The Non-Cognitive Attributes of First-Year At-Risk Students Who Are Academically Successful and Retained at Old Dominion University

Tisha M. Paredes
Old Dominion University

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THE NON-COGNITIVE ATTRIBUTES OF FIRST-YEAR AT-RISK STUDENTS WHO ARE ACADEMICALLY SUCCESSFUL AND RETAINED AT OLD DOMINION UNIVERSITY

by

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A Dissertation Submitted to the Faculty of Old Dominion University in Partial Fulfillment of the Requirement for the Degree of

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OLD DOMINION UNIVERSITY

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ABSTRACT
The Non-Cognitive Attributes of First-Year At-Risk Students Who are Academically Successful and Retained at Old Dominion University

Tisha M. Paredes
Old Dominion University, 2008
Chair: Dr. Gwendolyn Lee-Thomas

With a decrease in state and federal funding, higher educational institutions need to focus on retaining students. However, student retention is a multifaceted problem that requires varied solutions. Traditional measures, or cognitive measures, of student success, such as pre-college knowledge (SAT and high school grade point average) have not explained how higher education institutions retained students, especially students who are considered at-risk. Since the nature of student retention is idiosyncratic, research needs to focus on other measures, such as students’ non-cognitive factors. Tinto has outlined non-cognitive factors, such as pre-college characteristics, goals and commitments, and institutional experiences, which influence students’ academic success and retention to the institution. Using Tinto’s model as a framework for this study, the purpose of this research was to examine the non-cognitive characteristics of at-risk first-year students to determine if there were differences between students who were academically successful and academically unsuccessful students and students who were retained and not retained to the institution. For the purposes of this study, at-risk students were identified by utilizing the Transition to College Inventory (TCI), which measures Tinto’s pre-college characteristics and goals and commitments. Additionally, first-year students’ institutional experiences were examined using the Freshmen Experience Survey.

This study’s sample included all first-year students who were identified as medium or
high risk, based on the TCI (n = 3,667). Additionally, students needed to complete the First-Year Biographical Questionnaire (BioQ) and the First-Year Experiences Survey (FES) to be included in this study. Logistical regression analyses were performed to test eight hypotheses. Results of the analyses performed revealed that pre-college characteristics, goals and commitments, and institutional experiences were significantly different for those at-risk first-year students who were academically successful than for those who were not successful. Additionally, analyses revealed that pre-college characteristics were significantly different for at-risk first-year students who were retained to the institution to the following fall semester than for those who were not retained.

Results from this study can inform higher educational practitioners about the types of programming and services needed to assist at-risk first-year students to become academically successful and be retained by the institution.
This dissertation is dedicated
to my family and friends
who supported me through this adventure – thank you.
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CHAPTER 1

Introduction

Recently an American College Testing (ACT) policy report stressed the need for an educated workforce, thereby allowing the United States to continue to successfully compete in an ever-changing global economy (Lotkowski, Robbins, & Noeth, 2004). Carnevale and Derochers (2003) reported that approximately six out of every ten jobs in the United States workforce requires postsecondary education or advanced skill training, generating a demand for more individuals to be educated well beyond high school. Additionally, when comparing 2003 unemployment rates of individuals with a bachelor’s degree (6%) to individuals with a high school diploma (14%) the positive impact of a higher education has on an individual and society becomes clear (Lotkowski et. al., 2004). The workforce and society look toward higher education institutions to satisfy the demand for more highly educated individuals; thus creating the need for higher educational institutions to attract and retain more students (Kezar, Chambers, & Burkhardt, 2005).

To help retain students through graduation, institutions offer a variety of programs and services designed to provide interactions that facilitate academic and social integration and adjustment to an institution. According to research, students who do not adjust academically or socially to an institution are more likely to be in academic difficulty after their first year and less likely to be retained by an institution (Astin, 1993; Braxton, Sullivan, & Johnston, 1997; Evans, Forney, & Guido-DiBrito, 1998; Tinto, 1993). However, the student “departure puzzle” (Braxton et. al., 1997, p. 108) is complex
because of how both academic and non-academic issues influence student retention or
departure from an institution (Braxton, Hirschy, & McClendon, 2004; Lotkowski et. al.,
2004; Tinto, 1993).

Typically, institutions utilize traditional academic measures, also referred to as
cognitive measures, such as high school grade point average and SAT or ACT scores to
predict the likelihood of retaining a student. ACT's meta-analyses of factors that
contribute to student retention, revealed a moderate relationship between high school
grade point average and ACT scores in predicting student retention (Lotkowski et. al.,
2004). Additionally, within the same study non-academic attributes, also referred to as
non-cognitive attributes, were shown to have a moderate to strong relationship in
predicting student retention. Many researchers have explored non-cognitive attributes that
contribute to student retention or departure. Alexander Astin (1977, 1993), John Bean
(1985, 2000), and Vincent Tinto (1975, 1993) have developed similar models and
theories of student departure and retention. Astin's theory stems from student
development theories and focuses on the student and their involvement inside and outside
of the classroom (Astin, 1993). Specifically, Astin (1984) defined student involvement as
"the amount of physical and psychological energy a student devotes to the academic
experience" (p. 297). A student who is involved or engaged in various academic and
social experiences has a higher chance of persisting, or being retained, by an institution
(Astin, 1933; Braxton & Hirschy, 2005). According to Astin (1993), students possess the
following dimensions that lead to their level of institutional involvement and
engagement: cognitive-psychological (educational knowledge and academics skills);
cognitive-behavioral (level of educational attainment and professional attainment);
affective-psychological (attitudes, values, and characteristics); and affective-behavioral (leadership skills, career choice, and quality of life) (Astin, 1993; Pascarella & Terenzini, 2005).

Bean’s model of student attrition takes into account organizational factors, institutional environment, and student characteristics and the effect those can have on students’ intention to stay or leave an institution (Braxton & Hirschy, 2005). Bean addressed how an institution’s environment influences students’ interactions with the institution and their self-efficacy and motivation (Bean & Eaton, 2000). Furthermore, students enter an institution with certain characteristics, such as past behaviors and beliefs, which influence how a student navigates the institution’s environment (Bean & Eaton, 2000; Braxton & Hirschy, 2005). Bean has also used this model for non-traditional student populations (Bean & Metzner, 1985; Braxton & Hirschy, 2005).

Tinto’s 1993 model of individual student departure is widely recognized as an exemplary framework for understanding student departure because of the vast amount of research dedicated to testing and validating his theory (Braxto et. al., 2004). Tinto provided three dimensions that have an effect on student departure and retention: (1) pre-college characteristics, (2) goals and commitments, and (3) institutional experiences. Furthermore, Tinto (1993) identified cognitive and non-cognitive attributes within each dimension (table 1). Together, the attributes in the pre-college characteristics and goals and commitments dimensions have a direct effect upon dimension three, institutional experiences, which can lead to academic and social integration or isolation (Tinto, 1993).
Table 1. Non-cognitive Attributes within Each Dimension

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Attributes</th>
<th>As measured by</th>
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<tr>
<td>Dimension 1:</td>
<td></td>
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<tr>
<td>Pre-college</td>
<td></td>
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<tr>
<td>characteristics</td>
<td>Family background</td>
<td>Social status, parental education, &amp; community size</td>
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<td></td>
<td>Personal attributes</td>
<td>Gender, race, first-generation, &amp; physical handicaps</td>
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<td></td>
<td>Skills</td>
<td>Intellectual &amp; social</td>
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<td></td>
<td>Financial resources</td>
<td>Financial aid or additional resources to pay for college</td>
</tr>
<tr>
<td></td>
<td>Dispositions</td>
<td>Motivations &amp; social and political preferences</td>
</tr>
<tr>
<td></td>
<td>Pre-college education &amp;</td>
<td>High school grade point average, college entrance exams, prior college knowledge</td>
</tr>
<tr>
<td></td>
<td>achievements</td>
<td></td>
</tr>
<tr>
<td>Dimension 2:</td>
<td></td>
<td></td>
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<tr>
<td>Goals &amp; Commitments</td>
<td>Intentions</td>
<td>Level of student dedication to attain educational goals</td>
</tr>
<tr>
<td></td>
<td>Goals &amp; institutional</td>
<td>The degree of dedication to the attainment of goals &amp; to the institution</td>
</tr>
<tr>
<td></td>
<td>commitment</td>
<td></td>
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<tr>
<td>Dimension 3:</td>
<td></td>
<td></td>
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<tr>
<td>Institutional</td>
<td>College academic</td>
<td>Receiving passing grades in courses</td>
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<tr>
<td>Experiences</td>
<td>performance</td>
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<td></td>
<td>Faculty &amp; Staff interactions</td>
<td>Inside &amp; outside of the classroom</td>
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<td></td>
<td>Peer group interactions</td>
<td>Social interactions, extracurricular activities, or external commitments</td>
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Although Astin, Bean, and Tinto have slightly different ideas about the influences on student retention or departure (i.e. student involvement, institutional environment, students’ pre-college characteristics, goals, and experiences), the similarities within each model still rest on three components: students’ pre-college characteristics, goals and commitments, and academic and social integration. These components are also referred to as students’ non-cognitive attributes.

Research focusing on these three dimensions has been extensive, however, there is still a limited understanding of students’ pre-college characteristics, goals and commitments, and how they integrate into an institution (Braxton et. al., 2004; Nora & Cabrera, 1996; Cabrera, Nora, & Castañeda, 1993; Rendón, Jalomo, & Nora, 2000). Additionally, Tinto (1993) has pointed out that since institutions are comprised of many “sub-cultures” (p. 105) of students and if we are to move towards a theory of individual departure, “one has to take account of the personal attributes of individuals which predispose them to respond to given situations or conditions with particular forms of behavior” (p. 110). Tinto (1993) posited that students who have more difficulty transitioning to college successfully due to certain non-cognitive attributes are at a higher risk of experiencing difficulty with their academics. Solving the departure puzzle requires compression of individual experiences, characteristics, and commitments and the influence they have upon student retention for at-risk students.

Most research that has focused on predicting student retention and college success has centered on traditional cognitive predictors (high school grade point average and college entrance exams) or students demographics, such as race and gender (Braxton et. al., 2004; Braxton et. al., 1997; Lotkowski et. al., 2004; Pickering, Calliotte, &
McAullife, 1992). Pickering, Calliotte, and McAulliffe (1992) proposed that while cognitive predictors are the traditional measure of students' success, "non-cognitive predictors may help to explain why some students who are at-risk succeed and why other students who should be successful are not" (p. 8). To measure non-cognitive attributes such as, students' disposition, social skills, and goals and commitments, and their relationship to first-year students' academic performance and retention, Pickering, Calliotte, and McAullife developed the Freshmen Survey based on research from Vincent Tinto, Alexander Astin, and William Sedlacek. The Freshmen Survey, now known as the Transition to College Inventory (TCI), has been refined over the past decade. Currently, the TCI is administered to first-year students before they enter college and is intended to "enhance the predictions of academic performance based only on cognitive (high school GPA, SAT/ACT scores) and demographic (gender, race, and first generation) factors" (Pickering, Calliotte, Macera, & Zerwas, 2005, p. 1). Based on the students' responses, the TCI identifies students who are at an increased risk of being in academic difficulty and/or attrition at the end of their first semester in college.

Statement of the Problem

The National Education Association (NEA) reported an overall 4% decrease in funding for higher education institutions between 2002 and 2004, with 29 states reporting a decline in appropriations to institutions (NEA, 2006). With limited resources, higher education has focused on attracting more students to increase enrollments; however, not all students who enter an institution are retained through graduation. The U.S. Department of Education reported in 2002 an overall 55% six-year graduation rate of all
undergraduate students who entered a four-year institution in 1995-1996. Furthermore, the six-year graduation rate of African-American and Hispanic students who enrolled in four-year public institutions was 41% in 2002 (U.S. Department of Education, 2002). This is a disturbing percentage given that total student enrollment for four-year institutions in 1999 – 2000 comprised of 40% African-Americans and 34% Hispanic students (Harvey, 2003).

Low graduation rates of students have forced higher education institutions to focus on when and why students are leaving institutions. Braxton et al. (2004) reports that one out of every four students who enter a four-year public institution will depart during their first year. Students leaving institutions within their first year has a negative effect on enrollments and budgets of institutions (Braxton et. al., 2004); however, it remains unclear as to the reason or reasons behind student departure. Braxton, Sullivan, and Johnson (1997) refer to this problem as the departure puzzle. The departure puzzle consists of “ill-structured problems that defy a single solution and require a number of possible solutions that may not alleviate the problem” (Braxton et al., 2004, p. 2). Since student experiences during their first year at an institution are varied, practitioners cannot isolate specific reasons why a student may stay or leave an institution, thus creating a multifaceted problem.

With a problem that needs multiple solutions, in the last two decades much research has been dedicated to understanding the student departure puzzle (Braxton et al., 2004), which has led to limited comprehension of student experiences and what effects those experiences have on departure or retention. The majority of research on student experiences stems from Tinto’s interactionalist theory of college student departure, first
proposed in 1975. Braxton, Hirschy and McClendon (2004) state that Tinto’s theory “holds paradigmatic status as a framework for understanding college student departure” (p. 2). Additionally, since there has been considerable testing of Tinto’s theory, there is an agreement among scholars that Tinto’s theory is valid and helps practitioners understand student departure (Braxton et. al., 2004; Cabrera, Nora, & Castañeda, 1993; Nora & Cabrera, 1996; Rendón, Jalomo, & Nora, 2006).

In his book *Leaving College: Rethinking the Causes and Cures of Student Attrition*, Tinto (1993) hypothesized that students enter institutions with existing pre-college characteristics, goals and commitments and it is their interactions with the academic and social systems of institutions that determines whether the individual student will stay in or depart from an institution. Specifically, students who experience academic and social interactions that facilitate positive academic and social integration into an institution will have a greater likelihood of being retained by an institution (Tinto, 1993). However, not all academic and social student experiences are positive and can lead to voluntary withdrawal from the institution.

Tinto maintained that students’ pre-college characteristics can directly influence their goals and commitments to an institution and educational achievements (i.e. academic performance or degree-completion). These pre-college characteristics influence students’ academic and social experiences and level of academic and social integration. Students who are considered to be at a higher risk of not integrating into an institution are at a higher risk of departing (Braxton et al., 2004; Tinto, 1993).

Tinto has not offered specific interventions; however, he did lay the framework for programs and services that can facilitate integration through specific interactions.
Although there has been considerable research that utilizes Tinto’s framework for facilitating student integration, there is still a gap in understanding “how and why different actions work on different campuses for different types of students” (Tinto, 1993, p. 3). Tinto’s pre-college characteristics give colleges and universities a specific population, often referred to as at-risk, to direct interventions that facilitate academic and social integration. By targeting at-risk students, institutions can help ease at-risk students’ transition to college.

It is still unclear why certain retention programs work with certain types of students in certain types of institutions. There is substantial research on successful retention programs, there is also a great deal of research focusing on the issues surrounding student departure; yet there is not a clear delineation of the reasons and causes of student departure (Tinto, 1993). Tinto (1993) stated “[w]hat we have yet to do and what we clearly need to do is to produce a viable synthesis of what we know about the character and cause of student departure and the nature of successful retention programs.” (p. 3). Additionally, researchers have pointed out the need for further examination of the role that external factors, such as social support and financial resources, have in the departure puzzle (Braxton et. al., 2004; Cabrera et. al., 1993).

With the varied research on successful retention programs and the limited understanding of the issues surrounding student departure, higher education institutions have the dilemma of choosing a successful retention program for at-risk students, while using their limited amount of resources effectively and efficiently. Research that focuses on examining the differences between what makes certain at-risk students successful,
while other at-risk students are not successful is also needed to assist higher education institutions in understanding how to better retain all at-risk students.

