once every few weeks
   - ☐ Once a month
   - ☐ Occasionally during a semester
   - ☐ Occasional contact by email

b. Are you currently enrolled in a class this faculty member teaches?
   ☐ Yes ☐ No

c. When not enrolled in a class this faculty member teaches, how frequently do you talk with this faculty member?
   - ☐ Once a week
   - ☐ Once every two weeks
   - ☐ Once a month
   - ☐ Occasionally during a semester
   - ☐ Occasional contact by email

7. Was OU your first choice, second choice, third choice or less than third choice when deciding to attend college?
   - ☐ First choice
   - ☐ Second choice
   - ☐ Third choice
   - ☐ Less than third choice

8. Where do you live?
   - ☐ On campus in a residence hall
   - ☐ In a fraternity or sorority house
   - ☐ Off-campus, but within walking distance from campus
   - ☐ Off-campus, but not within walking distance from campus

9. Are you involved in clubs, organizations, or other activities on campus? If so, what?

_____
_____
_____
_____

Appendix G

Academic and Social Integration Questions

Please answer the following questions based on the scale below.

1	2	3	4
Never	Occasionally	Often	Very Often

1. Overall, the presentation of material by OU faculty is well organized.	1	2	3	4
2. Overall, my instructors are well prepared for class.	1	2	3	4
3. Overall, my class time is effectively used.	1	2	3	4
4. I feel welcomed by faculty to visit with them during office hours.	1	2	3	4
5. I attend faculty office hours to discuss my progress and work in class.	1	2	3	4
6. I feel academically challenged by the faculty teaching my classes.	1	2	3	4
7. I discuss ideas from readings or classes with others outside of class.	1	2	3	4
8. I study with students from my classes.	1	2	3	4
9. I try to explain material from class to other students or friends.	1	2	3	4
10. In my classes students teach each other in groups at times instead of having only instructors teach.	1	2	3	4
11. I talk about art (painting, sculpture, architecture, artists, etc.) with other students.	1	2	3	4
12. I have serious discussions with students whose philosophy of life or personal values are very different from my own.	1	2	3	4

13. I have serious discussions with students whose political opinions are very different from my own.	1	2	3	4
14. I discuss with other students why some groups get along smoothly and other groups don't.	1	2	3	4
15. I have seen plays, ballets, or other theater performances at the college.	1	2	3	4
16. I have been in groups where each person, including me, talked about our personal problems.	1	2	3	4
17. I make friends with students whose interests are different from mine.	1	2	3	4
18. I have conversations with other students about major social problems such as peace, human rights, equality and justice.	1	2	3	4
19. I have gone to hear guest speakers on campus.	1	2	3	4

Please rate each of the statements below as to how they relate to you.

Please use the following scoring scale for each item on this page:

1 Strongly disagree	2 Moderately disagree	3 Disagree slightly more than agree	4 Agree slightly more than disagree	5 Moderately agree	6 Strongly agree

1. I am committed to receiving a bachelor's degree from OU.	1	2	3	4	5	6
2. I feel confident about my choice to attend OU.	1	2	3	4	5	6
3. I am satisfied with my choice to attend OU.	1	2	3	4	5	6
4. I feel connected to the college environment at OU.	1	2	3	4	5	6
5. I feel connected to my peers at OU.	1	2	3	4	5	6
6. I feel connected to faculty at OU.	1	2	3	4	5	6
7. I feel supported and believed in by faculty at OU.	1	2	3	4	5	6
8. I am actively involved in campus activities.	1	2	3	4	5	6
9. I do just enough to get by in my classes.	1	2	3	4	5	6
10. I expect to graduate from OU with a bachelor's degree.	1	2	3	4	5	6
11. I believe that my instructors support my personal and professional development.	1	2	3	4	5	6

12. I believe the administration at OU supports my personal and professional development.	1	2	3	4	5	6
13. I believe the overall environment at OU supports my personal professional development.	1	2	3	4	5	6
14. I participate in activities that enhance my experience within my major area of study, such as participation in major-related clubs, internships, part-time or full-time employment, or volunteer work.	1	2	3	4	5	6
15. I am concerned about my personal safety on campus.	1	2	3	4	5	6
16. I am concerned about my personal safety in my community.	1	2	3	4	5	6
17. People make fun of a group to which I belong.	1	2	3	4	5	6
18. I am concerned about being verbally harassed or hassled.	1	2	3	4	5	6
19. I am concerned about being a victim of theft or vandalism.	1	2	3	4	5	6

Appendix H

Student Feedback Information

The following four concepts are being used in this research study due to evidence that shows them to have a relationship with increased likelihood of academic and vocational success. Information is provided with each score to assist you in understanding how this score may represent either a strength or a need for you as an individual. Strengths represent areas that assist you in being successful. Needs represent areas that may be causing difficulty and can be worked on to improve academic and vocational success.

Each of the concepts measured in the assessment process will be touched on in the curriculum of this course at some point. However, if you would like further explanation of these results, please contact the primary researcher, Gina Graham, at ginag@ou.edu or call 405-325-2914.

Achievement Motivation

Achievement motivation is measured by a combination of the effort you exert and the value you place in a task. This is called engagement. Students who believe the amount of effort that they put into academics is high and who value their learning and education are generally defined as having high levels of academic motivation. Achievement Motivation has been found to be a major indicator of academic and vocational success.

Achievement Motivation score: _____

Goal Orientation

Goal orientation has been found to be an indicator of academic and vocational success.

- Mastery Goal Orientation (Self-Motivation): Students with strong Self-Motivation pursue their goals for their own purposes. They are generally interested in expanding their own personal knowledge and are not as strongly motivated by external factors or rewards, such as parents' expectations or grades.
- Performance Goal Orientation (Other-Motivation): Students with a strong Other- Motivation are usually motivated by concern of how others will judge them and/or external rewards such as praise from parents, grades, and academic rewards.

Research demonstrates that students with high levels of Self-Motivation tend to achieve higher levels of success than students with high levels of Other-Motivation. However, research also demonstrates that students with equal levels of Self and Other-Motivation tend to be as academically successful as students with high levels of Self-Motivation.

Mastery Goal Orientation (Self-Motivation): _____
Performance Goal Orientation (Other-Motivation): _____

Locus of Control

To measure the construct of Locus of Control, an assessment tool was used to indicate your general expectations of internal versus external control over performance.

- Internal control was defined as your belief that you have control over your own performance. (Creator)
- External control was defined as the belief that external factors have control over your performance. (Victim)

According to research, individuals who score as having a high internal locus of control tend to:

- have strong beliefs in their ability to control the outcomes of their performance.
- be generally more alert to their environment
- value achievement reinforcements more highly
- demonstrate greater resistance to attempts to influence them such as peer pressure.
- experience higher levels of academic and vocational success.

Internal Locus of Control score: _____

External Locus of Control score: _____

Academic Self-efficacy

Academic self-efficacy is defined as the belief in one's ability to be successful in a given situation. Self-efficacy is defined as the combination of your belief in your own competence and ability to successfully complete a task in a given area. Research has demonstrated that students with higher levels of academic self-efficacy tend to be more academically successful than students with lower levels.

Academic Self-efficacy score: _____

Appendix I

Running Heading: Dissertation Prospectus

Dissertation Prospectus:
Psychosocial Measurement of Outcomes
for a Student Success Course Intervention

Gina Marie Graham, M.S.

University of Oklahoma

Introduction

College faculty and administrators are constantly searching for ways to measure and positively affect college student success. Traditional measures of success have been based on grade point average as well as retention and graduation rates. The focus on these measures does not appear to be positively affecting student success, particularly with an underprepared student population. As noted by Strage (1999), although enrollment numbers for students attending both two-year and four-year institutions of higher education are consistently increasing, the percentage of these students who are actually graduating has continued to decline (Justiz, 1994; Pascarella & Terenzini, 1991; Sax, Austin, Korn, & Mahoney, 1996; Strage, 1999; Suzuki, 1994; Tinto, 1993; U.S. Dept. of Education, 1995a, 1995b). Strage (1999) found that despite strong efforts to develop student support systems and programs at these institutions, there continued to be an increasing number of students who were not adequately prepared or who were not appropriately motivated for college-level work.