Purpose of the Study

Tinto’s theory of individual departure serves as the model for this study, which examined at-risk first-year students and their non-cognitive attributes to determine if there were differences between academically successful and academically unsuccessful students and students who were retained and not retained to the institution. For the purposes of this study at-risk students were identified by utilizing the TCI, which measures Tinto’s pre-college characteristics and goals and commitments. Additionally, first-year students’ institutional experiences were examined using the First Year Experiences Survey. Together all three non-cognitive dimensions, such as pre-college characteristics, goals and commitments, and institutional experiences, impact students’ social and academic integration to an institution (Tinto, 1993). Recommendations stemming from this research’s findings provided guidelines to institutional decision-makers on the types of programs and services that should be offered to help retain at-risk students.

Research Questions

This research study examined the pre-college characteristics, goals and commitments, and institutional experiences of first-year students identified as at-risk based on their non-cognitive attributes to determine if there were differences between academically successful at-risk first-year students and academically unsuccessful at-risk
first-year students. Additionally, at-risk first-year students’ retention to the following fall semester was examined. The main research questions leading this study were:

1. Were there significant differences between the pre-college characteristics of academically successful at-risk first-year students and the pre-college characteristics of academically unsuccessful at-risk first-year students at the end of the fall semester?

2. Were there significant differences between the goals and commitments of academically successful at-risk first-year students and the goals and commitments of academically unsuccessful at-risk first-year students at the end of the fall semester?

3. Were there significant differences between the types of institutional experiences of academically successful at-risk first-year students and the types of institutional experiences of academically unsuccessful at-risk first-year students’ at the end of the fall semester?

4. Were there significant differences between the pre-college characteristics of at-risk first-year students who were retained to the following fall semester and the pre-college characteristics of at-risk first-year students who were not retained to the following fall semester?

5. Were there significant differences between the goals and commitments of at-risk first-year students who were retained to the following fall semester and the goals and commitments of at-risk first-year students who were not retained to the following fall semester?
6. Were there significant difference between the types of institutional experiences of at-risk first-year students who were retained to the following fall semester and the types of institutional experiences of at-risk first-year students who were not retained following fall semester?

7. Were there significant differences between the non-cognitive attributes of academically successful at-risk first-year students and the non-cognitive attributes of academically unsuccessful at-risk first-year students’ at the end of the fall semester?

8. Were there significant difference between the non-cognitive attributes and academic standing of at-risk first-year students who were retained to the following fall semester and the non-cognitive attributes and academic standing of at-risk first-year students who were not retained following fall semester?

The following null hypotheses were constructed from the above research questions:

1. There are no significant differences between the pre-college characteristics of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

2. There are no significant differences between the goals and commitments of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

3. There are no significant differences between the types of institutional experiences of academically successful at-risk first-year students and
academically unsuccessful at-risk first-year students at the end of the fall semester.

4. There are no significant differences between the pre-college characteristics of at-risk first-year students who were retained and at-risk first-year students who were not retained to the following fall semester.

5. There are no significant differences between the goals and commitments of at-risk first-year students who were retained and at-risk first-year students who were not retained to the following fall semester.

6. There are no significant differences between the types of institutional experiences of at-risk first-year students who were retained and at-risk first-year students who were not retained to the following fall semester.

7. There are no significant differences between students' non-cognitive attributes of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

8. There are no significant difference between students' non-cognitive attributes and academic standing of at-risk first-year students who were retained and at-risk first-year students who were not retained to the following fall semester.

Significance of the Study

By identifying significant influences of pre-college characteristics, goals and commitments have on student experiences this study assists higher education institutions in implementing effective programs and services that help first-year at-risk students with their academic and social integration into the institution. Integration into an institution has been a leading factor related to retention of students (Astin, 1997; Bean, 2005;
Braxton et al, 1997; Evans et al, 1998; Tinto, 1994; Widick et al, 1978). Through the implementation of targeted programs and services, institutions will be able to retain at-risk students effectively and efficiently.

Limitation of the Study

The following factors threatened generalizability and internal validity of the study:

1. This study only examined at-risk students who entered in fall semester during 2000 to 2006 at one urban, doctoral research-extensive institution in the Mid-Atlantic region.
2. Students self-selected participation in institutional experiences.
3. This study did not control for major or course of study of the students during their first semester.
4. This study did not examine the intersectionality of attributes, such as gender and race, and HSGPA and socioeconomic status.

Definition of Terms

At-risk students

For this study, at-risk students were identified by their non-cognitive attributes, as measured by the TCI. The term at-risk will refer to students who score 5 and above on the TCI Index.

Academic Standing: Successful and Unsuccessful
First-year students' fall semester cumulative GPA was used to determine if students were academically successful or unsuccessful. Academic success, for this study, was defined as a grade point average (GPA) equal to or above 2.0 on a 4.0 scale at the end of the student's first semester. Conversely, students GPAs that fell below a 2.0 in their first semester were considered academically unsuccessful.

Retention

For the purpose of this study, retention of a student was based on students' enrollment to the university the following fall semester. Students who re-enrolled in the following fall semester to the university will be considered retained. Students who did not re-enroll in the following fall semester to the university were considered not retained. This is the traditional one-year retention rate reported by many higher education institutions.

Summary

A global economy commands an educated workforce. In order for higher education institutions to provide society with additional educated and skilled personnel, colleges and universities need to address why students are not retained through graduation. Research focusing on how institutions can retain students has been extensive, with the majority of research focusing on students' adjustment and integration to an institution. Students who do not academically or socially adjust to an institution have a greater chance of a low academic performance in their first year leading to an increased likelihood of not being retained by an institution (Astin, 1997; Braxton et al, 1997; Evans et al, 1998; Tinto, 1993).
Tinto (1993) further explored students' academic and social adjustment and provided three dimensions that affect students' departure or retention: (1) pre-college characteristics, (2) goals and commitments, and (3) institutional experiences. Furthermore, he theorized that students' pre-college characteristics and goals and commitments can directly affect their institutional experiences and lead to institutional integration or isolation (Tinto, 1993). Personal attributes, such as pre-college characteristics or commitments and intentions that affect students' successful integration into an institution are at a higher risk of experiencing academic difficulty and are more likely to leave an institution after their first semester (Tinto, 1993).

In order to understand and work towards a solution of the student departure puzzle, higher education institutions need to be able to identify at-risk students and prescribe interventions that will facilitate a successful transition to college.
CHAPTER 2

Review of the Literature

According to Tinto and Pusser (2006), student success in their first-year is dependent on two aspects: individual attributes and institutional environment. Students' individual attributes include pre-college characteristics and goals and commitments. Institutional environment includes institutional commitment, institutional expectations, support, feedback, and involvement, or engagement (Tinto & Pusser, 2006). Students' institutional experiences that encompass supportive and engaging environments can create conditions that promote their success. A review of the literature that provides a variety of definitions for at-risk students in higher education along with an examination of at-risk students' institutional experiences are addressed.

Definitions of At-Risk Students

For more than 20 years, there has been extensive research focused on defining at-risk students through demographic characteristics such as race and gender (Pickering et. al., 1992; Braxton et. al., 2004; Braxton et. al. 1997; Lotkowski et. al., 2004); however, for the purposes of this study at-risk students will be defined through students' pre-college characteristics, goals and commitments, and institutional experiences, also referred to as students' non-cognitive attributes, although this study recognizes that not examining the intersectionality of demographic characteristics was a limitation. Tinto (1993) maintained that students enter institutions with non-cognitive attributes, such as pre-college characteristics, goals and commitments and it is their institutional experiences
or interactions with the academic and social systems of institutions, that determines whether the individual student will stay or depart from an institution. Moreover students’ pre-college characteristics can directly influence their goals and commitments to an institution and educational achievements (i.e., academic performance or degree-completion). These pre-college characteristics influence students’ academic and social experiences and level of academic and social integration. Students who are considered to be at a higher risk of not integrating into an institution are at a higher risk of departing (Tinto, 1993; Braxton et. al., 2004).

Students’ non-cognitive attributes, such as pre-college characteristics, goals and commitments, and institutional experiences, can influence their academic achievement and retention (Braxton, 2000; Braxton & McClendon, 2002; Mangold, Bean, Adams, Schwab, & Lynch, 2003; Lotkowoksi et al, 2004; Robbins, Allen, Casillas, Peterson, & Le, 2006). Non-cognitive attributes, in combination with cognitive factors (i.e. high school grade point average or college entrance exams) and demographic characteristics (gender, race, and ethnicity) can assist in understanding what Braxton, Sullivan, and Johnson (1997) refer to as “the student departure puzzle”(p. 108) (Pickering et. al., 1992; Braxton & Lee, 2005).

Dimension 1: Pre-college characteristics

In Tinto’s (1993) theory of college student departure, pre-college characteristics are defined as personal attributes that students possess before entering college. Specifically, Tinto identified students’ pre-college characteristics as their family background, personal attributes, intellectual and social skills, financial resources, dispositions, and pre-college education and achievements. In Alan Seidman’s 2005 book
College Student Retention: A formula for success, Braxton and Lee examined Tinto's 1993 student departure theory "because it is paradigmatic in the study of college student departure" (p. 108). Braxton and Lee (2005) asserted that Tinto's theory still remained relevant to policies and practices in today's four-year higher education institutions due to the extensive body of research testing the validity and reliability of the theory since it was first revealed in 1975.

Braxton and Lee (2005) performed empirical tests on Tinto's theory to determine a framework for "reliable knowledge" (p. 108) about students and identify testable propositions that "are logically interrelated and as a set explain college student departure" (p. 110). From the propositions, Braxton and Lee examined research studies that used multivariate statistical analyses and included only 4-year universities or colleges to test one or more of the propositions. Pre-college characteristics, such as family background, personal attributes, and pre-college education and achievements are examined as a group, called "student entry characteristics" (Braxton & Lee, 2005, p. 112), for the affect they have on institutional commitment and persistence (Braxton & Lee, 2005).

"Student entry characteristics affect on the level of initial commitment to the institution" (Braxton & Lee, 2005, p. 112), was examined by twenty-nine different research studies conducted in residential four-year higher education institutions, with 55% of the studies yielding evidence supporting student's entry characteristics' influence on their level of commitment to an institution. Moreover, this finding corroborates with Tinto's 1993 assertion that students' pre-college characteristics, such as family background, personal attributes, and pre-college education and achievements have an influence on their commitment to an institution.
Next Braxton and Lee (2005) tested the proposition that "student entry characteristics affect the level of initial commitment to the goal of graduation from college" (2005, p. 112). Braxton and Lee (2005) examined six different research studies that explored this proposition, with two-thirds producing supporting evidence of students' entry characteristics affecting their intention or goal to graduate from a four-year institution (Braxton & Lee, 2005). Once more we see evidence affirming Tinto's 1993 theory regarding students’ pre-college characteristics and their affect on students’ intentions and goals to remain in an institution and graduate.

Lastly, Braxton and Lee (2005) examined the proposition that "student entry characteristics directly affect the student’s likelihood of persistence in college" (p. 112). Out of the nineteen research studies identified, seven produced evidence supporting the assertion that students’ entry characteristics affect their intention to persist in a four-year higher education institution. Braxton and Lee (2005) concluded that there is not enough evidence from this study to confirm Tinto’s 1993 statement that students’ pre-college characteristics affect their intention to persist at an institution.

Based on Braxton and Lee (2005) research on student entry characteristics also referred to as pre-college characteristics by Tinto (1993), it can be concluded that the majority of research supported Tinto’s theory that students pre-college characteristics, such as family background, personal attributes, and pre-college education and achievements have an effect on their goals and commitments to an institution and educational achievements (i.e. academic performance or degree-completion). However, contradictory to previous research findings, the majority of the research did not support Tinto’s theory with regard to students’ pre-college characteristics effecting students’
intention to persist at an institution. Braxton and Lee (2005) acknowledged that more research should be performed on students' pre-college characteristics. Specifically, they proposed that each pre-college characteristic (family background, personal attributes, and pre-college education and achievements) should be examined separately for their effect on students' institutional experiences, which as Tinto (1993) asserted, can effect their intention to persist at a four-year institution (Braxton & Lee, 2005; Tinto, 1993). Furthermore, the student departure puzzle is complicated by other pre-college characteristics identified in Tinto's (1993) model: intellectual and social skills, financial resources, and dispositions.

*Family Background*

In Tinto's (1993) model family background includes students' socio-economic status and parental education. A review of the literature revealed that families with a lower-income have a negative effect on student retention, (DuBrock, 1999; Smith, 1995; Ishanti & DesJardins, 2002; Pascarella & Terenzini, 2005) particularly in the student's second and third years (Nora, Barlow, & Crisp, 2005; Horn & Kojaku, 2001) and degree completion (Cabrera, Burkum, & Nasa, 2005; Terenzini, Cabrera, & Bernal, 2001; Pascarella & Terenzini, 2005). ACT performed a study to determine the relationship of non-cognitive attributes on first-year students' retention and concluded that students' socioeconomic status (SES) had a moderate relationship to their retention and first-year college performance (i.e., GPA) (Lotkowoksi et. al., 2004). In this study, the researchers concluded that the strength of the relationship between non-cognitive attributes and student retention and first-year college performance is the strongest when SES is
combined with other factors, such as pre-college test scores, high school grade point average, academic self-confidence, and motivation.

Also related to students’ socioeconomic status, is parental education level. Studies examining parental education of first-year students show a moderate to strong relationship between parents’ level of education and students’ academic success or retention (Allen, 1997; Astin, 1993; Astin, Tsui, & Avalos, 2000; Bernal, Cabrera, & Terenzini, 2000; Bridgeman, McClamley-Jenkins, & Ervin, 2000; House, 1996; Guppy & Pendakur, 1989; Zheng, Saunders, Shelly, & Whalen, 2002). Specifically, the higher the level of education attained by one or both parents, the more likely a student will remain in a college or university (Nora et. al, 2005). Research performed on over 3,000 first-time freshmen, of which 51% were female, revealed that mother’s educational attainment had a significant impact on retention of students who come from a lower-income family (Ishitani & Desjardins, 2003). Moreover, it was determined that for lower-income families, students whose mother completed an undergraduate degree were “57% more likely” (p. 180) to remain in a four-year institution through their third year than students whose mothers did not complete an undergraduate degree (Ishitani & Desjardins, 2003).

**Personal Attributes**

In Tinto’s (1993) model, personal attributes are measured by gender, race, first-generation, and physical disabilities. Research performed on personal attributes and their effect on students’ academic performance and retention yield mixed results; however, most research concluded that personal attributes should be combined with other student characteristics in order to understand student academic performance and retention (Bean,
Gender: The National Center for Educational Statistics (NCES) performed a study that included over four-thousand private institutions, 55% of the total undergraduate full-time population was female, and 65% were White (NCES, 2005). NCES (2005) reported that across 4,028 public higher education institutions, females have higher four-year, 5-year, and 6-year graduation rates than males. Research studies performed on differences between retention and graduation rates of males and females supports the national trend (Nora et. al., 2005; Zhu, 2005). Populations in both studies were majority female (55%) and concluded independently that overall retention and graduation rates for females were consistently higher than males. Nora, Barlow, and Crisp (2005) also suggested that academic and social experiences and institutional choice could be influencing the differences among females and males.

Research examining the effect of gender on student retention yields mixed results (Ruban & McCoach, 2005). In a study performed by DuBrock (1999) that included over 6,500 full-time freshmen students, for which nearly half were female. DuBrock’s findings concluded that females were more likely to persist than males in the second and fourth years of college; however, males were more likely to re-enroll in the third year of college than females. Conversely, Smith (1995) determined that regardless of academic year, females were more likely to persist than males. Hagedorn, Maxwell, and Hampton (2001) also examined male and female retention rates and determined than males had a lower retention rate than females. This finding is supported by research independently performed by Smith (1995) and Zhu (2005). Both studies separately concluded that
females had significantly higher retention rates than males. Specifically, Zhu (2005) determined that males are negatively affected with regard to retention rates.