Admissions officers at selective institutions have focused attention and selection on other traditional factors such as high school grade point average and performance on standardized tests such as the SAT or ACT. Research by Kanoy, Wester, and Latta (1989) suggested that none of these traditional predictors accurately predict second semester grade point average for the underprepared or under-achieving students, raising questions about the information on which admissions policies and student success interventions have been developed. To increase student success ratios, college personnel must begin looking at other factors

to identify students who may need additional support or intervention to be successful, rather than simply relying on traditional measurement tools based on outdated assumptions about the college population in general.

Some colleges and universities across the country are currently attempting to develop programming to identify students as early as possible who would benefit from academic interventions (Osborne, 1997). However, based on the current crisis in funding for higher education in most states, Hirsch (2001) found that many institutions have stopped the development of programs to help students who are struggling academically, arguing that the limited resources available should be spent on those students with the skills necessary to be academically successful at the college level. Hirsch (2001) suggested that many universities place the responsibility for the assumed need of remedial education on the shoulders of community colleges. He contended that "for many students in academic difficulty with or without disabilities, the problem is not one of underpreparation requiring remediation, but of capable students underachieving as a result of any number of educational, social and psychological factors" (Hirsch, 2001, p. 3). When considering possible social and psychological factors, Skidmore (2002) cited several studies indicating that interpersonal stressors caused by academic and financial struggles (Gong-Guy & Hammen, 1980; Hammen, Krantz, & Cochran, 1981) and emotional issues involving feelings of sadness, worthlessness, and anxiety (Flett & Johnson, 1992) were the most commonly reported social and psychological difficulties reported by college students. Findings such as these support the idea

that many students may have inaccurate notions of what college-level study requires, creating a dissatisfying learning experience (Breen & Roger, 2002).

The motivation for this study was grounded in a desire to expand our understanding of possible psycho-social predictive measures of student success and the effectiveness of an intervention course designed to assist at-risk students in becoming academically successful. The public institution involved in the study is one of few across the nation that has taken the stance to require students who have been placed on academic probation to complete an intervention course in order to continue taking classes at the institution. Based on previous research on student development and success factors, the study evaluates changes in four primary constructs over the duration of the course: locus of control, achievement motivation, goal orientation, and academic self-efficacy. These constructs have been correlated in previous research to academic and vocational success measures. The study also explores the possibility of these constructs being predictive measures of successful completion of the course intervention and the semester overall. The goal of the study was to further the work development and enhancement of both assessments and interventions that can increase retention and degree completion rates at colleges and universities.

Review of the Literature

Throughout the literature on student development and retention, multiple social and psychological factors have been cited in affecting academic success. Tinto (1987) found an attrition rate of over 40% of college students, with 75% of these students leaving within the first two years of college and only 56% of a typical

entering class actually completing degrees. Despite continued development of student success interventions over the almost two decades since Tinto's study, there has been little improvement in these numbers. Swail (2004) reported college enrollment as seven times greater today than it was fifty years ago. However, average graduation rates have continued to hover around 50%, extending as low as 34% for some two-year institutions. This means that institutions continue to assist about half of all students in completing degrees.

The National Center for Education Statistics, surveying thousands of students from institutions throughout the country in 1996, with follow-up data from 1998 and 2001, suggested that the demographic data on new students presented additional challenges in regard to socioeconomic and diversity issues. They found that 25% of students reported being from low-income backgrounds, approximately 33% reported being non-white, and 40% reported being the first to attend college in their families (Swail, 2004). Due to economic and social factors that limit access to strong secondary educational preparation for many low-income and minority students, these students demonstrated lower levels of academic and social preparation for college and represented a need for increases in student support services that address these issues for students and create environments in which they can be academically successful. The study found that of the 9,000 students surveyed, 45% of Black students and 39% of Hispanic students, on average, left college within six years without earning degrees. This can be compared to the 33% of White students and the 26% of Asian-American students who failed to complete degrees. The study found results in regard to income, as well, demonstrating a

direct relationship between lower retention rates and students reporting lower levels of family income. With attrition rates at this level, it is imperative that we begin to look at social and psychological factors that may be impacting students.

Economic and Social Factors

Costs for higher education continue to provide challenges for students, many of whom support themselves and often dependents. Few college students now have the privilege of the traditional full-time student lifestyle in which they are adequately financially supported by family and free to focus their full attention on their coursework and other activities of the university. Work-related commitments are regularly a part of students' reasons for withdrawing from or receiving poor grades in classes. This appears to be especially difficult for non-traditional college students who may be supporting a family while attempting to complete a degree. Eppler and Harju (1997) found the number of weekly hours worked by students to be negatively correlated with grade point average and study time, but only for non-traditional students. They suggested that non-traditional students experienced greater demands to work than traditional students, leaving less time to study and possibly leading to lower academic achievement. Robbins, Lauver, Le, Davis, Langley, and Carlstrom.'s (2004) meta-analysis found repeated evidence that financial support was moderately correlated with both retention and predictive grade point average throughout the literature.

Despite the obvious stressors of needing to work and attend school, Pascarella, Edison, Hagedorn, Nora, and Terenzini (1996) found differences in the effects of work during college on academic success and internal attribution for non-

White students and students attending two-year colleges than for their counterparts who were White, or who attended four-year colleges. Non-white students and two-year college students accepted more personal responsibility for academic performance when working while attending school than did White students and students attending four-year institutions. This suggests that there are significant differences regarding the needs of students of different racial, ethnic, and cultural backgrounds. Strage (1999) suggested that students have unique combinations of strengths and needs upon entering college based on their differing backgrounds. Bates (1999) emphasized that minority and low socio-economic students increasingly have no social net, like family, to assist with financial stressors, comparing their experience to "the stress of walking the high-wire without a net" (p. 6).

If students are having to schedule their time between class attendance, work commitments, and adequate time to study, this leaves little time for the development of attachment to the institution they are attending or to peer networks that provide support for the juggling students. Tinto (1975) provided evidence supporting the need for social integration, as well as academic integration, in reducing the possibility of dropping out. Financial stressors play a major role in whether students are able to have the time to interpersonally attach to the institution while still performing well academically and making ends meet financially.

Psychological Factors

According to Perry, Schonwetter, Magnusson, and Struthers (1994), the college student has traditionally been viewed as passively responding to the

direction and action of the instructor, as well as the structure of the curriculum and educational environment. However, research has begun to create a different perspective on student success, placing additional responsibility on the student for their own learning experience. Perry et al. (1994) suggested based on studies involving perceived control and causal attributions that some students perform well regardless of the quality of instruction, due to cognitive factors that seem to compensate for poor instruction. Bandura (1992) also supported the concept of cognitive aspects of functioning, like self-regulation, as well as motivational and affective factors being influential in one's cognitive functioning.

Throughout the literature on strategies to measure academic success, strong evidence exists to support measurements of goal-orientation, achievement motivation, locus of control, academic self-efficacy, and several other internal or psychological factors that directly influence student success. Kanoy et al. (1989) reported that personal responsibility for academic success and the amount of effort put into academics predicted 46% of the variance in second semester grade point average. Livengood (1992) identified a strong association between academic success, as measured by participation and satisfaction, and effort/ability reasoning, goal choice, and confidence. Robbins et al. (2004) provided through meta-analysis extensive support for a strong positive correlation between academic self-efficacy and retention. They concluded that various psychosocial factors assist in predicting retention above and beyond traditional predictive measurements of socio-economic status, high school grade point average, and ACT/SAT scores. Of the psychosocial factors reviewed, Robbins et al. (2004) found achievement motivation to be the

strongest predictor of college grade point average. Academic goals and academic self-efficacy were shown to be the strongest predictors of college retention. Bandura (1997) and Zimmerman (2000) suggested associations between students' self-efficacy beliefs, intrinsic motivation, and academic achievement as indicated in social cognitive theory, which supports the existence of an interaction between the individual, the environment, and behavior. In evaluating the utility of psychological and psychosocial factors in measuring academic success, Hirsh (2001) found that students can usually describe what is wrong, but struggle to identify their behaviors that are contributing to the problem. He contended that significant, individualized interventions designed by college personnel may assist students in identifying the behaviors inhibiting their progress and the contingent rewards of the behaviors, as well as assist students in overcoming the blocks and creating permanent changes in academic performance. Findings such as this support the development of intervention programs for the purpose of creating positive change in student performance.

Development of Interventions

The research suggests the need to shift the focus of college personnel from the traditional measurements to the creation of interventions dealing with social and psychological factors affecting student performance. Hirsch (2001) stated that "colleges may be legally obligated to serve only those students with disabilities. But since the knowledge is available to help develop and implement effective interventions for all academically troubled students, colleges have an academic and ethical responsibility to afford every student admitted the full opportunity to

complete a degree" (p. 5). Ample evidence exists to demonstrate the ability to effectively amend students' motivational, psychological, and psychosocial perspectives in a manner that will support and increase both traditional and non-traditional student success measurements. Both the student and the institution have responsibility to create a positive and successful academic experience. Students must seek the support services and opportunities presented by institutions of higher education; however, the college personnel must first initiate programs that are demonstrated by research to be effective in creating student success. Ultimately, this means college faculty and administrators must step out of the traditional realm of programming and create interventions that encourage students to evaluate the way they think about themselves, their academic effort and ability, and the possibility for their academic success. Bembenutty and Zimmerman (2003) emphasized in their study the effect motivational beliefs play in academic success, as well as helping at-risk students become actively engaged in their education.

Understanding Why Students Don't Succeed

Multiple factors have been demonstrated to significantly affect college student success throughout the research. The four psychosocial factors found most often to contribute to student success were locus of control, academic self-efficacy, goal orientation, and achievement motivation.

Locus of Control

The concept of having intrinsic control over one's own academic success has long been a challenge to at-risk students new to the college environment and curriculum. Students have frequently requested withdrawals reporting poor or

inadequate instruction, the inability to attend exams due to weather conditions, or numerous other excuses related to issues perceived to be outside of their control. Berry and Plecha (1999) suggested that students receiving higher test scores seemed to attribute this outcome most often to their ability and hard work. Both of these factors being intrinsic, this finding lends support to the concept of high achievers having a stronger internal locus of control. Internal locus of control, as defined in several studies, includes the propensity for analyzing situations, assuming responsibility for taking action, and accepting responsibility for failure (Grimes, 1997; Kanoy, Wester, & Latta, 1989; Skidmore, 2002). Research by Senacal and Koestner (1995) found evidence to support intrinsic motivation to complete various academic tasks produced less procrastination compared to student's motivated by external factors. Kanoy et al. (1989) indicated that taking personal responsibility for academic success was linked with enhanced performance in the classroom. Stark (1979) and Traub's (1982) results both supported the importance of internal locus of control, finding significant correlations between grade point average and internal locus of control (as cited by Kanoy et al., 1989). Grimes (1997) cited research that found students with internal locus of control believed they could influence their environment (Rotter, 1966), acquiring and using academic information more effectively and resulting in higher academic achievement (Prociuk & Green, 1977).

External locus of control has been defined throughout the literature as the tendency to believe rewards and punishments were received at the discretion of powerful others or were in the hands of luck or fate (Crandall, Katokovsky, & Crandall, 1965; Grimes, 1997; Kanoy, Wester, & Latta, 1989; Skidmore, 2002).

Grimes (1997) found that under-prepared students demonstrated a stronger external locus of control, indicating less perceived control over their environment and less perceived responsibility for their actions. She suggested that an external locus of control contributes to lower achievement and higher levels of anxiety. The phrase "learned helplessness" was used first by Seligman (1975), then again by Grimes (1997), to describe students with a strong external locus of control who quickly give up when placed in situations they perceived to be out of their control. Grimes (1997) contended that institutions should be focusing resources on the development of services that reduce learned helplessness in at-risk students, fostering a greater sense of personal responsibility and control in academic outcomes.

The existing research provided extensive evidence of the contribution of locus of control to academic success. Older, non-traditional students were found to consistently demonstrate stronger intrinsic beliefs in their abilities and accomplishments, whereas traditional age college students tended to be more externally focused in regard to outcomes, rewards, and consequences (Eppler & Harju, 1997). Pascarella et al. (1996) also suggested that students attending two-year institutions actually made greater movement toward internal attribution during the first year of college than their counterparts in four-year institutions. If the rate of change in college students' locus of control during their first year can be significantly different depending on environment, then it seems possible that an intervention may be created to facilitate a shift toward an internal locus of control in students. Research demonstrating a significant relationship between locus of

control and academic achievement should provide the motivation to college personnel to invest the energy and resources necessary to create these interventions.

Academic Self-Efficacy

Zimmerman (2000) discussed the concept of locus of control as significantly associated with self-efficacy, theorizing that an internal locus of control reinforces self-directed actions. Pintrich and DeGroot (1990) indicated that self-efficacy and intrinsic value were positively related to cognitive strategy use and to academic performance. Academic self-efficacy in this context was defined as students' beliefs in their own power to create positive academic results despite challenges, including both their believed level of competence and their perceived ability for effectiveness in an academic setting. Hirsch (2001) stated that students with high self-efficacy believe they have the ability to reach their goals and that their effort will result in the goals being achieved. Bandura (1997) found self-efficacy to be a pervasive influence on academic and personal achievement. The results of Robbins et al's (2004) meta-analysis provided strong support for the ability of academic self-efficacy measurements to predict future grade point average, with a correlation of r = .496. The same study cited a second meta-analysis of the relationships between self-efficacy beliefs and academic performance and persistence by Milton, Brown, and Lent (1991), finding an average correlation of r = .38 between self-efficacy and academic performance.

Procrastination may be related to levels of academic self-efficacy. Skidmore (2002) cited research that found self-efficacy was negatively associated with (Ferrari et al., 1992) and inversely related to (Tuckman, 1991) engagement in procrastination. Haycock, McCarthy, and Skay (1998) found low self-efficacy to be a significant predictor of increased procrastination for everyday, non-academic activities. It seemed reasonable to apply this outcome to the concept of academic self-efficacy in attempting to understand academic procrastination. Skidmore's (2002) research found that procrastination may impact whether students view themselves as capable of being academically successful, suggesting that behavioral intervention targeting acts of procrastination may produce feelings of achievement and possibly increase students' levels of academic self-efficacy.

Breen and Lindsay (2002) described self-efficacy theory as individuals being motivated to engage in behavior if it enhances their feelings of competence, control, or effectiveness. In considering feelings of competence as a part of self-efficacy, self-concept and self-esteem may seem to overlap the definition. Academic self-efficacy differs from self-concept and self-esteem. The definitions of self-concept and self-esteem provide a wider range for measurement, whereas the concept of academic self-efficacy provides a more clearly defined variable when studying academic success. Feder (1965) cited research suggesting that changes in self-concept may represent one of several possible non-cognitive variables which may be important in understanding academic achievement (e.g., Ross, 1995; McKee, 1958; Miller, 1960). However, more recent research demonstrated otherwise. Robbins et al. (2004) found in a meta-analysis that results regarding the effect of

general self-concept were low, based on self-concept being a broad construct and involving an overall evaluation of self through social connections. Thus it may not be the best construct to utilize in understanding the effects of students' beliefs about themselves on academic performance.

Self-efficacy has been demonstrated in research to also be strongly associated with goal orientation. Bandura (1997) perceived self-efficacy as a prerequisite for the development of goals in general. Greene, Miller, Crowson, Duke, and Akey (2004) found mastery goals to be influenced by variations in self-efficacy. In discussing goal development as use of a meaningful strategy toward academic success, they found both meaningful strategies and high self-efficacy beliefs directly influenced achievement outcomes. These findings were consistent with previous research by Greene and Miller (1996) in which they found a high, positive correlation between learning goal scores and scores on perceived ability. Based on the previous research and the ability to teach goal development as a successful learning strategy, it appears necessary to include goal orientation as a construct in the study, as well.

Goal Orientation

Much research has been done on the effect of goals and goal orientation on the success of college students. Students' academic related goals tended to fall into two categories based on the literature. The first was most commonly referred to as performance goals. Dweck and Legget (1988) stated that performance goal oriented people believed their intellectual ability was fixed and could not be enhanced; therefore, the goal was focused on performing well in order to receive positive

evaluation. This belief tended to lead to the avoidance of tasks that seemed personally challenging and a preference for those that offered more opportunity for success. Barron, Harackiewicz, and Tauer (2001) described the purpose of performance goals as the ability to demonstrate competence relative to others. This goal orientation has been described as the less optimistic of the two, focusing on outcome rather than process and with the ultimate desire to perform well and avoid criticism (Eppler & Harju, 1997).