With regard to academic performance differences between males and females, research suggests that females perform academically better overall than males (Dixon, 2003; Ereckson, 1992; Kinloch, Frost, & MacKay, 1993; Zhu, 2005). A study performed by Bauer and Liang (2003), that included 265 freshmen students (58% females, 42% males), found that females had a higher GPA at the end of their first year than males, however the finding was not statistically significant. In contrast, in a structural equation model constructed by Ruban and McCoach (2005), included 328 freshmen students (51% female), revealed that gender did not have an impact on predicting students’ first year cumulative GPA.

**Race:** Race is often used as predictors of academic success and retention (Braxton et. al., 2004; Lotkowoki et. al., 2004; Nora et.al., 2005; Robbins et. al., 2006; Sedlacek, 2004; Seidman, 2005; Tinto, 2006;). Nora, Barlow, and Crisp (2005) performed a study on about 3,000 freshmen students, of which 35% were White, 19% were Black, 23% were Hispanic, and 21% were Asian or Pacific Islander. Their research supported national trends, concluding that 6-year graduation rates of White students (35.6%) were higher than Black students (32.0%), and Hispanic students (33.8%).

Smith (1995) determined that Black, Hispanic, and American Indians had lower persistence rates than other ethnic groups such as Asians. DuBrock’s (1999) research found a similar conclusion in that Black, Hispanics, and American Indians had lower persistence rates than other ethnic groups; however, he determined that among the three groups, American Indians had significantly lower persistence rates and Hispanics had
significantly higher persistence rates. A study performed by Nora et. al. (2005) supports Smith’s (1995) findings regarding Asian students, with Asian students having a higher retention rate than any other ethnic group (82.9%). Conversely, in the same study, Black and Hispanic students had the lowest retention rates, with 75.2% Black and 71.3% Hispanics enrolling in the second year (Nora et al., 2005). Unexpectantly, Nora et al (2005) found that White students’ retention rates were lower than Black and Hispanic students, with “[o]nly 66.4 percent of White students retained to the second year and 49.6 percent retained to the third year” (p. 141). Differences among each ethnic group manifested upon further examination. Black students had the highest second to third year dropout rate, while Hispanic students’ retention rate steadily declined each year (Nora et al, 2005). The researchers suggest further examination of other factors, such as institutional experiences to determine why there are differences from year to year among the groups (Nora, Barlow, & Crisp, 2005).

Additional research also illustrates the differences in academic success and race, with minority groups experiencing less academic success than Whites. Dixon (2003) compared the academic probation rates of non-White (e.g. Black, Hispanic, and Asian) to Whites after their first year in college. The study’s findings demonstrated that non-White students had higher academic probation rates (GPA lower than 2.00) after their first year than White students (Dixon, 2003). A body of research also supports Dixon’s finding of non-White students having less academic success than White students (Griffin, 1980; Jones, 2000; Mansfield, Pinto, Parente & Worman, 2004). Kinloch, Frost, and MacKay (1993) focused on Black males and academic achievement. It was determined that Black students had lower academic achievement and higher rates of academic probation (GPA
below 2.00) after their first year than any other minority group, including American Indians, Asians, and Hispanics (Kinloch, Frost, & MacKay, 1993).

**First-Generation:** The term first-generation refers to students in higher education institutions whose parents did not complete a four-year degree (Horn & Nuñez, 2000; Isihitanti, 2003; NCES, 2005; Pascarella & Terenzini, 2005; Warburton, Bugarin, & Nuñez 2001). Overall, first-generation students have difficulty entering higher educational institutions and struggle with academic achievement, retention, and graduation (Horn & Nuñez, 2000; Isihitanti, 2003; Nuñez & Cuccaro-Alamin 1998; Pascarella & Terenzini, 2005; Richardson & Skinner, 1992; Thayer, 2000; Warburton, Bugarin, & Nuñez 2001). From 1992 to 2000, first-generation students represented 22% of the total first-year enrollment in four-year higher education institutions (NCES, 2005). The National Center for Educational Statistics (2005), collected information from about 7,400 students. NCES (2005) reported that by the year 2000, approximately 43% of the first-generation students (22%) who enrolled from 1992 to 2000, were no longer enrolled in a college or university and only 24% of the same population had completed a four-year degree. Conversely, in 2000 students with parents who completed a four-year degree had higher retention rates and higher four-year degree completion rates, with only 20% leaving without a degree and 68% attaining a four-year degree (NCES, 2005).

A study performed by Warburton, Bugarin, and Nuñez (2001) examined 12,000 first-generation students' academic preparedness, persistence rates, and degree completion. The demographic breakdown of this study included 56% females, 61% White, and 14% Black (Warburton et. al., 2001). As in the NCES (2005) study, Warburton et. al., 2001 discovered that first-generation students were less likely to be
academically prepared, persist after three years, and attain a degree than non-first-generation students. After controlling for academic preparedness, parents’ level of education was found to have a significant impact on students’ persistence and degree completion rates (Warburton et. al., 2001). Additional research (Harrell & Forney, 2003; Richardson & Skinner, 1992; Thayer, 2000) also supports first-generation students’ lower academic achievement and retention and graduation rates.

Skills

Skills in Tinto’s (1993) model include the intellectual and social skills a student possesses before they enter a higher education institution. Students who lack intellectual skills, also referred to as academic-related skills, are less likely to be retained by an institution, mainly due to their poor academic performance their first semester or year (Lotkowski et. al., 2004; Tinto, 1999; Tinto & Pusser, 2006). Furthermore, social skills, such as self-efficacy, self-concept, and perceived institutional support, can influence students’ ability to transition successfully to college their first year (Pascarella & Terenzini, 2005; Tinto, 1993).

Intellectual Skills. Intellectual skills, also referred to as academic-related skills, include time-management skills, study skills, study habits, and problem-solving skills (Bean, 2005; Lotkowski et. al., 2004; Robbins, Lauver, Le, Davis, Langley, & Carlstrom, 2004). The relationship between academic-related skills and retention is varied. Lipsky and Ender (1990) examined students’ academic-related skills and their effect on first-year retention. Their findings suggested that academic-related skills had little or no effect on first-year retention (Lipsky & Ender, 1990). Other studies examining the relationship between academic-related skills and first-year retention have reported low or weak
relationships (Lee, Casillas, Robbins, & Langley, 2005; Robbins, Allen, Casillas, Peterson, & Le, 2006). However, there are studies that do not support findings that suggest academic-related skills do not effect first-year retention. In a meta-analysis performed by Robbins, Lauver, Le, Davis, & Langley (2004), that included over 450 research studies, with sample sizes ranging from 40 to 4,805, academic-related skills were found to have a strong relationship to first-year retention. A similar study, performed by Lotkowski et. al. (2004) revealed a strong relationship between academic-related skills and first-year retention.

There is a body of evidence affirming that academic-related skills are positively linked to students’ first-year cumulative GPA (Brocato, 2000; Elliot, McGregor, & Gable, 1999; Humphrey, 2006; Kern, Fagley, & Miller, 1998; Lee, Casillas, Robbins, & Langley, 2005; Nobel, Davenport, Schiel, & Pommerich, 1999; Peterson, & Le, 2006; Robbins, Allen, Casillas, 2007; Robbins, Davenport, Anderson, Kliewer, Ingram, & Smith, 2002). An ACT study (Lotkowski et. al., 2004) revealed a moderate relationship between academic-related skills and students’ first-year GPA. This finding is supported by Robbins, Lauver, Le, Davis, and Langley (2004), who reported a low relationship between academic-related skills and first-year GPA.

**Social Skills.** Social skills include students’ self-efficacy, self-concept, and perceived institutional support (Lee et. al., 2005; Lotkowski et. al., 2004; Robbins et. al, 2006; Robbins et. al., 2004). The research on students’ social skills and their effect on first-year retention and GPA yield mixed results. Several studies examining the relationship between social skills and retention and GPA reported a low to moderate relationship (Kahn & Nauta, 2001; Lee et. al., 2005; Lotkowski et. al., 2004; Multon,
Brown, & Lent, 1991; Robbins et. al., 2006; Vancouver, Thompson, Tischner, & Putka, 2002). However, when cognitive characteristics, such as ACT/SAT scores and HSGPA, are controlled, the relationship between social skills and retention and GPA increased to moderate or strong (Lee et.al., 2005; Lotkowski et. al., 2004; Vancouver et.al., 2002; Robbins et.al., 2006). Vancouver, Thompson, Tischner, and Putka (2002), examined 87 students, and reported a negative relationship between social skills and students’ GPA; however they asserted that the negative relationship was due to students’ committing “logical errors because of overconfidence” (p. 512).

Social skills research can be an “ill-disciplined field” (Hattie & Hansford, 1982, p. 123); however Pascarella and Terenzini (2005) stressed that social skills effect students in both positive and negative ways. Social skills can influence students’ academic performance and can be influenced by academic performance (Pascarella & Terenzini, 2005). Astin (1993) determined that social skills were negatively influenced by students’ poor academic performance in first-semester courses. Bean (2005) suggested future research should examine the interaction between social skills and academic performance. He maintains that social skills influence academic performance and academic performance influence social skills (Bean, 2005).

**Financial Resources**

Financial resources, such as financial aid and ability to pay for one’s education through loans, have an impact on students’ academic performance, retention, and graduation rates (Cabrera, Nora, & Castañeda, 1993; Nora & Cabrera, 1996; Nora, Cabrera, Hagedorn, & Pascarella, 1996; St. John, Cabrera, Nora, & Asker, 2002; Tinto, 1993;). Pascarella & Terenzini (2005) maintain that there is “a large body of research
[that] focuses on the net effect of financial aid on student decisions about whether and where to go to college” and “[f]ewer studies examin[ing] the effects of financial aid on students’ subsequent decisions to persist and graduate” (p. 407). Despite the limited evidence gathered on students who received financial aid after they enter an institution, research has demonstrated that stress from “financing one’s education” (Nora, Barlow, & Crisp, 2005, p. 135) negatively impacts a student’s retention at higher education institutions (Nora et.al., 1996; Pascarella & Terenzini, 2005). Specifically, Nora et al. (2005) theorized that the stress associated with paying for books, room and board, and tuition impacts students’ level of academic and social integration and interaction into their institution’s community (Nora et al., 2005). Conversely, students who received financial aid had higher levels of retention than students who did not receive financial aid (DuBrock, 1999; Ishitani & DesJardins, 2002).

Additional research supports the assertion that financial pressure negatively impacts student retention. In a study performed by Lotkowski et.al. (2004), financial support, in the form of financial aid, was shown to have a moderate relationship to students’ first-year retention and academic performance. Furthermore, four separate studies focusing on the impact of financial resources on students’ retention into their second and third years reached the same result regarding retention rates (Nora, Barlow, & Crisp, 2005; Nora, 2004; Nora & Cabrera, 1996; Cabrera, Nora, & Castañeda, 1993). Students who were exempt from paying tuition and received financial aid were more likely to be retained into their second and third years than students who did not receive financial assistance (Nora et. al., 2005; Nora, 2004; Nora & Cabrera, 1996; Cabrera et. al., 1993).
Dispositions

Student dispositions, such as motivations and social or political preferences have an effect on students’ academic performance and retention (Astin & Oseguera, 2005; Pascarella & Terenzini, 2005; Tinto, 1993). Using data from the Cooperative Institutional Research Program (CIRP) that included over 90,000 students from 424 different institutions, Astin and Oseguera (2005) concluded that involvement in social activism activities, possessing a desire to influence social values, and exhibiting a drive to achieve, positively affected student retention and degree completion. Conversely, students “[w]anting to write original works, expecting to develop a meaningful philosophy of life, and wanting to get involved in programs to clean up the environment were negative predictors” (Astin & Oseguera, 2005, p. 248) of degree completion.

Additional studies have found that motivation and determination are positively related to students’ first-year retention rates (Robbins et.al., 2006; Robbins et.al., 2004); whereas other studies note that motivation has a minimal positive effect on students’ academic achievement (Lotkowski et.al., 2004; Lammers, 2001).

Studies focusing on students’ motivation have found a positive correlation with GPA (Bandura, 1993; Hirsch, 1994; Horn, Bruning, Schraw, & Curry, 1993; Isaak, Graves, & Mayers, 2006; Gore, 2006). Bandura (1993) maintains that students’ success in the first year of college is strongly correlated with motivation to be successful. Furthermore, although a minimal affect on students’ academic achievement and motivation was found, Lotkowski et al. (2004) recommend that retention and academic success programs should strive to help students increase their levels of motivation.
Pre-college Education and Achievements

Tinto (1993) refers to high school grade point average, college entrance exams, and additional prior college knowledge as pre-college education and achievements. Traditional admissions measures such as, standardized tests (i.e., SAT and ACT) and high school GPA have been shown to predict students’ first-year retention and degree completion (Astin, 1993; Astin & Osegurea, 2005; Titus, 2003). Isonio (1995) asserted that, “past academic [performance] history is a strong predictor of current academic performance” (p. 9). However, studies performed by Sedlacek (2004), Astin and Osegurea (2005), Flemming and Garcia (1998), and Nora, Barlow, and Crisp (2005) have demonstrated that traditional measures do not predict as strongly as some studies suggest or should be examined for gender and race differences. Furthermore, Nora, Barlow, and Crisp (2005) state “no research exists that points to any substantive validity of SAT scores in predicting overall student adjustment to college, academic engagement in the classroom, retention rates, or graduation rates” and that “the precise nature of the role [high school GPA and high school quartile] play in the persistence process remains unclear” (p. 147).

Astin and Osegurea (2005) found that high school grade point average had the strongest predictive power regarding students’ retention and academic success. However, when they examined students’ characteristics further, they concluded that students with higher high school GPAs and standardized test scores were more likely to attend highly selective colleges or universities and have parents who completed a four-year degree. With these factors taken into account, the researchers conclude that high school GPA and standardized test scores are “only weakly related” (p. 258) to student retention and
academic success. Other studies have also concluded that high school academic performance had very little effect on student academic performance and retention (Nora & Cabrera, 1996; Cabrera et.al., 1993).

There are mixed results related to standardized test scores and high school GPA. DuBrock (1999) found that high school GPA significantly related to student retention; however, in the same study it was demonstrated that high standardized test scores (SAT scores above 1010) had no significant effect on student retention. An ACT study revealed that high school GPA and ACT scores have a strong relationship to students’ college GPA and a moderate relationship to students’ retention (Lotkowski et. al., 2004). When ACT scores and high school GPA were combined with students’ motivation, a very strong relationship with college GPA and retention was produced, leading the researchers to conclude that both academic and non-academic factors, also known as non-cognitive attributes, play a major role in students’ academic success in college and retention (Lotkowski et al., 2004).

**Dimension 2: Goals and Commitments**

Within this dimension, goals and commitments include students’ educational goals and their commitments to their goals and the institution they are enrolled. Tinto (1993) defines goals as a result of students’ hope to achieve, such as degree completion. Commitments include the degree to which a student is committed to achieving their goals (goal commitment) and their commitment to the four-year higher education institution they enter (institutional commitment) (Tinto, 1993).