The more optimistic orientation has been referred to in the literature as mastery or learning goals. Learning goals were characterized by an overall desire to enhance one's knowledge through the mastery of new skills and problems (Eppler & Harju, 1997). According to Livengood's (1992) review of the literature, learning goal oriented students believed that through personal effort their intellectual knowledge and ability could be expanded. This belief impacted the willingness of these students to seek out personally challenging tasks for the purpose of further development of skills and knowledge.

Eppler and Harju (1997) found irrational beliefs to be positively related to performance goals and inversely related to learning goals for the traditional college student. In this research, they interpreted irrational beliefs as indicative of learned helplessness and endorsed the idea of learning goals being directly related with less learned helplessness and higher academic performance. Based on this connection with learned helplessness, the connection between learning goals and self-efficacy was further supported. Learning goal oriented students believed that effort was a means to success and that effort actually enhances ability (Eppler & Harju, 1997),

providing a direct link with the concept of self-efficacy, as defined as one's belief in one's own ability to overcome challenge. However, performance goal oriented students saw the relationship differently, reflecting the belief in an inverse relationship between effort and ability. In combining this research with that of Dweck and Legget (1988), it seemed that a person's innate beliefs about the relationship between ability and effort may directly impact whether they have adaptive or maladaptive learning patterns, as well as their level of self-efficacy. Livengood's (1992) research indicated that students with strong performance goal orientations who also scored low in their confidence regarding their own ability (e.g., self-efficacy) were more likely to have a learned helplessness response, impairing their achievement. Students with the same performance orientation, but a higher level of self-efficacy, were more successful academically; however, these students were also found to pursue less challenging tasks than mastery oriented students.

The most interesting aspect of this research was that both goal orientations have demonstrated academic benefit. Self-determination theory supported the connection between the meeting of basic needs and the goal orientation of the individual. Deci, Vallerand, Pelletier, and Ryan (1991) defined competence, one of the three basic human needs in the theory, as the ability to understand how to attain both internal and external outcomes and being effective in taking the necessary actions. According to Sheldon, Ryan, Deci, and Kasser (2004), the theory maintained that extrinsic (i.e., performance) goals can satisfy some aspects of the basic need for competence in focusing on the completion of tasks, but that if

extrinsic-based goals became the primary focus and were no longer in balance with intrinsic (i.e., mastery/learning) goals, then negative well-being was more likely.

This theory was further supported by research. For example, Livengood (1992) found that students who endorsed both learning and performance goals equally were just as successful as students who only endorsed learning goals. Contrary to his prediction, he also suggested that students who strongly endorsed performance goals did not have the lowest grade point average, although their grade point averages tended to be lower than students who had a combined orientation or a purely learning goal orientation. Students with the lowest grade point averages in the study were those students who reported both a low learning and a low performance goal orientation. These results reinforced the importance of interventions to educate students about the benefits of setting goals and creating strategies to meet those goals. Elliot and Church (1997) and Harackiewicz, Barron, and Carter (1997) both indicated that students who reported having performance goals at the beginning of the semester achieved higher grades at the end of the semester. However, those students reporting mastery goals at the beginning of the semester were more like to report interest in the course content at the end of the semester. This reinforced the concept that both mastery/learning and performance goals contributed to the student achievement and success. Sheldon et al. (2004) found results that suggested if learning and performance goals were out of balance with one another, then the preoccupation with performance goals contributed to negative outcomes. A combination of both goal orientations may influence not only

traditional measures of student success (i.e., grade point average, degree completion), but may also affect other psychological factors like motivation.

Academic Motivation

According to Greene et al. (2004), achievement goal theory predicted that the purposes students have for pursuing specific tasks influenced their level of engagement in those tasks. Thus the concepts of goal orientation and motivation, as defined by engagement in this study, appeared to be theoretically related. Breen and Lindsay (2002) demonstrated that the goal and enjoyment measures of motivation in their research unexpectedly explained large proportions of the variance in student performance. Students who were motivated by the concept of expanding their own experience and knowledge (mastery/learning goal oriented), rather than being motivated by outcome expectancies and fear of failure (performance goal oriented), were less likely to withdraw from classes (Berry & Plecha, 1999).

In considering measurements of academic motivation as a factor in student success, Eppler and Harju (1997) suggested that achievement motivation was a better predictor of academic success (i.e., cumulative grade point average) than traditional predictors. Robbins et al. (2004) demonstrated achievement motivation to be the second highest psychosocial predictor of student grade point average. Hirsch (2001) suggested that motivation was a primary factor in developing successful interventions for students. He stated for students to be motivated there must be a discrepancy between what the students stated as goals and how they were actually performing academically. Without this gap, students may lack motivation to change behaviors in working toward the goal and be less receptive to assistance

from services at the institution. A higher level of distress in regard to this gap in turn tended to enhance motivation to improve performance and work toward the goal.

Hirsch (2001) also related academic motivation to intrinsic and extrinsic characteristics of students. He described motivation as either internal or external. Internal motivators involved finding fulfillment in some way with the task or challenge that would most likely lead to growth and development of the individual. External motivators, on the other hand, included being paid or having some other reward for completing a task or challenge. Hirsch (2001) identified a relationship between students and their internal and external environments. He suggested that students tended to pursue goals that they perceived as both high in value and achievable. Hirsch (2001) believed that to have adequate motivation to study effectively, students must have the goal to be successful, a belief in their ability to control academic success (internal locus of control), a belief in their ability to succeed (self-efficacy), and the knowledge and ability to set goals.

Other Factors Affecting Student Success

Although the four factors explained above were found to be the most prominent psychosocial variables measuring student success, there were other factors based in student development and attrition theories utilized throughout the research. Stress, substance abuse, depression, anxiety, social integration, institutional commitment, and personal identification with academics were all found to affect students' academic success and retention in smaller proportions (Bates,

1999; Hircsh, 2001; Kachgal, Hansen, & Nutter, 2001; Osborne, 1997; Robbins et al., 2004; Strage, 1999).

In Chickering's (1969) model of student development, he identified six primary areas in which colleges exert an influence, either positively or negatively, on growth along developmental vectors. These included institutional characteristics (i.e., institutional objectives, policies and procedures, institutional size), curriculum and teaching, residence halls and other living arrangements, faculty and administration, and student culture (i.e., friends, groups). Chickering (1969) provided further structure to the concept of college student identity development through the creation of seven vectors, where growth along the vectors is not only maturational, but also requires stimulation involving contradictions both internal and external to the individual. He believed that the college environment provided fertile ground for such growth. As his theory gained momentum in higher education research, theories regarding the way college environments impact students began to develop. These models focused on environmental, sociological, external type factors that impact student change and were separate from developmental change.

Tinto (1975), Pascarella (1980), and Astin (1984) gradually began to build on one another's theory in developing models of student attrition, attempting to understand the conundrum of why some students persist in college while others withdraw. Tinto (1975) and Pacarella (1980) worked to discover the varying interactions between student's goals, expectations, and commitments to higher education which they believed would indirectly affect student persistence through the impact these factors had on academic and social integration into the institution.

Astin's (1984, 1993) theory focused more directly on student involvement, believing that the quality and quantity of time and energy students invest in their college experience was directly related to positive outcomes. He specified that this investment included both time spent with other students and time spent connecting with faculty. Pascarella (1985) later expanded his model to include the quality of effort that students expend in their interactions with the college environment as a result of Astin's research.

Taking into consideration the addition of quality and quantity of student effort, Tinto's (1975) model provided a broad and stable base for understanding why students withdraw or persist in college. Thus, it was used as a secondary theoretical model for this research, attempting to account for the effect of changes in participants' academic and social integration when measuring changes in the four primary psychosocial constructs. Tinto's theory incorporated background characteristics with social and academic integration along with institution and goal commitment. He theorized that students' background characteristics contribute to their initial levels of commitment to educational goals. Together with the background characteristics, initial commitment to educational goals impacted how well students interacted with and became integrated into an institution's academic and social systems (Pascarella & Terenzini, 1983). Higher levels of social and academic integration strengthened students' commitment to the institution and to educational goals within the institution, and therefore increased the likelihood of students' reaching those goals. Thus, the model theorized that it was the levels of social and academic integration mediated by commitment that directly impacted

persistence and degree completion. According to Tinto (1975), students brought with them to an institution a number of background traits, ranging from race and familial history to academic ability and previous academic experiences. These background characteristics directly impacted the students' initial commitments to academic goals and to the institution they had chosen to attend. Together these factors then directly impacted how students integrated into the college environment both academically and socially. Ultimately, higher levels of integration led to higher levels of persistence and degree completion. Although one of the primary research questions of this study focused more succinctly on academic success as defined by successful completion of the intervention course and successful completion of the semester, the effects of academic success or failure were intricately wound with the concepts of persistence and degree completion.

Tinto (1975) also alluded to compensatory reactions based on the interactions of social and academic integration, as well as goal and institutional commitment, for students who may have lowered levels of one or the other factor. Pascarella and Terenzini's (1983) research supported this presumption, finding that academic integration appeared to have the strongest impact on students who demonstrated the lowest levels of social integration. Results also demonstrated that as social integration increased the impact of academic integration decreased. The same compensatory relationships were found when looking at the interaction between students' levels of commitment to the goal of graduation and students' levels of commitment to the institution.

Limitations to a Causal Model for Attrition

Tinto's (1975) model has focused on the impact of background factors, as well as the impact of social and academic integration into the university environment, in understanding why some students persist and other withdraw. "Other things being equal, the greater the individual's level of social and academic integration, the greater his or her subsequent commitment to the institution" and to degree completion (Pascarella & Terenzini, 1983, p.215). It is the "other things being equal" that raised issues when applying the model. It appeared that "other things" were not equal in individual student's lives and these were possibly the factors that complicated individual student's decisions regarding persistence or withdrawal, including the four primary psychosocial constructs of this study. However, research has repeatedly demonstrated that background characteristics have little to no direct effects on persistence, and instead may have indirect effects due to how they impact students' ability to become academically and socially integrated into the institution (Bean, 1982; Pascarella & Terenzini, 1983).

Despite this evidence, researchers have acknowledged the possibility that alternative explanations may exist and that at least some variables that were not accounted for in Tinto's model may be important determinants of persistence and withdrawal behaviors. Pascarella and Terenzini (1983) stated that "perhaps a major portion of persistence/withdrawal behavior is idiosyncratic, in terms of external circumstances and personal propensities, that it is difficult to capture in any rational explanatory model" (p. 99). In reviewing the literature, any study regarding attempts to model causation for academic achievement or college student success had a limitation noted in regard to some exogenous variable that was not controlled or

accounted for in the study. Literally hundreds of confounding factors have been identified in the literature on college students. These range from background factors like socioeconomic status, parental education levels, and personality trait-based characteristics to faculty-student interactions, affiliation with extracurricular organizations, safety and security issues, and familial support. It seemed impossible to control or account for all possible factors within a given study. Thus, although all confounding factors could not be measured in this single study, and thus a causal model is not realistically possible, it seemed that the chosen variables supported by Bandura's and Tinto's models provided important feedback in understanding this student population and further developing support services and retention strategies.

Creating Interventions to Positively Affect Student Success

College personnel at both two- and four-year institutions have attempted various programs for several decades to improve student success rates and increase student retention. Programs have ranged from study-skills workshops to extensive multi-day orientation programs, attempting to prepare new or at-risk students for the challenges of the college curriculum and lifestyle. Kulik, Kulik, and Schwalb (1983) completed a meta-analysis on studies of programs to support students in academic difficulty. They found an increase in academic performance and retention for most programs relative to students who did not participate in the programs. Research on community college students has demonstrated the cost-effectiveness of targeting students for early academic intervention, due to a large number of students who experience negative academic outcomes appearing to be less able to identify with academics than successful students (Osborne, 1997).

One of the newer attempts at college and university programming has been the creation of a credit course that exposed students to the various aspects of student success over the course of a time ranging from eight weeks to a full semester. The curriculum of these courses varies by institution; however, there have been some basic commonalities. A primary goal of these courses has been to create a connection for the student to the institution. Strage (1999) identified a link between students' ability to persist and their comfort level in the environment, particularly in the face of challenge, making the focus on enhancing integration into the institutional environment a priority in helping students be successful. A course that extended over several weeks allowed students time to become connected to the institution, as well as the opportunity and support to begin to identify with academia and the concept of being in college. Tiedman (1967) stated that the transition for students from their pre-collegiate identity to the collegiate experience required students to have knowledge of the collegiate environment and expectations. The process entailed both the student seeking the information and the institution providing ample opportunity for the student to be exposed to the information. This suggested these courses should include general orientation information regarding the institution, policies and procedures, support services, and student activities, assisting the student in adapting to the new environment and taking advantage of all the campus has to offer.

Based on the review of research previously discussed in this paper, curriculum for these courses may have also increased success rates by assisting students in identifying social, psychosocial, and psychological factors that may have

impacted their personal success. Colquitt, LePine, and Noe (2000) completed a meta-analysis which emphasized the importance of studying the effects of tailored interventions for students to promote development of non-cognitive predictors. The research called for college personnel to develop tailored interventions that would identify specific barriers for individual students and engaged the student in actively working through these barriers. Hirsch (2001) cited research that found the most effective approach for helping students utilized the development of a genuinely warm and empathic relationship with more cognitive and behavioral structured interventions to invoke insight into the causes of academic difficulties.

The trick in creating these programs, according to Hirsch (2001), was to identify the students at the point of readiness. He referred to this time as the "flash point of change," the point at which the student's achievement goals did not match his or her academic performance. The distress created motivation for the student to begin taking action. Hirsch (2001) stated that the student "will begin to 'catch fire,' gaining insight into her difficulties and finding the motivation to act constructively to address her concerns" (p. 9). Institutions have attempted different strategies to identify these students at the proper time. Some have attempted to identify the student at the time of assessment, prior to courses beginning, when the student's performance demonstrated the need for remedial courses to prepare for college level curriculum. Other institutions have relied on referrals of students by faculty, advisors, and counselors who identified the student as struggling and suggested the student enroll in the intervention course. At this point, additional research is needed to identify when a student is most ready and identifiable, or at the "flash point," to

increase the chances of a successful intervention. In this study, a hopeful assumption of the intervention was that the placement of the student on academic probation would provide an opening for assistance and impact the student's readiness for change.

The approach and goals of the instructors for these courses may have been an integral part of the success of students. Eppler and Harju (1997) found that instructors of these courses needed to assist students in identifying personal belief systems about academic achievement and performance, as well as develop insight into how these belief systems may have related to their academic performance. They suggested that discussing the concept of learned helplessness after the students have been met with a major academic challenge (i.e., the first major exam) may provide an opening for students to connect with these feelings and provide concrete examples as to how it applied to their lives. Grimes (1997) agreed with the need to focus attention on the concept of learned helplessness, emphasizing a need to help students gain insight about their feelings and foster personal responsibility and ownership for their academic performance. Ultimately, course interventions assisted students in recognizing their own personal barriers and developing a sense of hopefulness regarding their ability to succeed in college. Hirsch (2001) emphasized the need to instill hope in students that things can improve and help them identify how they personally identify success.

Courses such as these provided an extended intervention, giving students the opportunity to develop and enhance their levels of academic self-efficacy, motivation, goal orientation, and locus of control, as well as other factors that

enhance student success and may be included in curricular plans. Pascarella et al. (1996) concluded that the cumulative result of students' interrelated experiences, not the result of a single happening, ultimately determined student attrition. A course that spans over sixteen weeks may provide the type of extended experience a student needs to take the information and practice over the course of the semester. By putting the curriculum in action in their lives, including assessments that identified each individual's barriers, and assisting the individual students in developing strategies to overcome these barriers, an intervention course may be the ideal way to increase student success on both traditional and non-traditional measurements.