*Goals*
Research demonstrates that students who have clear educational goals are more likely to persist and remain in a college or university (Adelman, 1999; Cabrera, Burkum, & LaNasa, 2005; Kinnick & Kempner, 1988; Lee & Frank, 1990; Lotkowski et al., 2004). Additional studies reveal a strong connection between education goals and college outcomes, such as academic performance and first-year retention rates (Coleman & Freeman, 1996; Schmitt, Oswald, Kim, Imus, Merritt, Friede, & Shivpuri, 2007; Ramirez & Evans, 1988; Robbins et al., 2006; Robbins et al., 2004). Furthermore, Tinto (1996) suggests that first-year students who have academic goals, such as academic performance and intention to remain in college, are more likely to attain those goals. Braxton and Lien (2000) refer to the “student persistence decision” (p. 12) as a major influence on student retention at four-year institutions.

Cabrera, Burkam, and LaNasa (2005) conducted a study using National Education Center Statistics that included over one million students. Cabrera et al. (2005) examined students who had a goal of completing a four-year degree and their subsequent degree competition rates, with findings consistent with previous research (Adelman, 1999; Kinnick & Kempner, 1988). The findings revealed a significant association between students’ goals and degree completion (Cabrera et al., 2005). Specifically, students who indicated that it was important to them to complete a four-year degree were more likely to attain a four-year degree than students who indicated a four-year degree was not important to them (Cabrera et al., 2005). In a separate study, conducted by Lotkowski et al. (2004), students’ academic goals and first-year retention were examined. For this study, academic goals were defined as obtaining a college degree (Lotkowski et al.,
The findings show a strong relationship between students who wanted to obtain a college degree and first-year retention rates (Lotkowski et al., 2004).

**Goal Commitment and Institutional Commitment**

Students’ commitment to attaining educational goals and commitment to the institution in which they enroll can have an affect on their academic performance, retention, and degree completion rates (Bradburn, 2002; Cabrera et al., 2005; Ishanti & DesJardins, 2002; Lotkowski et al., 2004; Robbins et al., & Le, 2006; Robbins et al., 2004;). An ACT study (Lotkowski et al., 2004) revealed a strong relationship between students who indicated they were committed to achieving their goals and first-year retention rates. Cabrera, Barlow, and Crisp (2005) conducted a study that supported ACT’s (Lotkowski et al., 2004) findings and revealed a positive correlation between first-year retention rates and students’ level of commitment to achieving goals. Students who had a higher level of commitment to achieving their goals were more likely to persist than students who had a low level of commitment to achieving their goals (Cabrera et al., 2005). Additionally, students who were not committed to attaining a four-year degree were less likely to persist than students who were committed to degree attainment (Cabrera et al., 2005).

Robbins, Lauver, Le, Davis, and Langley (2004) conducted a meta-analysis of the correlation between students’ academic outcome, defined as first-year retention and academic performance, and students’ commitment to achieving academic goals and commitment to the institution. The results revealed a “highly positive” (Robbins, Lauver, Le, Davis, & Langley, 2004, p. 270) correlation between goal commitment and first-year retention rates and institutional commitment and first-year retention rates (Robbins et al.,
2004). Regarding first-year academic performance and goal commitment and institutional commitment, Robbins, et al. (2004) found that goal commitment had a high correlation to a first-year academic performance and institutional commitment had a moderate correlation to first-year academic performance.

Dimension 3: Institutional Experiences

The third and final dimension of Tinto's (1993) model contains student experiences after they enter an institution, such as college academic performance, faculty and staff interactions, and peer group interactions. Tinto (1987) states that “[t]hough the intentions and commitment with which individuals enter college matter, what goes on after entry matters more” (p. 127). Additionally, he asserted that institutional experiences are directly influenced by the pre-college characteristic dimension and the goals and commitments dimension, which can lead to academic and social integration or isolation (Tinto, 1993).

College Academic Performance

“Probably no other variable’s relation to persistence or degree completion has attracted more attention than grade [academic] performance” (Pascarella & Terenzini, 2005, p. 396). College academic performance refers to students’ academic achievement in courses (Pascarella & Terenzini, 2005; Tinto, 1993). During students’ first year in college, initial course performance can have an effect on their retention and graduation; however, it is unclear how much of an effect academic performance has on retention and graduation rates (Astin, 1993; Braxton & Lien, 2000; Cabrera et al., 1993; Nora et al., 2005; Pascarella & Terenzini, 2005; Tinto, 1993;). Astin (1993) maintains that grades in
courses are an imperfect measure of student learning or intelligence. Additionally, academic performance could be influenced by students’ pre-college characteristics, such as intellectual skills and dispositions, as well as students’ goals and commitments (Astin, 1993, Pascarella & Terenzini, 2005; Tinto, 1993). Nevertheless, Pascarella and Terenzini (2005) uphold that grades are the universal language of higher educational institutions and are “the keys” (p. 396) to students’ academic standing, enrollment, and degree completion and “given their limitations, college grades may well be the single best predictor of student persistence [and] degree completion” (p. 396).

In a decade-long study following over 28,000 high school students who enrolled in a four-year higher education institution revealed that first-year grades were significant predictors of bachelor’s degree completion, when controlling for pre-college characteristics (Adelman, 1999). While other studies that controlled for pre-college characteristics and institutional experiences support Aldeman’s finding (Astin, 1993; Ishanti & Desjardins, 2002), there is a body of research that proposes first-year academic performance is not affected by institutional experiences, and may be influenced by institutional experiences (Bradburn, 2002; Cabrera & Nora, 1994; Nora et al., 2005; Nora & Cabrera, 1996). “Studies point to a lingering effect of poor first-year performance for first-time-in-college students” (Nora, Barlow, & Crisp, 2005, p. 134). Specifically, research indicates that poor first-year academic performance influences students’ commitment to the institution, degree completion, and can impact students’ faculty and peer group interactions (Bradburn, 2002; Braxton & Lien, 2000; Cabrera & Nora, 1994; Cabrera, Nora, & Casteñeda, 1993; Maack, 2002; Nora et al., 2005; Nora & Cabrera, 1996).
Faculty and Staff Interactions

Tinto has repeatedly reported the importance of faculty interactions with students in and out of the classroom (Tinto, 1987, Tinto, 1993; Tinto, 1999; Tinto & Pusser, 2006; Tinto, 2007; TG & EPI, 2008). He stated that "[i]t is the daily interaction of the [student] with other members of the college in both the informal and formal academic and social domains of the college" (Tinto, 1987, p. 127) that forms their perception of the institution and influences their decision to stay or leave. Furthermore, there is an extensive body of research that suggest students’ interactions with faculty and staff emphasize students’ commitment to remain in an institution and degree attainment (Astin, 1993; Cuseo, 2008; Dey, 1991; Franklin, 1995; Frost, 1991; Kim, 2001; Kuh, 1995; Kitchner, Wood & Jensen, 1999; Pascarella & Terenzini, 2005). Astin (1977) performed a longitudinal study on over 200,000 students in 300 different institutions. He concluded that student-faculty interaction was strongly related to students’ intention to stay at an institution (Astin, 1977).

Research studies controlling for confounding factors, such as pre-college characteristics, reported a higher level of self-reported commitment from students who interacted with faculty in and out of the classroom (Astin, 1993; Franklin, 1995; Kim, 2001). Additionally, a report by the Education Commission of the States (1995) noted that faculty and staff out-of-class contact with students is one of twelve “essential attributes of good practice” (p. 8). Cuseo (2008) asserted that a faculty and staff interaction with students outside of the classroom “has been found to exert a direct effect on student retention” (p. 11), regardless of the students’ level of commitment, goals, intentions, or pre-college education. One widely used format for fostering classroom
faculty and staff interaction with first-year students are first-year seminars, or courses
designed specifically to assist first-year students with adjusting and navigating an
institution (Braxton et al., 2004; Hoffman et al., 2002; Pascarella & Terenzini, 2005;).
First introduced by John Gardener in the early 1970s, first-year seminars, also known as
university orientation courses, have been shown to foster faculty and staff classroom
contact with students (Braxton & McClendon, 2001; Braxton & Mundy, 2001; Hoffman
et al., 2002; Pascarella & Terenzini, 2005).

In addition to influencing students’ commitments, faculty and staff interactions
can influence students’ performance on academic measures, such as standardized tests
(Pascarella & Terenzini, 2005). In a study performed by Terenzini, Springer, Yaeger,
Pascarella, and Nora (1996) that included about 2,600 students, indicated that students
who interacted with faculty and perceived faculty as being concerned about students
performed significantly better on a standardized test, even when controlling for pre-
college characteristics. These findings are consistent with a study performed by Frost
basis to students who did not interact with faulty-advisors. Results revealed that students
who experienced weekly contact with a faculty-advisor performed significantly better on
a critical thinking test than students who did not interact with faculty-advisors, even when
controlling for pre-college factors such as pre-college education and achievements (Frost,
1991). Cuseo (2008) asserted that advisors play a significant role in students’ decision to
stay or leave an institution because of their daily or weekly interaction with students
through a course (i.e. university orientation course). Pascarella and Terenzini (2005)
stated “research consistently indicates that academic advising can play a role in students’
decisions to persist" (p. 404). A body of research indicates that student contact with advisors can influence their decision to remain at an institution (Autin, Cherney, Crowner, & Hill, 1997; Boyd, Gurney, Hunt, Hunt, O'Brian, & Van Braunt, 1994; Braxton & McClendon, 2001; Braxton & Mundy, 2001; Cox & Orehovec, 2007; Metzner, 1989; Pascarella, Seidman, 1991; Terenzini, & Hibel, 1978; TG & EPI, 2008; Yorke, 1998).

Although much of the literature supports the positive effects of faculty interactions on students' retention and graduation rates, Pascarella and Terenzini (2005) caution that retention and graduation rates may be influenced by students' characteristics such as, dispositions (dimension 1), intellectual and social skills (dimension 1), and goal commitment (dimension 2). In a study of 126 four-year higher education institutions that included over 5,000 students, Kuh and Hu (2001) discovered students who interacted with faculty members outside of the classroom had higher levels of commitment to the institution and degree attainment and possessed better intellectual skills, such as study habits and time management than their peers who did not interact with faculty.

**Peer Group Interactions**

There is a body of research that suggests students' informal interaction with peer groups has an impact on retention rates (Astin, 1993; Bean 2005; Braxton & Lien, 2000; Cabrera et al., 1993; Lotkowski et al., 2004; Nora, e.al., 2005; Pascarella & Terenzini, 2005; Tinto & Pusser, 2006) and graduation rates (Astin, 1993; McCormick, 1997; Pascarella, Wolniak, & Pierson, 2003; Pascarella & Terenzini, 2005). Furthermore Nora, Barlow, and Crisp (2005) asserted that students' interactions with peers informally and formally are "part of the underlying process affecting the adjustment of students to
college, their academic performance, and their decision to remain enrolled to graduation” (p. 136). Conversely, limited or weak social interactions can lead to withdrawal behaviors to both social and academic experiences (Bean, 2005). Although it can be very difficult to measure students’ peer group interactions, most research relies on students’ perceptions of their level of social interactions (Pascarella & Terenzini, 2005).

Research examining the effect peer group interaction has on students’ academic achievement or cognitive attributes reveals a positive influence on students’ first-year academic performance (Pascarella & Terenzini, 2005; Whit, Edison, Pascarella, Nora, & Terenzini, 1999). There is additional research controlling for pre-college characteristics, such as pre-college education and achievements, which demonstrate similar results in that students with a higher level of perceived peer group interactions performed better academically than students who had a lower perceived level of peer group interaction (Inman & Pascarella, 1998; Kitchener, Wood, & Jensen, 2000; Maack, 2002; May, 1990; Prendergast, 1998; Twale & Sanders, 1999). Braxton, Hirschy, and McClendon (2004) encourage institutions to create “communities of learning” (p. 74) to foster peer group interactions. Communities of learning, or more widely known as learning communities, are a group of three or four courses that are linked either my topic or major (Hoffman et al., 2002; Pascarella & Terenzini, 2005). Students who participate in learning communities interact with the same group of people in their courses; thus leading to formal and informal peer group interactions (Braxton et al., 2004; Braxton & McClendon, 2001; Braxton & Mundy, 2001; Hoffman et al., 2002; Pascarella & Terenzini, 2005; Tinto, 1997).
Although previous research has demonstrated a relationship between students’ interactions with peers and retention rates (Astin, 1993; Braxton & Lien, 2000; Cabrera et al., 1993; Nora et al., 2005; Pascarella & Terenzini, 2005) and graduation rates (Astin, 1993; McCormick, 1997; Pascarella et al., 2003; Pascarella & Terenzini, 2005), Pascarella and Terenzini (2005) caution that these findings are somewhat “ambiguous” (p. 418) in that the results could be confounded by other factors such as students’ goals and commitments. Little research has been performed on examining students’ dispositions, intentions and commitments and the relationship to peer group interactions (Bean, 2005; Pascarella & Terenzini, 2005).

Summary

A review of the literature surrounding the three dimensions of Tinto’s (1993) model provides a background of non-cognitive attributes, such as pre-college characteristics, goals and commitments, and institutional experiences. Furthermore, the literature revealed the effect of non-cognitive attributes on students’ academic achievement and retention; however the impact of the attributes differs. The literature indicated that students’ pre-college characteristics, such as family background, personal attributes, financial resources, pre-college education and achievements, and intellectual skills have a moderate to strong relationship with academic achievement and retention. Conversely, the literature presented varied results regarding the other pre-college characteristics and the impact they can have on students’ academic achievement. Specifically, social skills and dispositions can affect students’ first-year GPA; however,
they can also be affected by students' academic achievement. More research should examine the interaction between social skills, dispositions, and academic achievement.

With regard to students' goals and commitments, Tinto's (1993) second dimension, the literature revealed that goal commitment and institutional commitment are important components of students' academic achievement and retention. In particular, students who enter four-year higher education institutions with clear goal commitment and institutional commitment are more likely to achieve academic success and be retained by the institution they first enrolled. Lastly, Tinto's (1993) third dimension includes students' institutional experiences. A review of the literature supported Tinto's (1993) assertion that students' pre-college characteristics and goals and commitments impact their institutional experiences; though it is unclear how much of an impact the first two dimensions have on the third dimension. College academic performance (i.e., course grades) can impact student retention; however, the literature suggested that academic performance is considerably impacted by students' pre-college characteristics and additional research should be performed to understand the impact of pre-college characteristics on college academic performance. With regard to students' interactions with faculty and peer groups, research revealed that students who interact with faculty outside of the classroom and have informal peer group interactions are more likely to achieve academic success and be retained.

A review of the literature focusing on students' non-cognitive attributes revealed that solving the student departure puzzle can be difficult due to its idiosyncratic nature. Individual students possess multiple combinations of non-cognitive factors that can positively and negatively affect their academic performance and retention. Higher
education institutions should examine the factors that contribute to students' academic performance and retention because a diverse student population requires diverse programs and services. It is important to identify students who are potentially at-risk of being in academic difficulty early in their college in order to facilitate their successful transition to college.
CHAPTER 3
Research Methodology

This study examined at-risk students’ pre-college characteristics, goals and commitments, and first-semester institutional experiences to determine if there were significant differences between at-risk first-year students’ academic standing at the end of their first semester, and if there were significant differences between at-risk first-year students’ who were retained or not retained to the following fall semester. This research study examined all first-year students identified as at-risk based on their non-cognitive attributes, such as pre-college characteristic and goals and commitments to identify if there were any differences between successful at-risk first-year students and unsuccessful at-risk first-year students.

The following questions were tested:

1. Are there significant differences between the pre-college characteristics of academically successful at-risk first-year students and the pre-college characteristics of academically unsuccessful at-risk first-year students at the end of the fall semester?

2. Are there significant differences between the goals and commitments of academically successful at-risk first-year students and the goals and commitments of academically unsuccessful at-risk first-year students at the end of the fall semester?

3. Are there significant differences between the types of institutional experiences of academically successful at-risk first-year students and the
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types of institutional experiences of academically unsuccessful at-risk first-year students' at the end of the fall semester?