Purpose of the Study

This study intended to measure the effectiveness of a course at the university level designed to enhance student academic success, particularly targeting students who had been placed on academic probation. The constructs examined included locus of control, academic motivation, goal orientation, and academic self-efficacy. These constructs appeared to be identifiable risk-factors for withdrawal or academic failure, based on the current research, and thus the theoretical overlap with the concepts of persistence and attrition. The curriculum was designed for students who feel detached from academia or who question their ability to succeed in a collegiate setting, based on concerns regarding their own ability, competence, and control in the environment, and attempted to account for changes in academic and social integration while still focusing on the psychosocial constructs of interest. The four psychological constructs addressed the primary issues of students at risk for

withdrawal or academic failure, and allowed for possible measurement of the effectiveness of a course designed to develop these constructs and enhance student success.

Description of Course Content and Objectives

The intervention course examined in the study was a two-credit-hour course that was required for students who had been placed on academic probation. The course curriculum followed the book, *On Course: Strategies for Creating Success in College and in Life* (4th edition), by Skip Downing (2005). Topics of the course included personal responsibility, discovering motivating purposes, planning and taking effective actions, building mutually supportive relationships, gaining heightened self-awareness, becoming life-long learners, developing emotional maturity, and believing in one's self. The curriculum addressed the four constructs that were the focus of the study (i.e., locus of control, achievement motivation, goal orientation, and academic self-efficacy) in subtle but distinct ways. Students attended a lecture course once a week, but also attended smaller discussion groups once a week to process the information from the lecture on a more personal level.

A primary theme throughout the book and the course was that of "adopting a creator role," which incorporated the constructs of locus of control and self-efficacy through the language of "self-responsibility," imbedding Bandura's self-determinism theory in the curriculum. The text provided vignettes of students blaming stringent grading or other external factors on not passing, rather than acknowledging responsibility for not studying or not doing the work. Downing (2005) described Creators as individuals who "change their beliefs and behaviors to

create the best results they can," while Victims were individuals who "keep doing what they've been doing even when it doesn't work" (p. 27). He stated that "adopting a Creator role" meant "believing that you always have a way to improve your present situation" and that this belief could "motivate you to look for it and by looking you'll often discover options you would never have found otherwise" (p. 28). The concepts of Creators and Victims paralleled the construct of locus of control, as well as implied a need for self-efficacy in believing students were capable of actively changing their world.

The message of believing in yourself was given throughout Downing's (2005) book, making self-efficacy beliefs a primary theme throughout the course. In defining and discussing self-esteem in the book, it appeared to incorporate self-efficacy and self-concept into the definition. Self-efficacy was also approached more directly in the discussions about "flow states," when referencing the work of Mihaly Csikszentmihalyi. Downing (2005) found the key to developing flow in the interaction between the challenge presented to students and the related skills they believed they possessed, thus making students' experiences relevant only to what they believed to be true. This description of "flow" related directly to the study's definition of academic self-efficacy as a belief in one's ability to succeed academically. The curriculum also offered strategies for enhancing self-efficacy beliefs by visualizing purposeful actions, creating a success identity, and celebrating success and talents. Zimmerman (2000) has demonstrated that teaching strategies like these can impact change in the way students think about their abilities. Accordingly, self-efficacy beliefs have been found to be sensitive to subtle

interventions that change the educational context for the student and to be a mediator for academic achievement. By measuring pre- and post-course levels of academic self-efficacy, the researcher hoped that these findings could be duplicated, demonstrating the curriculum as a means to impact positive change in academic self-efficacy beliefs.

The course curriculum drew connections between self-efficacy and goal setting by helping students understand how goals could direct and motivate action, which in turn could lead to successful academic experiences. Schunk (1985) found that students who were verbally encouraged to set goals demonstrated enhanced commitment to attaining the goals, which in turn positively impacted self-efficacy beliefs and academic achievement. The course challenged students to develop both proximal and long-term goals, as well as creating "next action lists" that helped the students keep on track with their goals (Downing, 2005). Research by Bandura and Schunk (1981) supported this intervention in finding that completion of proximal, short-term goals, which seemed to be a reflection of the "action list," provided students with evidence of growing capability, and thus worked to boost self-efficacy beliefs. Through lecture and text content, the program educated students on how to create effective goals that were their own, contributing to their personal dreams, and not for the purposes of external rewards or recognitions from family or influential sources. The focus on developing goals that reflected the students' personal dreams seemed directly related to the construct of mastery goal orientation, as defined in this study. Greene and Miller (1996) found evidence to support the ability of

interventions like these to enhance academic achievement, suggesting that goal orientation and self-efficacy be focused on in interventions.

Motivation was also approached in both subtle and direct ways throughout the curriculum. One quote in the text under the heading, "Student Wisdom," stated, "When I set goals that mean something to me, I feel my energy go up" (Downing, 2005, p. 180). This implied a connection between setting mastery-oriented goals and motivation to achieve academically. The text suggested that students use visualizations to see themselves in their ideal career as a means of remaining motivated as they "encounter delays and disappointments on the path" to their goal (p. 66). This again suggested that personal, intrinsically motivated goals impact motivation, not simply looking toward external rewards like a degree or a job.

The course lectures and small group discussions helped to incorporate opportunities for processing the content of the course and applying it to the students' personal circumstances. Weinstein and Mayer (1986) found interventions that involved meaningful (i.e. elaborate) processing enhanced students' abilities to integrate new information with existing knowledge, creating clearer understandings of themselves and the world around them (as cited by Greene et al., 2004). The discussion that occurred throughout the course allowed students the opportunity to think through the content and challenged them to apply the strategies to their own lives in meaningful ways. Through this application, it seemed possible that students were presented with the opportunity to enhance the study's four primary constructs, leading to increased possibility in future academic and vocational success.

Predicted Outcomes and Hypotheses

The study predicted that the course intervention would create significant positive changes in the four psychosocial constructs from the pre- to post-test measures, while accounting for academic and social integration based in Tinto's model of student attrition. This included increased levels of academic self-efficacy, achievement motivation, and internal locus of control. In regard to goal orientation, the scores for mastery- and performance goal orientations were separated. Therefore, for the purposes of this study, a positive impact was indicated by a significant increase in mastery or performance goal orientation. Significant change was analyzed using paired-samples *t*-tests for each of the constructs. A Bonferroni adjustment in an *alpha* = .05 required the $p < .007$ for the individual t-tests was suggested by Stevens (2002) to control for Type I error (i.e., the false rejection of the null) when using multiple independent *t*-tests.

Hypothesis 1: There would be significant positive changes in each of the four primary constructs from pre- to post-test measures, specifically indicated by:

a. significant positive change in the level of academic self-efficacy in comparing pre- and post-test scores.

b. significant positive change in the level of achievement motivation in comparing pre- and post-test scores.

c. significant positive change in the internal locus of control in comparing pre- and post-test scores.

d. significant positive change in mastery goal-orientation in comparing pre- and post-test scores.

e. significant positive change in performance goal-orientation in comparing pre- and post-test scores.

A second set of hypotheses investigated the predictive value of the constructs by comparing pre-test scores to successful completion of the course and improvement of overall grade point average at the end of the semester. This was indicated by using a logistical, hierarchical multiple regression analysis, accounting for the confounding academic and social integration measures first, then analyzing the predictive value of the four primary psychosocial constructs. It was believed that students with significantly higher pre-test scores on academic self-efficacy, achievement motivation, and internal locus of control would be more likely to successfully completed the course with a grade of C or higher and completed the semester with a grade point average higher than 2.0, than students with lower scores on the four psychosocial measures. University policy at the participating institution placed students on academic probation if their grade point average fell below a 2.0 and students were then required to complete the course intervention to resume enrollment at the university. Thus, a grade point average of 2.0 or higher at the end of the semester indicated improvement in the student's academic achievement.

Hypothesis 2: The pre-test scores on the four primary constructs will significantly predict successful completion of the course (i.e., a grade of C or higher) and successful completion of the semester (i.e., a grade point average above a 2.0), after accounting for the effects of academic and social integration.

a. Academic self-efficacy pre-test scores would significantly predict successful completion of the course and semester.
b. Achievement motivation pre-test scores would significantly predict successful completion of the course and semester.
c. Internal locus of control pre-test scores would significantly predict successful completion of the course and semester.
d. Mastery goal-orientation pre-test scores would significantly predict successful completion of the course and semester.
e. Performance goal-orientation pre-test scores will significantly predict successful completion of the course and semester.