4. Are there significant differences between the pre-college characteristics of at-risk first-year students who were retained to the following fall semester and the pre-college characteristics of at-risk first-year students who were not retained to the following fall semester?

5. Are there significant differences between the goals and commitments of at-risk first-year students who were retained to the following fall semester and the goals and commitments of at-risk first-year students who were not retained to the following fall semester?

6. Are there significant differences between the types of institutional experiences of at-risk first-year students who were retained to the following fall semester and the types of institutional experiences of at-risk first-year students who were not retained to the following fall semester?

7. Are there significant differences between the non-cognitive attributes of academically successful at-risk first-year students and the non-cognitive attributes of academically unsuccessful at-risk first-year students at the end of the fall semester?

8. Are there significant differences between the non-cognitive attributes and academic standing of at-risk first-year students who were retained to the following fall semester and the non-cognitive attributes and academic standing of at-risk first-year students who were not retained to the following fall semester?
The following null hypotheses were constructed from the above research questions and tested:

1. There are no significant differences between the pre-college characteristics of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

2. There are no significant differences between the goals and commitments of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

3. There are no significant differences between the types of institutional experiences of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

4. There are no significant differences between the pre-college characteristics of at-risk first-year students who were retained and at-risk first-year students who were not retained to the following fall semester.

5. There are no significant differences between the goals and commitments of at-risk first-year students who were retained and at-risk first-year students who were not retained to the following fall semester.

6. There are no significant differences between the types of institutional experiences of at-risk first-year students who are retained and at-risk first-year students who are not retained to the following fall semester.

7. There are no significant differences between students' non-cognitive attributes of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.
8. There are no significant difference between student's non-cognitive attributes and academic standing of at-risk first-year students who were retained and at-risk first-year students who were not retained to the following fall semester.

Sample

The sample for this study was all first-year students who entered the institution during the fall semesters of 2004 to 2006 at Old Dominion University (ODU). Data regarding first-year students' pre-college characteristics and goals and commitments were collected during the summer prior to their enrollment in the fall semesters of 2004 to 2006 from the *Transition to College Inventory* (TCI) and the First-Year Biographical Questionnaire (BioQ), collected during the fall semesters of 2004 to 2006. Data compiled from the TCI and BioQ included students' pre-college characteristics, such as family background, personal attributes, skills, and dispositions. Additional pre-college characteristic data on financial resources and pre-college education and achievements were gathered from the institutional student information system (SIS). Data on students' goals and commitments (intentions, goals, and institutional commitment) were also gathered from the TCI. Additional data gathered included institutional experiences of at-risk first-year students during fall semesters of 2004 to 2006. These data included college academic performance, faculty and staff interactions, and peer group interactions. Data were collected during fall semesters of 2004 to 2006 from the First-Year Experiences Survey (FES), which contains the sense of belonging scale (SOB). The SOB contains four sub-scales: perceived faculty support (PFS), perceived peer support (PPS), perceived
classroom comfort (PCC), and perceived isolation (PI). Data regarding student's college academic performance (grades) was obtained from the SIS.

Operational Definitions

The independent variables used in this analysis included: family background, personal attributes, skills, financial resources, dispositions, pre-college education and achievements, intentions, goals and institutional commitment, college academic performance, faculty and staff interactions, and peer group interactions. The independent variables were collected and compiled by a university office from a student information system (SIS) and student surveys: *Transition to College Inventory* (TCI), *First-Year Student Biographical Questionnaire* (BioQ), and *First-Year Experiences Survey* (FES). The dependent variables were academic standing and retention. All dependent and independent variables are listed in table 2 along with the survey from which the data were gathered.
Table 2. **Independent and Dependent Variables within the Dataset**

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Attributes</th>
<th>As measured by</th>
<th>Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family background</td>
<td>Social status</td>
<td>BioQ</td>
<td></td>
</tr>
<tr>
<td></td>
<td>parental education</td>
<td>BioQ</td>
<td></td>
</tr>
<tr>
<td></td>
<td>community size</td>
<td>BioQ</td>
<td></td>
</tr>
<tr>
<td>Personal attributes</td>
<td>Gender</td>
<td>SIS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>race</td>
<td>SIS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>first-generation</td>
<td>BioQ</td>
<td></td>
</tr>
<tr>
<td></td>
<td>physical handicaps</td>
<td>BioQ</td>
<td></td>
</tr>
<tr>
<td>Skills</td>
<td>Intellectual skills</td>
<td>TCI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Skills</td>
<td>TCI</td>
<td></td>
</tr>
<tr>
<td>Financial resources</td>
<td>Financial aid or additional resources to pay for college</td>
<td>SIS</td>
<td></td>
</tr>
<tr>
<td>Dispositions</td>
<td>Motivations</td>
<td>TCI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social &amp; political preferences</td>
<td>TCI</td>
<td></td>
</tr>
<tr>
<td>Pre-college education &amp; achievements</td>
<td>High school grade point average</td>
<td>SIS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>college entrance exams, prior college knowledge</td>
<td>SIS</td>
<td></td>
</tr>
<tr>
<td>Intentions</td>
<td>Level of student dedication to attaining educational goals</td>
<td>TCI</td>
<td></td>
</tr>
<tr>
<td>Goals &amp; institutional commitment</td>
<td>The degree of dedication to the attainment of goals &amp; to institution</td>
<td>TCI</td>
<td></td>
</tr>
<tr>
<td>College academic performance</td>
<td>Receiving passing course grade in courses</td>
<td>SIS</td>
<td></td>
</tr>
<tr>
<td>Faculty &amp; Staff interactions</td>
<td>Inside &amp; outside of the classroom and support</td>
<td>FES</td>
<td></td>
</tr>
<tr>
<td>Peer group interactions</td>
<td>Social interactions, extracurricular activities, or external communities</td>
<td>FES</td>
<td></td>
</tr>
<tr>
<td>Dependent Variables</td>
<td>Academic Standing</td>
<td>First semester GPA</td>
<td>SIS</td>
</tr>
<tr>
<td></td>
<td>Retention</td>
<td>Re-enrolled to the university in the following fall semester</td>
<td>SIS</td>
</tr>
</tbody>
</table>
Instruments Used to Measure the Independent Variables

*Transition to College Inventory (TCI)*

First-year students’ non-cognitive attributes were measured by the *Transition to College Inventory* (TCI). The TCI is a 115-item survey that has been used by ODU for more than a decade. It was designed to identify non-cognitive attributes that may negatively influence first-year students’ academic success. The development of the 115 items was derived from the work of William Sedlacek, Alexander Astin, and most notably Vincent Tinto (Pickering, Calliotte, Macera, & Zerwas, 2007). The combination of the existing research on non-cognitive attributes from Sedlacek, Astin and Tinto, and Pickering et al. experience with students led to the development of seven sections in the TCI: Reasons for Attending College, Reasons for Choosing this College, Experiences During the Senior Year of High School, Self Ratings of Abilities and Traits, Attitudes About Being a College Student, Predictions About Academic Success at College, and Predictions About Involvement in College.

The TCI uses 45 of the 115 questions on the inventory to produce an index, which was “derived [from] comparing the responses to each item by first-year students who ended their first semester in academic difficulty versus those who did not” (Pickering et al., 2007). The TCI index development followed the methodology utilized in the development of the Occupational Scales of the *Strong Campbell Interest Inventory* (SCII) by Strong in 1927 and then utilized by David Campbell as part of his literature review in the early 1970s. SCII items that were included in the Occupational Scales were based on the responses of individuals who were or were not in the specific occupation or field (Armstrong, Donnary, Smith, & Rounds, 2004).
The TCI Index assists in the identification of students who are at-risk of being in academic difficulty at the end of their first semester. The index can range from 0 to 45 for an individual. When a student selects a response identified as part of the TCI Index, the score is increased by one. Additionally, based on comparisons of the standard deviations, frequency distributions, and means, the TCI Index was further refined into cut-off scores or categories of risk: low (0-4), medium (5-8), and high (9 and above).

In addition to creating the TCI Index, a factor Analysis of the 115 items on the TCI was utilized to identify factors that may be contributing to academic performance of students. After nine factors were produced, a stepwise regression was performed to determine the significant predictors of academic performance. The analysis produced five factors: student role commitment, athletic orientation, self-confidence, socialization orientation, and independent activity focus (Pickering et al., 2007). Although the developers of the TCI acknowledge that factor analysis is not a traditional method of reliability, they suggest that the correlations among all of the items are sufficient for reliability measurement.

For this study, the TCI measured the following four attributes within the pre-college characteristic dimension and the goals and commitments dimension: skills, dispositions, intentions, and goals and institutional commitment (table 2.).

First-Year Biographical Questionnaire (BioQ)

The BioQ was developed to gather information on first-year students. All first-year students are required to complete the 20-questiton BioQ during their first-semester at ODU. For this study the BioQ measured 2 attributes (family background and personal attributes ) in the Pre-College Characteristics dimension (table 2.).
**Sense of Belonging**

The sense of belonging scale was developed by Hoffman, Richmond, Morrow, and Salomone (2002) to explore the factors that contribute to retention. Students' level of sense of belonging can influence their intention to leave or remain at an institution. Within the scale, there are four subscales: perceive faculty support (PFS), perceived peer support (PPS), perceived classroom comfort (PCC), and perceived isolation (PI). The subscale scores are determined by adding the items within each subscale and calculating the mean. Hoffman, et al. (2002) conducted focus groups with first-year students to develop the questions within each subscale. They refined their instrument through factor analysis and determined the "main conceptual dimensions of the 'sense of belonging' instrument" (Hoffman, et al., 2002, p. 239). Through the factor analysis, it was determined that 26 items contribute to one of the four subscales in the sense of belonging instrument. Additionally, the researchers investigated whether or not there were differences between students who participated in learning communities or a university orientation course and their level of sense of belonging. Hoffman et al. (2002) determined that students who participated in a learning community had higher levels of PFS, PPS, PCC and lower levels of PI than students who only participated in a university orientation course. Furthermore, the students with an overall higher level of a sense of belonging were more likely to be retained by the institution (Hoffman et al., 2002).

For this study the FES survey measured faculty and staff interactions and peer interaction within the institutional experiences dimension (table 2.)
Dependent Variables

The dependent variables included students' academic standing at the end of fall semester and retention to the following fall semester. Data were obtained from the institution's student information system at ODU.

Academic Standing: Successful and Unsuccessful

First-year students' fall semester cumulative GPA was used to determine if students were academically successful or unsuccessful. Students who achieved a cumulative semester GPA of 2.00 and above were considered academically successful. Conversely, students with a cumulative semester GPA below a 2.00 were considered unsuccessful.

Retention

Retention was based on students' enrollment in the following fall semester to the university. Students who re-enrolled to the university in the following fall semester were considered retained. Students who did not re-enroll to the university in the following fall semester were considered not retained. Information regarding student enrollment into the subsequent fall semester was obtained from the official headcount files, maintained by the Office of Institutional Research and Assessment.

Data Analyses

Existing data records were used for this study and there was no manipulation of the independent variables; therefore, this research study was a non-experimental, causal-comparative design that examined eight hypotheses related to the research questions.
For each hypothesis, logistical regression was used to examine if there were differences between non-cognitive attributes of at-risk first-year students based on their academic standing or retention. When there are multiple predictor variables or independent variables, multiple regression is a common statistical analysis. However, dichotomous dependent variables violate the assumptions of multiple regressions, such as: 1) the variance of the expected values of a variable is constant (homoskedasticity); 2) the relationship between the independent and dependent variables is constant (linearity); 3) and the errors are normally distributed for each of the independent values (normality) (Menard, 2002). Logistical regression has been used to overcome the violations of assumptions, specifically through the maximum likelihood estimation of taking the natural log of the dependent variable (Garson, 2008; Logistic Regression, 2008; Menard, 2002). Logistic regression transforms the dependent variable by taking the “natural log of the odds of the dependent variable occurring or not” (Garson, 2008, para. 3) and estimating the probability of the event occurring. Using the natural log, referred to as logit, of the dependent variable corrects for nonlinearity in the relationship between the dependent and independent variables (Garson, 2008; Mernard, 2002).

The probability that the dependent variable will be predicted by the independent variables is called likelihood (Garson, 2008; Logistic Regression, 2008). A likelihood ratio reflects the “unexplained variance in the dependent variable” (Garson, 2008, para. 14). It is a function of log-likelihood, which is the basis for logistical regression (Garson, 2008). The log-likelihood ratio test “is a test of the significance of the difference between the likelihood ratio for the model minus the likelihood ratio for a reduced model” (Garson, 2008, para. 15). The difference is referred to as model chi-square. Model chi-
square difference can identify the overall model significance and if there are any interaction effects between the full model and the reduced model. Furthermore, individual model parameters and model refinement can be tested using model chi-square. Model parameters refer to creating a subset of the overall model, or a reduced model in which independent variables have been removed, and testing if there are significant differences between the full model and the reduced model. This will help determine if independent variables are or are not contributing to an event occurring (the dependent variable prediction).

Model refinement refers to examining differences between the chi-square values of a full model and a subset of the full model (nested model). If the difference is significant, then the variables dropped from the full model to create the nested model contribute to the prediction of the dependent variable event. If there is no significant difference, then the dropped variables make no difference in the prediction and can be eliminated from the final model (Garson, 2008; Mernard, 2002). This procedure is also referred to as block chi-square. Block chi-square procedures entail a “block” of one or more variables being removed from the model to test if there are significant differences between a full model and nested model (Garson, 2008; Logistic Regression, 2008). Block chi-square can be performed three ways: stepwise logistic regression, sequential logistic regression, and assessing dummy variables (Garson, 2008). Stepwise logistic regression will automatically define which variables to add or drop from the model based on the chi-square difference test. Sequential logistic regression tests the effects of independent variables and covariates on the full model and then on several nested models. Lastly, the
assessing dummy variables method entails testing a full model then testing a model with all the variables in a dummy set dropped (Garson, 2008).

All three methods can be used to determine full model and nested model significance; however, since the current research does not include covariates and has multiple categorical variables with multiple levels, assessing dummy variables is the preferred method of analysis. This method will allow all levels of the categorical variables to be entered or removed from a block one at a time; creating an event prediction from individual variables and levels of variables (i.e., a specific grade earned in University Orientation course predicts academic standing).

Limitations

This study examined first-year students entering the fall semesters of 2004 to 2006 at one urban, research-extensive institution in the mid-Atlantic region. Students who completed the Transition to College Inventory, First-Year Biographical Questionnaire, and First-Year Experiences Survey were included in the data analyses. Second, the surveys were self reports of students' motivations, attitudes, behaviors, and perceptions. Third, this study did not control for major or course of study of the students during their first semester. Next, the intersectionality of the variables were not addressed in this study, such are the interactions between gender and race, or HSGPA and socioeconomic status. Finally, this study only used students who obtained a score of 5 or higher on the TCI, placing them in the medium and high risk categories. These limitations threatened generalizability and internal validity of the study.
Summary

This study examined eight research questions regarding at-risk first-year students’ pre-college characteristics, goals and commitments, and first semester institutional experiences. Logistical regression was used to determine if there were differences between first-year students’ pre-college characteristics, goals and commitments, and institutional experiences and their first semester academic standing or enrollment into the following fall semester. Data analyses of the hypotheses helped to determine the characteristics of at-risk first-year students that need to be addressed through programs and services to assist at-risk first-year students to be academically successful and retained at an urban, research-extensive institution in the Mid-Atlantic region.
CHAPTER 4

Results

Review of Study

The purpose of this study was to examine at-risk first-year students' non-cognitive attributes, such as pre-college characteristics, goals and commitments, and first-semester institutional experiences to determine if there were significant differences between students' academic standing at the end of their first semester, and if there were significant differences between students' who were retained or not retained to the following fall semester.

The statistical software package, SAS 9.1 was used to perform Logistical Regression on the following hypotheses:

$H_1$: There are no significant differences between the pre-college characteristics of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

$H_2$: There are no significant differences between the goals and commitments of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

$H_3$: There are no significant differences between the types of institutional experiences of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.
H₄: There are no significant differences between the pre-college characteristics of at-risk first-year students who are retained and at-risk first-year students who are not retained to the following fall semester.

H₅: There are no significant differences between the goals and commitments of at-risk first-year students who are retained and at-risk first-year students who are not retained to the following fall semester.

H₆: There are no significant differences between the types of institutional experiences of at-risk first-year students who are retained and at-risk first-year students who are not retained to the following fall semester.

H₇: There are no significant differences between students' non-cognitive attributes of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

H₈: There are no significant difference between students' non-cognitive attributes and academic standing of at-risk first-year students who are retained and at-risk first-year students who are not retained to the following fall semester.

The dependent variables were academic standing at the end of first semester (1 = good standing, 0 = not in good standing) and retention to the following fall semester (1 = retained, 0 = not retained). The independent variables were: family background, personal attributes, skills, financial resources, dispositions, pre-college education and achievements, intentions, goals and institutional commitment, college academic performance, faculty and staff interactions, and peer group interactions. The independent variables were collected and compiled by a university office from a student information system (SIS) and three different student surveys: *Transition to College Inventory (TCI)*,
First-Year Student Biographical Questionnaire (BioQ), and First-Year Experiences Survey (FES).

Initially, the dataset included 6,146 cases, with 51 variables (table 3). Only, first-year students who were in the medium and high risk groups were included in the analyses, making the sample of at-risk first-year students 3,667. Prior to running logistical regression analyses, all of the discrete variables within the dataset were recoded into 0 or 1, with 1 representing the positive responses (i.e. yes, strongly agree, above average, etc...). Variables that had multilevel responses, such as strongly agree, agree, disagree, and strongly disagree were coded into 4 different variables with 0 or 1.

**Table 3. Variables within the Dataset**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Attributes</th>
<th>As measured by</th>
<th>Independent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-college characteristics</td>
<td></td>
<td></td>
<td>BioQ 15</td>
</tr>
<tr>
<td>Family background</td>
<td>Social status</td>
<td></td>
<td>BioQ 14 &amp; 15</td>
</tr>
<tr>
<td></td>
<td>parental education</td>
<td></td>
<td>BioQ 2</td>
</tr>
<tr>
<td></td>
<td>community size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal attributes</td>
<td>Gender</td>
<td>Banner</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>Banner</td>
<td>Banner</td>
</tr>
<tr>
<td></td>
<td>first-generation</td>
<td></td>
<td>BioQ 14</td>
</tr>
<tr>
<td></td>
<td>physical handicaps</td>
<td></td>
<td>BioQ 5</td>
</tr>
<tr>
<td>Skills</td>
<td>Intellectual skills</td>
<td>TCI: Abil 51-57</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Skills</td>
<td>TCI: Abil 62</td>
<td></td>
</tr>
<tr>
<td>Financial resources</td>
<td>Financial aid or additional</td>
<td>SIS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>resources to pay for college</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispositions</td>
<td>Motivations</td>
<td>TCI: Abil 58</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social &amp; political preferences</td>
<td>TCI: Decide 1-10</td>
<td></td>
</tr>
<tr>
<td>Pre-college education &amp; achievements</td>
<td>High school grade point average</td>
<td>SIS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>college entrance exams,</td>
<td>SIS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>prior college knowledge</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3. (continued)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Attributes</th>
<th>As measured by</th>
<th>Independent variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals &amp; Commitments</td>
<td>Intentions</td>
<td>Level of student dedication to attain educational goals</td>
<td>TCI: Q76 &amp; ATT 64-75</td>
</tr>
<tr>
<td></td>
<td>Goals &amp; institutional commitment</td>
<td>The degree of dedication to the attainment of goals &amp; to institution</td>
<td>TCI: Q24; success 86 &amp; 91 - 94</td>
</tr>
<tr>
<td>Institutional Experiences</td>
<td>College academic performance</td>
<td>Receiving passing grades in courses</td>
<td>Banner</td>
</tr>
<tr>
<td></td>
<td>Faculty and Staff interactions</td>
<td>Inside and outside of the classroom</td>
<td>FES: PFS &amp; PCC</td>
</tr>
<tr>
<td></td>
<td>Peer group interactions</td>
<td>Social interactions, extracurricular activities, or external commitments</td>
<td>FES: PPS</td>
</tr>
</tbody>
</table>

Data were then checked for multicollinearity, or highly correlated variables. The analyses revealed that several variables were highly correlated. Highly correlated variables can produce an artificially high variance between observed and expected frequencies and distort the results. It is recommended that variables above a variance inflation factor (VIF) of 10 should be removed or recoded into other variables (Ayyangar, 2007; SAS/STAT User’s Guide, 1999; Tolley, 2008). Using that criterion, 37 variables were recoded into composite variables, combining levels of the variables that were highly correlated. The final recoding of the variables is shown in table 4. After recoding the variables with high VIF, the data were checked again for multicollinearity. All variable
VIFs were below 10, indicating the data would not violate the multicollinearity assumption of logistic regression and the results were not inflated or skewed.

Table 4. **Final Recoding of Variables within Dataset**

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Levels</th>
<th>Recoded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Size</td>
<td>Rural</td>
<td>0 = rural, small town far from city (10,000 or fewer people &amp; more than 30 miles from city with 100,000 people)</td>
</tr>
<tr>
<td></td>
<td>Small town far from city</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Small town close to city</td>
<td>1 = small town close to city, midsize city, large city (10,000 or more people &amp; less than 30 miles from a city with 100,000 people)</td>
</tr>
<tr>
<td></td>
<td>Midsize city</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Large City</td>
<td></td>
</tr>
<tr>
<td>Parental Education</td>
<td>Less than 7 years of school</td>
<td>0 = Less than 7 years of school, Junior High, some High School, training not college</td>
</tr>
<tr>
<td></td>
<td>Junior High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Some High School</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Training, not college</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Some college</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-year degree</td>
<td>1 = some college, 2-year degree, 4-year degree, graduate school</td>
</tr>
<tr>
<td></td>
<td>4-year degree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graduate School</td>
<td></td>
</tr>
<tr>
<td>Abilities &amp; Traits</td>
<td>Top 10%</td>
<td>0 = below average, lowest 10%</td>
</tr>
<tr>
<td></td>
<td>Above Average</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Below Average</td>
<td>1 = top 10%, above average, average</td>
</tr>
<tr>
<td></td>
<td>Lowest 10%</td>
<td></td>
</tr>
<tr>
<td>Decide to attend college*</td>
<td>Very Important</td>
<td>0 = Not Important</td>
</tr>
<tr>
<td></td>
<td>Somewhat Important</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not Important</td>
<td>1 = Very and Somewhat important</td>
</tr>
<tr>
<td>Choosing this college*</td>
<td>Very Important</td>
<td>0 = Not Important</td>
</tr>
<tr>
<td></td>
<td>Somewhat Important</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not Important</td>
<td>1 = Very and Somewhat important</td>
</tr>
<tr>
<td>Attitudes about being a college student*</td>
<td>Strongly Agree</td>
<td>0 = Slightly Disagree, Moderately Disagree, Strongly Disagree</td>
</tr>
<tr>
<td></td>
<td>Moderately Agree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Slightly Agree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Slightly Disagree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderately Disagree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>1 = Slightly Agree, Moderately Agree, Strongly Agree</td>
</tr>
</tbody>
</table>
Table 4. (continued)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Levels</th>
<th>Recoded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predictions about success*</td>
<td>Very Good Chance</td>
<td>0 = No Chance</td>
</tr>
<tr>
<td></td>
<td>Some Chance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No Chance</td>
<td>1 = Very Good Chance, Some Chance</td>
</tr>
</tbody>
</table>

Note: Coding was reversed for questions that were stated the negative (i.e., "I don't seem to have the drive to get my work done")

Logistic regression requires that each case must not contain missing variables; therefore, data analyses were performed on cases that included data for all variables. For instance, the pre-college characteristics dimension contained 30 variables. If a response for just one of those variables was missing, then the whole case was excluded from the analyses; therefore, not all of the 3,667 cases were included in the final data analyses. For hypotheses 1 and 4, n=1,322 cases were included in the analysis. Hypotheses 2 and 5, contained n=3,667 cases. Hypotheses 3 and 6, included n=1,569 cases. Lastly, hypotheses 7 and 8, contained n=1,322 cases.

The following is a summary of the logistic regression analysis for each question. For each analysis five specific tests were examined: 1) overall model fit (likelihood-ratio test), 2) goodness-of-fit (Hosmer and Lemeshow test), 3) overall classification table, 4) calculated $R^2$, and 5) significant tests for individual predictors known as Wald. If individual independent variables within the models were significant, logistic regressions were performed using only the significant independent variables to determine if there were more efficient prediction models. The $p$-value or statistical significance was set at $p = 0.05$ for all hypotheses.
Data Analyses

Included in table 5 is the demographic information, such as gender, academic standing, and retention of the cases included in the analyses. Males represented 53% of the total population in the dataset. Additionally, fewer males were retained and in good academic standing than females.

Table 5. Demographic Information

<table>
<thead>
<tr>
<th>Gender</th>
<th>Academic Standing</th>
<th></th>
<th>Retention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Good</td>
<td>Not Good</td>
<td>Retained</td>
</tr>
<tr>
<td>Males</td>
<td>47.5%</td>
<td>64.6%</td>
<td>47.2%</td>
</tr>
<tr>
<td>Females</td>
<td>52.5%</td>
<td>35.4%</td>
<td>52.8%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Research Questions

Research Question 1: Is there significant difference between the pre-college characteristics of academically successful at-risk first-year students and the pre-college characteristics of academically unsuccessful at-risk first-year students at the end of the fall semester?

Null Hypothesis 1: There are no significant differences between pre-college characteristics of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

The likelihood-ratio test of the full model with all the independent variables included against a constant-only model (no independent variables) revealed a statistically significant full model $X^2 (29, N = 1,322) = 130.14, p < .0001$. This indicates that as a set, the independent variables' reliably distinguished between students in good academic standing and students not in good academic standing at the end of the first semester. Next
the Hosmer and Lemeshow goodness-of-fit test revealed a non-significant Chi-square \(X^2\) 
(8, \(N=1,322\)) = 3.67, \(p = 0.89\), also indicating the model was good and the null hypothesis 
could be rejected. Additionally, goodness-of-fit can be evaluated by dividing the data into 
ordered deciles (groups of 10) based on predicted probabilities, with group 1 being the 
lowest probability (0.1) and group 10 being the highest (0.9 or higher), then compares the 
observed responses to the predicted responses. When the majority of cases with outcome 
1, or good academic standing, are located in the higher deciles (groups 6 and above) and 
the majority of the cases with outcome 0, or not in good academic standing, are located in 
the lower deciles (group 5 and below) the model is considered good (Tabachnick & 
Fidell, 2001). Table 6 displays the deciles observed and expected frequencies within the 
Hosmer and Lemeshow test and demonstrates that the current model was good.

### Table 6. Deciles of Observed and Expected Frequencies of Academic Standing 
for Pre-College Dimension

<table>
<thead>
<tr>
<th>Group</th>
<th>Total (n)</th>
<th>Academic Standing = 1 (good)</th>
<th>Academic Standing = 0 (not good)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Observed Frequencies</td>
<td>Expected Frequencies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Observed Frequencies</td>
</tr>
<tr>
<td>1</td>
<td>132</td>
<td>76</td>
<td>72.22</td>
</tr>
<tr>
<td>2</td>
<td>132</td>
<td>91</td>
<td>86.80</td>
</tr>
<tr>
<td>3</td>
<td>132</td>
<td>98</td>
<td>94.86</td>
</tr>
<tr>
<td>4</td>
<td>132</td>
<td>96</td>
<td>100.73</td>
</tr>
<tr>
<td>5</td>
<td>132</td>
<td>104</td>
<td>106.04</td>
</tr>
<tr>
<td>6</td>
<td>132</td>
<td>108</td>
<td>110.39</td>
</tr>
<tr>
<td>7</td>
<td>132</td>
<td>113</td>
<td>114.38</td>
</tr>
<tr>
<td>8</td>
<td>132</td>
<td>117</td>
<td>118.18</td>
</tr>
<tr>
<td>9</td>
<td>132</td>
<td>125</td>
<td>122.25</td>
</tr>
<tr>
<td>10</td>
<td>132</td>
<td>130</td>
<td>129.15</td>
</tr>
</tbody>
</table>

The overall classification table (table 7) compared the observed number of 
students in good academic standing and not good standing at the end of the first semester 
to the models’ predicted number of students in good standing and not good standing. This
comparison demonstrated that overall the model predicted 71% of students' academic standing (good and not good) correctly. Furthermore, the model accurately predicted 70.9% of the students in good academic standing and 71.3% of students not in good academic standing.

Table 7. Comparison of Number of Students Observed and Predicted Academic Standing for Pre-college Dimension

<table>
<thead>
<tr>
<th>Academic Standing</th>
<th>Observed</th>
<th>Predicted</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (good)</td>
<td>748</td>
<td>77</td>
<td>70.9%</td>
</tr>
<tr>
<td>0 (not good)</td>
<td>307</td>
<td>190</td>
<td>71.3%</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td>62.4%</td>
<td>37.6%</td>
<td>71.0%</td>
</tr>
</tbody>
</table>

To calculate the predictive power of the model, a pseudo $R^2$ was calculated by the intercepts only (IO) and intercept and covariates (I+C) numbers reported in the model fit statistics table for -2 Log L. The equation is $(IO - (I+C)) / IO$. For this model, the pseudo $R^2$ was low ($R^2 = 0.098$), therefore the predictive power of this model was minimal.

The final model test, the Wald test, evaluated the regression coefficients of individual independent variables within the model. For this analysis, gender [(male), $z = 12.40$, $p = .0004$]; HSGPA, [$z = 66.04$, $p < .0001$]; father’s education [(2-year degree and above), $z = 3.98$, $p < .046$]; and attending college not to get a better job, [$z = 4.35$, $p = 0.037$] reliably predicted good academic standing.

A model was run using only gender, HSGPA, attending college not to get a better job, and father's education. For this analysis, cases that were missing any data points were removed from the dataset ($n = 3,563$). The likelihood-ratio test of the full model with all the independent variables included against a constant-only model revealed a
statistically significant full model $X^2 (4, N = 3,563) = 305.59, p < .0001$. This indicated that as a set, the independent variables reliably distinguished between students in good academic standing and students not in good academic standing at the end of the first semester. Next, the Hosmer and Lemeshow goodness-of-fit test revealed a non-significant Chi-square $X^2 (8, N=3,563) = 2.34, p = 0.97$, also indicating the model was good and the null hypothesis could be rejected. Additionally, goodness-of-fit deciles displayed in table 8 indicated the model was good.