Method

The study was causal-comparative in nature, attempting to identify a change in measures after the course had been completed as the intervention applied to the participants. The goal was to identify any significant change in the four psychosocial constructs of achievement motivation, goal orientation, academic self-efficacy, and locus of control, while also accounting for Tinto's theoretically based constructs of academic and social integration. The study also attempted to identify the predictive nature of the four psychosocial constructs in successful completion of the course and improvement of grade point average for this population.

Participants

The selection of participants for the study was purposive in wanting to evaluate the outcomes of a specific university course intervention on the students

enrolled in the course. The course was offered at a large public university in a small, southwestern city during the spring semester of 2007. Students enrolled in the course had recently been placed on academic probation, due to a cumulative grade point average below a 2.0, and were required to take the course to continue enrollment at the university. The course extended over a full sixteen week semester and consisted of a one-hour lecture once a week and a one-hour discussion group once a week. There were approximately 325 students enrolled in the course at the beginning of the semester. Of these students, 234 participants completed the study's pre-test and 182 completed the post-test. A total of 144 complete data sets (i.e., matching data on pre- and post-tests) were collected.

Of the 234 initial undergraduate participants, 137 were males and 97 were females. The mean age was 18.7, with a range from 18 – 26 years old. All participants reported their marital status as single with no children. The participants were mostly Caucasian (70.9%), with the remaining consisting of 7.3% African American, 6.4% American Indian, 4.7% Asian American, 3.4 % Hispanic/Latino, and 1.7% indicating an ethnicity other than those listed above. The remaining participants (4.7%) reported being multiracial or multiethnic. Only 3.4% of the participants reported a language other than English as their primary language.

From the employment and financial information requested of participants, 35.5% of the participants reported work part-time and 2.2% reported working full-time. 62.3% of participants reported not working while enrolled in college. Financial support by a family member was reported by 76.1% of the participants. Parental education level was primarily bimodal with 27.4% reporting the highest

education level for either parent being a high school diploma, while another 27.8% reported a Bachelor's degree. Other levels of parent education were reported as follows: 2.1% did not complete high school, 3.8% had completed a GED, 11.1% had completed an Associate's degree, 17.5% had completed a Master's degree, and 10.3% had completed a Doctoral level degree.

Based on the focus of academic performance, participants were also asked to report academic history information. All but one of the participants reported graduating from high school with a diploma versus a GED. The self-reported high school grade point average for the participants had a mean of 3.46, ranging from 2.2 to 4.12. 97.8% of the participants reported that they had first enrolled in college immediately following high school graduation. Only 3% of participants reported transferring from another institution. 6.9% reported being required to take at least one developmental-level course upon initial enrollment in college.

Measures

Instrumentation for the study was drawn from the literature regarding the four constructs of achievement motivation, goal orientation, academic self-efficacy, and locus of control, as well as for the constructs of academic and social integration. The demographics questionnaire was developed by the researcher based on the information desired by various stakeholders, including the researcher and the faculty and staff of the institution where the course was offered.

Internal versus external locus of control. To measure the construct of locus of control, the instrument developed by Rotter (1966) was utilized to indicate the generalized expectations of internal versus external control over performance.

Internal control was defined as individuals' perceived control over their own performance, whereas external control was defined as the perceived control of environmental, interpersonal, or other external factors over individuals' performance. The final version of Rotter's instrument had 29 items and was a forced-choice questionnaire. There were six irrelevant items included in the instrument to assist with making the purpose of the assessment more ambiguous (Rotter, 1966). The instrument was normed on undergraduate college students, although the wording on some items in the final version was adjusted to make the inventory more applicable to non-college adults and upper level high school students (Rotter, 1966). The researcher made minor updates to grammar to facilitate use of the instrument for students. The instrument was scored by counting the total number of internally focused items selected by the individual. Rotter (1966) developed the items to focus exclusively on an individual's general beliefs about the fundamental nature of the world, attempting to tap the participant's expectations about control over the various events in his or her life. The assessment was therefore focused on the participant's generalized expectance in regard to daily events and interpersonal interactions. There were no questions that directly addressed internal or external control (Rotter, 1966).

Internal consistency results for the instrument were reported as "relatively stable," with Kuder-Richardson correlations ranging from .65 to .79 (Franklin, 1963; Rotter, 1966). Rotter commented that due to the items not being comparable or additive on the instrument, the split-half or matched-half reliability tended to underestimate the internal consistency. He also noted the limitations of the Kuder-

Richardson reliabilities due to the forced-choice scale. Test-retest reliability appeared consistent at one month on two differing samples, ranging from .60 to .83 (Rotter).

Rotter (1966) and Franklin (1963) both completed factor analyses on the instrument and found similar results, indicating a single general factor that accounted for approximately 53% of the variance in both analyses. Rotter reported that the test demonstrates reasonable homogeneity or internal consistency. He also reported that the significant evidence of construct validity was provided by a series of studies that looked at the connection between locus of control and predicted differences in behavior. These results demonstrated that an individual with strong beliefs in his ability to control the outcomes of his performance would be more alert to his environment, take action to improve his environment, value achievement reinforcements more highly, and demonstrate greater resistance to attempts to influence him (Rotter).

Academic self-efficacy. To measure the construct of academic self-efficacy, the instrument developed by Tschannen-Moran, Woolfolk-Hoy, and Hoy (1998) was utilized in a modified version. These researchers studied the relationship between teacher self-efficacy and student achievement, demonstrating that students in courses taught by teachers with high self-efficacy tended to be more successful academically than students taught by teachers with lower self-efficacy. Based on the psychological theories of Rotter (1966) and Bandura (1997), self-efficacy was measured in two parts, competence and contingency. The instrument measured competence by assessing the self-perceptions of the teacher, reviewing individuals'

strengths and characteristics (i.e., skills, knowledge, strategies, personality traits) and comparing these with personal weaknesses in a particular teaching context (Tschannen-Moran, Woolfolk-Hoy, and Hoy, p. 228). In accordance with Bandura, Tschannen-Moran, Woolfolk-Hoy, and Hoy named this Personal Teaching Efficacy (PTE).

The measurement of contingency was assessed by identifying and assessing the importance of factors that may inhibit the facilitation of learning in some way. The sub-construct inferred the level of difficulty in overcoming these factors to be successful, and was named General Teacher Efficacy (GTE) (Tschannen-Moran, Woolfolk-Hoy, and Hoy, 1998). Contingency in this case needed to be differentiated from the concept of locus of control. The ability of a teacher to be effective within a given context was not defined in the same way as the teacher's perceived locus of control. Instead, it indicated a measure of belief in one's ability to be effective given the constraints within the context, not a measurement of the perceived control or impact of the external factors.

Based on previous research studies (Gibson & Dembo, 1984; Soodak & Podell, 1993; Woolfolk & Hoy, 1990). Hoy & Woolfolk (1993) developed an abbreviated version of the self-efficacy measurement which was the original version of the one used in this study with ten items, five which measure PTE and five which measure GTE. Reliability was found for both sub-constructs to be within the range found for the full-length version (alpha = .77 for PTE, .72 for GTE). The questions for the current study were modified to read from a student perspective, based on the work of Hardré, Ge, and Thomas (2007).

Mastery versus performance goal orientation. To measure the construct of goal orientation, the five mastery goal questions and four performance goal questions were taken from an instrument utilized by Greene et al. (2004). Greene and colleagues reported modifying a survey developed and validated by Miller**,** Greene, Montalvo, Ravindran, and Nicholls (1996). Greene et al. (2004) found a Cronbach *alpha* reliability coefficient of .86 for mastery goals and .76 for performance goals, sufficiently high values to demonstrate evidence of internal consistency of the measures. The questions for mastery and performance goals were found to be correlated with a Pearson product-moment correlation value of .33, significant at $p<.01$.

Achievement motivation. To measure the construct of achievement motivation, a seven-item instrument was used to measure students' perceptions of their own effort toward the course and the value placed on learning and school-related activity. The instrument was based on research by Reeve and Sickenius (1994) and Hardré and Reeve (2003), and was anchored in the theory of self-determination with the combination of effort and value creating the level of engagement of an individual in a task. Engagement was thus defined as the means in which we achievement motivation was measured in this study.