Table 8. Deciles of Observed and Expected Frequencies of Academic Standing for Reduced Model of Pre-College Dimension

<table>
<thead>
<tr>
<th>Group</th>
<th>Total (n)</th>
<th>Observed Frequencies</th>
<th>Expected Frequencies</th>
<th>Observed Frequencies</th>
<th>Expected Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Academic Standing = 1 (good)</td>
<td></td>
<td></td>
<td>Academic Standing = 0 (not good)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Observed</td>
<td>Expected</td>
<td>Observed</td>
<td>Expected</td>
</tr>
<tr>
<td>1</td>
<td>342</td>
<td>158</td>
<td>155.33</td>
<td>184</td>
<td>186.67</td>
</tr>
<tr>
<td>2</td>
<td>355</td>
<td>189</td>
<td>190.41</td>
<td>166</td>
<td>164.59</td>
</tr>
<tr>
<td>3</td>
<td>362</td>
<td>212</td>
<td>211.79</td>
<td>150</td>
<td>150.21</td>
</tr>
<tr>
<td>4</td>
<td>358</td>
<td>232</td>
<td>226.87</td>
<td>126</td>
<td>131.13</td>
</tr>
<tr>
<td>5</td>
<td>361</td>
<td>238</td>
<td>243.24</td>
<td>123</td>
<td>117.76</td>
</tr>
<tr>
<td>6</td>
<td>358</td>
<td>252</td>
<td>255.60</td>
<td>106</td>
<td>102.40</td>
</tr>
<tr>
<td>7</td>
<td>355</td>
<td>266</td>
<td>267.96</td>
<td>89</td>
<td>87.04</td>
</tr>
<tr>
<td>8</td>
<td>359</td>
<td>293</td>
<td>285.30</td>
<td>66</td>
<td>73.70</td>
</tr>
<tr>
<td>9</td>
<td>355</td>
<td>293</td>
<td>295.93</td>
<td>62</td>
<td>58.07</td>
</tr>
<tr>
<td>10</td>
<td>358</td>
<td>322</td>
<td>321.56</td>
<td>36</td>
<td>36.44</td>
</tr>
</tbody>
</table>

The overall classification table (table 9) demonstrates that overall the model predicted 67.6% of students’ academic standing (good and not good) correctly. Furthermore, 67.4% (n = 1,655) of students were correctly predicted to be in good academic standing at the end of their first semester and 68.1% (n = 755) were correctly predicted to not be in good academic standing.
Table 9. Comparison of Number of Students Observed and Predicted Academic Standing for Reduced Model of Pre-College Dimension

<table>
<thead>
<tr>
<th>Academic Standing</th>
<th>Observed</th>
<th>1 (good)</th>
<th>0 (not good)</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1,655</td>
<td>800</td>
<td>67.4%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>353</td>
<td>755</td>
<td>68.1%</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td>56.4%</td>
<td>43.6%</td>
<td>67.6%</td>
</tr>
</tbody>
</table>

For this model, the pseudo $R^2$ was low ($R^2 = 0.069$), therefore the predictive power of this model was minimal. In the final model test, the Wald test, gender [(male), $z = 66.53, p < .0001$]; HSGPA, [$z = 171.51, p < .0001$]; and father’s education [(2 year degree and above), $z = 30.60, p < .0001$] reliably predicted good academic standing.

In conclusion, the overall model was significant and the null hypothesis was rejected, both tests indicated that there were significant differences between the pre-college characteristics of at-risk first-year students in good academic standing and those who were not in good academic standing at the end of the first semester. The significant attributes in this model were, personal attributes (gender), pre-college education and achievements (HSGPA), family background (father’s education), and dispositions (attending college not to get a better job).

**Research Question 2:** Is there significant difference between the goals and commitments of academically successful at-risk first-year students and the goals and commitments of academically unsuccessful at-risk first-year students at the end of the fall semester?
Null Hypothesis 2: There are no significant differences between goals and commitments of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

The likelihood-ratio test of the full model with all the independent variables included against a constant-only model revealed a statistically significant full model $X^2(18, N = 3,667) = 28.77, p = .05$. Indicating that as a set, the independent variables consistently distinguished between students in good academic standing and students not in good academic standing at the end of the first semester. The Hosmer and Lemeshow goodness-of-fit test revealed a non-significant Chi-square $X^2(9, N=3,667) = 13.07, p = 0.16$, indicating the model was good and the null hypothesis was rejected. However, further examination of the goodness-of-fit ordered deciles (table 10) revealed that the cases were generally evenly spread throughout the groupings, indicating the model may not have been good.

Table 10. Deciles of Observed and Expected Frequencies of Academic Standing for Goals and Commitments Dimension

<table>
<thead>
<tr>
<th>Group</th>
<th>Academic Standing = 1 (good)</th>
<th>Academic Standing = 0 (not good)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed Frequencies</td>
<td>Expected Frequencies</td>
</tr>
<tr>
<td>1</td>
<td>378</td>
<td>224</td>
</tr>
<tr>
<td>2</td>
<td>369</td>
<td>247</td>
</tr>
<tr>
<td>3</td>
<td>300</td>
<td>187</td>
</tr>
<tr>
<td>4</td>
<td>402</td>
<td>278</td>
</tr>
<tr>
<td>5</td>
<td>252</td>
<td>175</td>
</tr>
<tr>
<td>6</td>
<td>329</td>
<td>220</td>
</tr>
<tr>
<td>7</td>
<td>210</td>
<td>151</td>
</tr>
<tr>
<td>8</td>
<td>358</td>
<td>233</td>
</tr>
<tr>
<td>9</td>
<td>423</td>
<td>306</td>
</tr>
<tr>
<td>10</td>
<td>408</td>
<td>301</td>
</tr>
<tr>
<td>11</td>
<td>238</td>
<td>182</td>
</tr>
</tbody>
</table>
The overall classification table (table 11) demonstrates that overall the model identified 53.2% of students’ academic standing correctly. However, only 50.4% (n =1,267) of students in good academic standing and 59.2% (n = 683) of students not in good standing were correctly predicted.

Table 11. Comparison of Number of Students Observed and Predicted Academic Standing for Goals and Commitments Dimension

<table>
<thead>
<tr>
<th>Academic Standing</th>
<th>Observed</th>
<th>Predicted</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (good)</td>
<td>1,267</td>
<td>1,247</td>
<td>50.4%</td>
</tr>
<tr>
<td>0 (not good)</td>
<td>470</td>
<td>683</td>
<td>59.2%</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td>47.4%</td>
<td>52.6%</td>
<td>53.2%</td>
</tr>
</tbody>
</table>

The pseudo $R^2$ calculated from intercepts only (IO) and intercept and covariates (I+C) numbers reported in the model fit statistics table for -2 Log L was very low ($R^2 = 0.006$). The final model test, Wald test of regression coefficients of individual independent variables revealed that admiring good students [(att69), $z_\beta = 3.86, p = 0.049$]; having the drive to get going on something important [(att74), $z_\beta = 3.88, p = 0.048$]; and having the drive to complete work [(att75), $z_\beta = 10.03, p = 0.002$] reliably predicted good academic standing.

A model was run using only the variables admiring good students, drive to work on something important, and drive to complete work. For this analysis, no data were missing, therefore all cases were used (n = 3,667). The likelihood-ratio test of the full model with all the independent variables included against a constant-only model revealed a statistically significant full model $X^2 (3, N = 3,667) = 15.04, p = .0018$. This indicates that as a set, the independent variables’ reliably distinguished between students in good
academic standing and students who were not in good academic standing at the end of the first semester. Next, the Hosmer and Lemeshow goodness-of-fit test revealed a non-significant Chi-square $X^2 (2, N=3,667) = 0.12, p = 0.94$, also indicating the model was good and the null hypothesis can be rejected. Additionally, the goodness-of-fit deciles, displayed in table 12 was cut into 4 groups and were interpreted the same way as if there were 10 groups. This analysis indicates the model may not have been good because the distribution in the “not good” columns is mainly concentrated in the higher group (group 4).

Table 12. Deciles of Observed and Expected Frequencies of Academic Standing for Reduced Model of Goals and Commitments Dimension

<table>
<thead>
<tr>
<th>Group</th>
<th>Total (n)</th>
<th>Academic Standing = 1 (good)</th>
<th>Academic Standing = 0 (not good)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Observed Frequencies</td>
<td>Expected Frequencies</td>
</tr>
<tr>
<td>1</td>
<td>292</td>
<td>177</td>
<td>175.68</td>
</tr>
<tr>
<td>2</td>
<td>448</td>
<td>296</td>
<td>297.04</td>
</tr>
<tr>
<td>3</td>
<td>2708</td>
<td>1877</td>
<td>1879.08</td>
</tr>
<tr>
<td>4</td>
<td>218</td>
<td>164</td>
<td>162.25</td>
</tr>
</tbody>
</table>

Table 13, the classification table, demonstrates that overall the model predicted 42.5% of students academic standing correctly. Furthermore, only 24.9% (n = 626) of students were correctly identified to be in good academic standing and 80.8% (n = 932) of students not in good academic standing at the end of their first semester.
Table 13. Comparison of Number of Students Observed and Predicted Academic Standing for Reduced Model of Goals and Commitments Dimension

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Predicted Academic Standing</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed 1 (good) 0 (not good)</td>
<td></td>
</tr>
<tr>
<td>Academic Standing</td>
<td>626 1,888</td>
<td>24.9%</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td>23.1% 76.9%</td>
<td>42.5%</td>
</tr>
</tbody>
</table>

For this model, the pseudo $R^2$ was very low ($R^2 = 0.003$), therefore the predictive power of this model was very minimal. In the final model test, the Wald test, *admiring good students* \[ (att69), z = 5.69, p = 0.017 \]; *having the drive to work on something important* \[ (att74), z = 3.80, p = .05 \] and *having the drive to complete work* \[ (att75), z = 9.52, p = .002 \] reliably predicted good academic standing.

In summary, this model was significant overall and the null hypothesis was rejected. However, further examination of the expected and observed frequencies revealed that the model may not have been a good fit, further supported by the very low explained variance. The significant attributes within this model were intentions (admire good students) and goals and institutional commitment (drive to complete work and drive to work on important tasks).

**Research Question 3:** Is there significant difference between the types of institutional experiences of academically successful at-risk first-year students and experiences of academically unsuccessful at-risk first-year students at the end of the fall semester?

**Hypothesis 3:** *There are no significant differences between the types of institutional*
experiences of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

The likelihood-ratio test of the full model with all the independent variables included against a constant-only model revealed a statistically significant full model $X^2 (3, N = 1,569) = 22.05, p < .0001$. This indicates that as a set, the independent variables reliably distinguished between students in good academic standing and students not in good academic standing at the end of the first semester. Next, the Hosmer and Lemeshow goodness-of-fit test revealed a non-significant Chi-square $X^2 (8, N=1,569) = 4.58, p = 0.80$, indicating the model was good and the null hypothesis was rejected. Furthermore, goodness-of-fit ordered deciles (table 14) demonstrates that most of the cases with outcomes 1 (good standing) were in the higher deciles and the cases with outcome 0 (not good standing) were in the lower deciles, indicting the current model was good.

**Table 14. Deciles of Observed and Expected Frequencies of Academic Standing for Institutional Experiences Dimension**

<table>
<thead>
<tr>
<th>Group</th>
<th>Total (n)</th>
<th>Academic Standing = 1 (good)</th>
<th>Academic Standing = 0 (not good)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Observed Frequencies</td>
<td>Expected Frequencies</td>
</tr>
<tr>
<td>1</td>
<td>157</td>
<td>108</td>
<td>110.18</td>
</tr>
<tr>
<td>2</td>
<td>157</td>
<td>115</td>
<td>118.39</td>
</tr>
<tr>
<td>3</td>
<td>157</td>
<td>125</td>
<td>121.51</td>
</tr>
<tr>
<td>4</td>
<td>157</td>
<td>121</td>
<td>123.35</td>
</tr>
<tr>
<td>5</td>
<td>158</td>
<td>129</td>
<td>125.69</td>
</tr>
<tr>
<td>6</td>
<td>159</td>
<td>130</td>
<td>128.38</td>
</tr>
<tr>
<td>7</td>
<td>157</td>
<td>134</td>
<td>128.68</td>
</tr>
<tr>
<td>8</td>
<td>157</td>
<td>131</td>
<td>130.46</td>
</tr>
<tr>
<td>9</td>
<td>157</td>
<td>131</td>
<td>132.71</td>
</tr>
<tr>
<td>10</td>
<td>153</td>
<td>129</td>
<td>133.84</td>
</tr>
</tbody>
</table>

The overall classification table (table 15) demonstrates that overall the model predicted 57.5% of students academic standing correctly. Additionally, only 58.6% (n =
717) of students in good academic standing and 58.6% (n = 185) of students not in good academic standing were correctly predicted.

### Table 15. Comparison of Number of Students Observed and Predicted Academic Standing for Institutional Experiences Dimension

<table>
<thead>
<tr>
<th>Academic Standing</th>
<th>Predicted</th>
<th>Observed</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Academic Standing</td>
<td></td>
<td>57.5%</td>
</tr>
<tr>
<td></td>
<td>1 (good)</td>
<td>717</td>
<td>57.2%</td>
</tr>
<tr>
<td></td>
<td>0 (not good)</td>
<td>131</td>
<td>58.6%</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td>54.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>46.0%</td>
<td></td>
</tr>
</tbody>
</table>

The pseudo $R^2$ calculated from intercepts only (IO) and intercept and covariates (I+C) numbers reported in the model fit statistics table for -2 Log L was very low ($R^2 = 0.014$). Finally, the Wald test of regression coefficients revealed that only Perceived Faculty Support [(PFS), $z = 19.32, p < .0001$], reliably predicted good academic standing.

A model was run using only PFS. For this analysis, no data were missing, therefore all cases were used (n =1,569). The likelihood-ratio test of the full model with all the independent variables included against a constant-only model revealed a statistically significant full model $X^2 (1, N = 1,569) = 18.35, p < .0001$. This indicates that the independent variables reliably distinguished between students in good academic standing and students not in good academic standing at the end of the first semester.

Next, the Hosmer and Lemeshow goodness-of-fit test revealed a non-significant Chi-square $X^2 (7, N=1,569) = 7.62, p = 0.37$, also indicating the model was good and the null hypothesis was rejected. The goodness-of-fit deciles displayed in table 16 indicated that the model might not have been good because the distribution in both the observed and expected frequencies columns was evenly distributed.
Table 16. Deciles of Observed and Expected Frequencies of Academic Standing for Reduced Model of Institutional Experiences Dimension

<table>
<thead>
<tr>
<th>Group</th>
<th>Total (n)</th>
<th>Academic Standing = 1 (good)</th>
<th>Expected Frequencies</th>
<th>Academic Standing = 0 (not good)</th>
<th>Expected Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Observed Frequencies</td>
<td></td>
<td>Observed Frequencies</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>157</td>
<td>107</td>
<td>111.76</td>
<td>50</td>
<td>45.24</td>
</tr>
<tr>
<td>2</td>
<td>181</td>
<td>133</td>
<td>137.32</td>
<td>48</td>
<td>43.68</td>
</tr>
<tr>
<td>3</td>
<td>226</td>
<td>180</td>
<td>176.16</td>
<td>46</td>
<td>49.84</td>
</tr>
<tr>
<td>4</td>
<td>164</td>
<td>134</td>
<td>129.81</td>
<td>30</td>
<td>34.19</td>
</tr>
<tr>
<td>5</td>
<td>181</td>
<td>149</td>
<td>145.44</td>
<td>32</td>
<td>35.56</td>
</tr>
<tr>
<td>6</td>
<td>181</td>
<td>150</td>
<td>147.51</td>
<td>31</td>
<td>33.49</td>
</tr>
<tr>
<td>7</td>
<td>134</td>
<td>116</td>
<td>110.72</td>
<td>18</td>
<td>23.28</td>
</tr>
<tr>
<td>8</td>
<td>165</td>
<td>136</td>
<td>138.38</td>
<td>29</td>
<td>26.62</td>
</tr>
<tr>
<td>9</td>
<td>180</td>
<td>148</td>
<td>155.85</td>
<td>32</td>
<td>24.15</td>
</tr>
</tbody>
</table>

Table 17, the correct classification table, demonstrates that overall the model identified 56.1% of students academic standing correctly. Furthermore, only 55.3% (n = 693) of students were correctly predicted to be in good academic standing and 59.8% (n = 188) of students not in good standing at the end of their first semester.