Hardré and Reeve (2003) found the measurement of perceived value to be internally consistent (*alpha* = .80) and significantly correlated with scores from Ryan and Connell's (1989) Academic Self-Regulation Questionnaire's (ASRQ) identified regulation scale ($r = .69$, $p<.01$). The ASRQ was noted by Deci,

Vallerand, Pelletier, and Ryan (1991) to be one of the most relevant scales to the construct of motivation in education.

Academic and social integration. The study also attempted to account for the confounding nature of academic and social integration on the four primary psychosocial constructs, based on Tinto's (1975) model of student attrition. Nora (1993) suggested that academic integration was associated with the strength students' affiliation with the academic environment of an institution. Academic integration was determined by combining measures of intent to persist, academic connection to the institution, and connection to faculty variables. Intent to leave college has been found to be the strongest single predictor of attrition (Bean, 1982; Bean & Metzner, 1985). Based on previous research and the need to have positively directed variables, the researcher utilized the opposite concept and called the variable intent to persist. Intent to persist included intent to graduate from the institution (versus intent to transfer), time spent studying, declaration of a major, and expectancy to graduate. These components of intent to persist were drawn from the National Survey of Student Engagement's 2005 Annual Report as factors that contribute to students' persistence in college.

Connections to faculty and institution have also been strongly supported in the research as contributing to academic integration. Items to measure these relationships were drawn from Lotkowski, Robbins, and Noeth's (2004) research regarding the role for academic and non-academic factors in affecting college retention. Some specific itesm were taken from the research of Whitt, Pascarella,

Elkins-Nesheim, Marth, and Pierson (2003) in regard to supportive relationships with faculty and feelings of connection to the institution overall.

Social integration was determined by combining connection to peers, and perception of safety variables. In attempting to measure connection to peers, items were taken from Whitt, Edison, Pascarella, Nora, and Terenzini (1999), who created a questionnaire that measured peer interactions in both course-related (alpha = .79) and non-course-related issues (alpha = .84). Additional items were incorporated from the National Survey of Student Engagement 2005 Annual Report, which found student engagement in academic activity a primary factor in measuring student persistence and completion. Whitt et al. (1999) also suggested that students' locations of residence while in college (i.e., residence halls, fraternities or sororities, off-campus apartments) also contributed to feelings of connection to peers in the college environment. Thus, an item regarding housing arrangement was also included in the measurement of connection to peers.

Safety concerns were included as an aspect of social integration, due to research by Pascarella et al. (1997) suggesting that the perception of negative attitudes of peers or others toward women in the form of prejudice, discrimination, or aggressive action had significant negative effects on cognitive outcomes for female students. Other research on minority students also suggested safety and security needs as a priority for successful academic outcomes. Specific items were taken from Whitt et al. (2003) regarding safety and security issues of students.

Criterion variables for Hypothesis II. The criterion variables consisted of two categories of academic performance, based on the institution's policy of

academic standing. At this particular institution, students who received a 2.0 or lower grade point average during their first semester were placed on academic probation, thus the cut-off point for the groups. Therefore, the logistical regression analysis tested whether the predictor variables could significantly predict successful completion (i.e., a grade point average above a 2.0) and unsuccessful completion (i.e., a 2.0 or lower grade point average).

Procedure

Permission was granted by the course instructor and appropriate division administrators to approach the students and request participation in the project. With this permission granted, approval was then given by the Institutional Review Board at the university where the program exists.

The course instructor asked that the researcher request participation at the beginning of the second class period, due to the instructor having a lengthy agenda of material to cover in the first class period. The primary researcher attended the beginning of the second class period, verbally provided the entire class with information about the study along with reviewing a written copy of the consent form, and requested voluntary participation from the students. The instructor included participation in the study as one of several ways to obtain extra credit in the course.

Students who choose to participate read and signed the informed consent form, submitted it to the primary researcher, and were then given an assessment packet. To protect the confidentiality of participants, but to also provide for the matching of pre- and post-test scores, the assessment packets had a cover page on

which the participants provided their first and last names. This information was used by the researcher to code the packets and then destroyed. Coding included the first four digits of the participants' last names and the first three digits of their first names, allowing for the researcher to match post-test results at the end of the term. This cover sheet also allowed the researcher to provide a list of the participants' names to the course instructor for the purposes of receiving extra credit. This procedure was explained in the consent form and agreed to by the participants. Once they completed the packet, they returned it to the researcher. This procedure occurred during the first twenty minutes of the second class period.

Assessment packets were scored by the researcher and feedback sheets were completed and returned to the participants at the next class period. It provided information to the students regarding their scores on each of the constructs and an explanation of the constructs. The course instructor and assistant dean overseeing the program requested that this be a part of the project's procedure, hoping that the personal information might assist the participants in getting more out of the course intervention. Despite efforts by the researcher, some participants did not receive their feedback forms, due to those students not regularly attending class. The researcher maintained as a part of the data information on whether the feedback form was received by each individual participant. Although this information was not directly related to the primary research questions, it was used in post hoc analyses to see if a difference existed between the group who did receive feed back forms and the group who did not.

The researcher returned to the class at the sixteenth class session, one week prior to the final, and requested post-test participation from the students at the end of that class period. Informed consent was reviewed with written copies provided to and signed again by participants prior to completing post-test assessment packets. Because participants received extra credit points for completing the post-test assessment packet, any student was allowed to complete the post-test packet, regardless of whether they participated in the pre-test assessment. However, those post-test scores of participants who did not complete the pre-test assessments were not used in reporting the results. The researcher provided a list of participants to the course instructor so that extra credit could be provided to students who completed the assessment.

Data Analyses

The data analyses for the study began with descriptive statistics regarding the demographics, as well as the pre-test and post-test means for each of the variables. Data analyses in regard to the predicted positive change from pre- to post-test scores on the fours primary constructs and two confounding constructs utilized paired-samples *t*-tests. Stevens (1999) recommended multiple correlated paired-samples *t*-tests as possibly the best choice for pre- and post-test difference measures, with the use of the Bonferroni approach to keep alpha levels under control. Analysis of the second set of hypotheses in regard to evaluating the four primary constructs as predictors for successful completion of the course and semester were completed by using a hierarchical, logistical regression model, controlling for academic and social integration.

An *a priori* power analysis for the study demonstrated the need for a sample size of at least 82 participants for the effect size to be high (d = .9), at *alpha* = .001, and with the power of at least .95 [$t(80)$= 2.3739]. The low *alpha* level for the power analysis was used to take into consideration the Bonferroni adjustment procedure used with multiple independent t-tests. Due to the hypotheses of the study being directional in nature, these were calculated based on a one-tailed analysis. The sample size of 142 complete data sets appeared to meet the desired criteria for adequate power in the statistical analyses.

Limitations to the Study

Limitations to the generalizability of the results did exist. This study was based on the curriculum developed by a particular set of faculty at a particular institution. Despite the common elements in the curriculum of courses like this being offered at universities and colleges throughout the country, each course is slightly different and the recruitment of students for the courses is different. The expectations students have when enrolling in the course, as well as whether the course was recommended or required as a part of the academic program are all elements that may affect the generalizability of the results.

A second limitation was the lack of multiple treatment groups or a control group. Although the researcher discussed the possibility of a control group with the institution, it did not appear to be possible to identify one that would be appropriately comparable. A control group would have allowed for further discrimination of any possible results, ruling out effects of events occurring in the

lives of students or within the institution that may have impacted any changes found in the variables.

Finally, a third limitation was the knowledge that the primary instructor and at least one of the discussion leaders had in regard to the constructs of the study. It would have been impossible to study this specific population without the knowledge of the instructor. However, the primary instructor and discussion group leaders were not aware of the specifics of the instruments. Since the four primary constructs were directly related to the objectives of the course, it seemed irrelevant whether the instructor would be purposefully lecturing toward creating these outcomes or simply carrying through with the objectives of the curriculum. Although this could be viewed as a bias or conflict in the study, it seemed insignificant when considering that the ultimate goal of the course was to impact student success and achievement.

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