Table 17. Comparison of Number of Students Observed and Predicted Academic Standing for Reduced Model of Institutional Experiences Dimension

<table>
<thead>
<tr>
<th>Predicted</th>
<th>Observed</th>
<th>Academic Standing</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (good)</td>
<td>693</td>
<td>55.3%</td>
</tr>
<tr>
<td></td>
<td>0 (not good)</td>
<td>560</td>
<td>59.8%</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td>52.3%</td>
<td>47.7%</td>
<td>56.1%</td>
</tr>
</tbody>
</table>

For this model, the pseudo $R^2$ was very low ($R^2 = 0.001$), therefore the predictive power of this model was very low. In the final model test, the Wald test, Perceived Faculty Support [(PFS) $z = 18.08, p < .0001$] reliably predicted good academic standing.
In conclusion, this model was overall significant and the null hypothesis was rejected; however very little of the variance within the model can be explained. The significant attribute in the model was PFS.

Research Question 4: Is there significant difference between the pre-college characteristics of at-risk first-year students who were retained to the following fall semester and at-risk first-year students who were not retained to the following fall semester?

Hypothesis 4: There are no significant differences between pre-college characteristics of at-risk first-year students who were retained and at-risk first-year students who were not retained to the following fall semester.

The likelihood-ratio test of the full model with all the independent variables included against a constant-only model revealed a statistically significant full model $X^2 (29, N = 1,322) = 74.29, p < .0001$. This indicates that as a set, the independent variables reliably distinguished between students who were retained to the following fall semester and those who were not retained. The next test, Hosmer and Lemeshow goodness-of-fit, revealed a non-significant Chi-square test $X^2 (8, N=1,322) = 8.48, p = 0.39$, indicating the model was good and the null hypothesis was rejected. Furthermore, goodness-of-fit ordered deciles (table 18) demonstrates that the majority of the cases with outcomes 1 (retained) were in the higher deciles and the cases with outcome 0 (not retained) were in the lower deciles, indicting the current model was good.
Table 18. Deciles of Observed and Expected Frequencies of Retention for Pre-College Dimension

<table>
<thead>
<tr>
<th>Group</th>
<th>Total (n)</th>
<th>Observed Frequencies</th>
<th>Expected Frequencies</th>
<th>Observed Frequencies</th>
<th>Expected Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Retention = 1 (retained)</td>
<td></td>
<td>Retention = 0 (not retained)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>132</td>
<td>69</td>
<td>66.34</td>
<td>63</td>
<td>65.66</td>
</tr>
<tr>
<td>2</td>
<td>132</td>
<td>77</td>
<td>77.54</td>
<td>55</td>
<td>54.46</td>
</tr>
<tr>
<td>3</td>
<td>132</td>
<td>79</td>
<td>83.26</td>
<td>53</td>
<td>48.74</td>
</tr>
<tr>
<td>4</td>
<td>132</td>
<td>89</td>
<td>87.88</td>
<td>43</td>
<td>44.12</td>
</tr>
<tr>
<td>5</td>
<td>132</td>
<td>94</td>
<td>91.42</td>
<td>38</td>
<td>40.58</td>
</tr>
<tr>
<td>6</td>
<td>132</td>
<td>93</td>
<td>94.99</td>
<td>39</td>
<td>37.01</td>
</tr>
<tr>
<td>7</td>
<td>132</td>
<td>97</td>
<td>98.64</td>
<td>35</td>
<td>33.36</td>
</tr>
<tr>
<td>8</td>
<td>132</td>
<td>113</td>
<td>102.52</td>
<td>19</td>
<td>29.48</td>
</tr>
<tr>
<td>9</td>
<td>133</td>
<td>102</td>
<td>108.44</td>
<td>31</td>
<td>24.56</td>
</tr>
<tr>
<td>10</td>
<td>133</td>
<td>114</td>
<td>115.98</td>
<td>19</td>
<td>17.02</td>
</tr>
</tbody>
</table>

The overall classification table (table 19) comparison of the observed number of students who were retained to the following fall semester and those who were not retained to the models' predicted number of students (retained and not retained) demonstrates that overall the model identified 63.8% of students' retention correctly. Additionally, 63.9% (n = 1,104) of students were correctly identified to be retained and 64.4% (n = 254) of students were correctly predicted to not be retained to the following fall semester.

Table 19. Comparison of Number of Students Observed and Predicted Retention for Pre-College Dimension

<table>
<thead>
<tr>
<th>Predicted Retention</th>
<th>Observed</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (retained)</td>
<td>592</td>
<td>63.9%</td>
</tr>
<tr>
<td>0 (not retained)</td>
<td>335</td>
<td>64.4%</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td>55.4%</td>
<td>63.8%</td>
</tr>
</tbody>
</table>
For this model, the pseudo $R^2$ was very low ($R^2 = 0.046$), therefore the predictive power of this model was minimal.

Lastly, individual independent variables' regression coefficients (Wald test) were examined to determine the individual independent variables' significance within the model. For this analysis, gender [(male), $z = 10.43, p = 0.0012$]; HSGPA, [$z = 27.18, p < .0001$]; and attending college not to "get away from home" [(decide3), $z = 5.47, p = 0.0194$], reliably predicted students who were retained to the following fall semester.

A logistic regression using gender, HSGPA, and attending college not to "get away from home" was performed. For this analysis, cases that were missing any data points were removed from the dataset ($n = 3,563$). The likelihood-ratio test of the full model with all the independent variables included against a constant-only model revealed a statistically significant full model $X^2 (4, N = 3,563) = 173.26, p < .0001$. This indicates that as a set, the independent variables reliably distinguished between students who were retained to the following fall semester and those who were not retained. Next, the Hosmer and Lemeshow goodness-of-fit test revealed a significant Chi-square $X^2 (8, N=3,563) = 18.04, p = 0.02$, indicating the model was not good and the null hypothesis could not be rejected. However, goodness-of-fit deciles displayed in table 20 may indicate that there were some minimal differences between retained and not retained groups due to the concentration of frequencies in the higher groups (above 5) in the retained columns and the lower number of frequencies in the higher groups in the not retained columns.
Table 20. Deciles of Observed and Expected Frequencies for Reduced Model of Retention for Pre-College Dimension

<table>
<thead>
<tr>
<th>Group</th>
<th>Total (n)</th>
<th>Retained = 1 (retained)</th>
<th></th>
<th>Retained = 0 (not retained)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Observed Frequencies</td>
<td>Expected Frequencies</td>
<td>Observed Frequencies</td>
<td>Expected Frequencies</td>
</tr>
<tr>
<td>1</td>
<td>358</td>
<td>137</td>
<td>155.79</td>
<td>221</td>
<td>202.21</td>
</tr>
<tr>
<td>2</td>
<td>356</td>
<td>178</td>
<td>177.28</td>
<td>178</td>
<td>178.72</td>
</tr>
<tr>
<td>3</td>
<td>362</td>
<td>209</td>
<td>194.91</td>
<td>153</td>
<td>167.09</td>
</tr>
<tr>
<td>4</td>
<td>365</td>
<td>200</td>
<td>208.70</td>
<td>165</td>
<td>156.30</td>
</tr>
<tr>
<td>5</td>
<td>357</td>
<td>223</td>
<td>216.23</td>
<td>134</td>
<td>140.77</td>
</tr>
<tr>
<td>6</td>
<td>361</td>
<td>239</td>
<td>229.76</td>
<td>122</td>
<td>131.24</td>
</tr>
<tr>
<td>7</td>
<td>354</td>
<td>249</td>
<td>235.40</td>
<td>105</td>
<td>118.60</td>
</tr>
<tr>
<td>8</td>
<td>361</td>
<td>252</td>
<td>252.03</td>
<td>109</td>
<td>108.97</td>
</tr>
<tr>
<td>9</td>
<td>356</td>
<td>265</td>
<td>262.52</td>
<td>91</td>
<td>93.48</td>
</tr>
<tr>
<td>10</td>
<td>333</td>
<td>246</td>
<td>265.38</td>
<td>87</td>
<td>67.62</td>
</tr>
</tbody>
</table>

The overall classification table and the pseudo $R^2$ were not calculated because the null hypothesis could not be rejected. No further analyses were performed for the reduced model.

Overall, this model was significant and the null hypothesis was rejected; however, very little variance could be explained by this model. The significant attributes in the model were personal attributes (gender), pre-college education and achievements (HSGPA), and dispositions (attending college not to get away from home).

Research Question 5: Is there significant difference between the goals and commitments of at-risk first-year students who were retained to the following fall semester and at-risk first-year students who were not retained to the following fall semester?

Hypothesis 5: There will be no significant differences between the goals and commitments of at-risk first-year students who were retained and at-risk first-year students who are not retained to the following fall semester.
The likelihood-ratio test of the full model with all the independent variables included against a constant-only model revealed a statistically significant full model $X^2_{(18, N = 3,667)} = 32.06, p < .0001$, indicating that as a set the independent variables reliably distinguished between students who were retained to the following fall semester and those who were not retained. Next, Hosmer and Lemeshow goodness-of-fit, revealed a non-significant Chi-square test $X^2_{(8, N=3,667)} = 9.01, p = 0.32$, indicating the model was a good fit and the null hypothesis was rejected. However, further examination of the goodness-of-fit ordered deciles (table 21) revealed that the cases were generally evenly spread throughout the groupings, indicating the model may not have been good.

### Table 21. Deciles of Observed and Expected Frequencies of Retention for Goals and Commitments Dimension

<table>
<thead>
<tr>
<th>Group</th>
<th>Total (n)</th>
<th>Retention = 1 (retained)</th>
<th>Retention = 0 (not retained)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed Frequencies</td>
<td>Expected Frequencies</td>
<td>Observed Frequencies</td>
</tr>
<tr>
<td>1</td>
<td>521</td>
<td>283</td>
<td>280.58</td>
</tr>
<tr>
<td>2</td>
<td>232</td>
<td>146</td>
<td>137.14</td>
</tr>
<tr>
<td>3</td>
<td>367</td>
<td>211</td>
<td>218.19</td>
</tr>
<tr>
<td>4</td>
<td>341</td>
<td>215</td>
<td>206.43</td>
</tr>
<tr>
<td>5</td>
<td>306</td>
<td>195</td>
<td>188.96</td>
</tr>
<tr>
<td>6</td>
<td>316</td>
<td>180</td>
<td>197.23</td>
</tr>
<tr>
<td>7</td>
<td>370</td>
<td>233</td>
<td>232.29</td>
</tr>
<tr>
<td>8</td>
<td>299</td>
<td>190</td>
<td>191.94</td>
</tr>
<tr>
<td>9</td>
<td>402</td>
<td>251</td>
<td>260.67</td>
</tr>
<tr>
<td>10</td>
<td>513</td>
<td>354</td>
<td>344.57</td>
</tr>
</tbody>
</table>

The overall classification table (table 22) demonstrates that overall the model predicts 53.9% of students’ retention. Additionally, only 51.8% (n = 1,170) of students who were retained and 57.2% (n = 806) of students who were not retained to the following fall semester were correctly predicted.
Table 22. Comparison of Number of Students Observed and Expected Frequencies of Retention for Goals and Commitments Dimension

<table>
<thead>
<tr>
<th>Observed</th>
<th>Predicted</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (retained)</td>
<td>0 (not retained)</td>
<td>Overall Percentage</td>
</tr>
<tr>
<td>Retention to the following fall semester</td>
<td>1,170</td>
<td>1,088</td>
</tr>
<tr>
<td>0 (not retained)</td>
<td>603</td>
<td>806</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td>48.4%</td>
<td>51.6%</td>
</tr>
</tbody>
</table>

The pseudo $R^2$ calculated from intercepts only (IO) and intercept and covariates (I+C) numbers reported in the model fit statistics table for -2 Log L was very low ($R^2 = 0.007$). Finally, the Wald test of regression coefficients of individual independent variables was examined. For this analysis, allowing sufficient time for studying in college [(att71), $z = 4.22$, $p = 0.040$] and predicting completion of bachelor's degree at this college [(succes86), $z = 7.95$, $p = 0.0048$], reliably predicted retention.

A logistic regression using only the significant independent variables was performed. For this analysis, no data were missing, therefore all cases were used ($n = 3,667$). The likelihood-ratio test of the full model with all the independent variables included against a constant-only model revealed a statistically significant full model $X^2 (2, N = 3,667) = 12.55, p = .0019$. This indicates that as a set, the independent variables reliability distinguished between students who were retained to the following fall semester and those who were not retained. The Hosmer and Lemeshow goodness-of-fit test was not calculated due to a poor model fit and there were no significant differences in the two groups. The goodness-of-fit deciles displayed in table 23 also indicate the model was not good because the distribution in both the observed and expected frequencies columns was generally evenly distributed.
Table 23. Deciles of Observed and Expected Frequencies for Reduced Model of Retention for Goals and Commitments Dimension

<table>
<thead>
<tr>
<th>Group</th>
<th>Total ( (n) )</th>
<th>Retention = 1 ( \text{(retained)} )</th>
<th>Retention = 0 ( \text{(not retained)} )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed Freqs</td>
<td>Expected Freqs</td>
<td>Observed Freqs</td>
</tr>
<tr>
<td>1</td>
<td>140</td>
<td>68</td>
<td>66.92</td>
</tr>
<tr>
<td>2</td>
<td>3547</td>
<td>2190</td>
<td>2191.08</td>
</tr>
</tbody>
</table>

The overall classification table and the pseudo \( R^2 \) were not calculated because the null hypothesis could not be rejected.

Overall, the model was significant and the null hypothesis was rejected; however, the goodness-of-fit deciles were evenly distributed, indicating that there may not have been considerable differences between at-risk first-year students who were retained and those who were not retained. Finally, the attributes that were significant were intentions (allowing time to study) and commitment to the institution (wanting to complete a degree at this institution).

**Research Question 6:** Is there a significant difference between the types of institutional experiences of at-risk first-year students who were retained to the following fall semester and at-risk first-year students who were not retained to the following fall semester?

**Hypothesis 6:** There are no significant differences between the types of institutional experiences of at-risk first-year students who were retained and at-risk first-year students who were not retained to the following fall semester.

The likelihood-ratio test of the full model with all the independent variables included against a constant-only model revealed a statistically non-significant full model \( X^2 (3, N = 1,569) = 4.31, p = 0.23 \). This indicates that as a set, the independent variables
did not reliability distinguish between students who were retained to the following fall semester and those who were not retained. Further data analyses were not performed due to a non-significant model.

Research Question 7: Is there significant difference between the non-cognitive attributes of academically successful at-risk first-year students and the non-cognitive attributes of academically unsuccessful at-risk first-year students’ at the end of the fall semester?

Hypothesis 7: There are no significant differences between students’ non-cognitive attributes of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

The likelihood-ratio test of the full model with all the independent variables included against a constant-only model revealed a statistically significant full model $X^2 (50, N = 1,322) = 167.46, p < .0001$, indicating that as a set, the independent variables constantly distinguished between students in good academic standing and students not in good academic standing at the end of the first semester. The Hosmer and Lemeshow goodness-of-fit test revealed a non-significant Chi-square $X^2 (8, N=1,322) = 8.21, p = 0.41$, indicating the model was good and the null hypothesis was rejected. Further examination of the goodness-of-fit ordered deciles (table 24) revealed that the model was good.
Table 24. Deciles of Observed and Expected Frequencies for Academic Standing for Non-Cognitive Variables

<table>
<thead>
<tr>
<th>Group</th>
<th>Total (n)</th>
<th>Observed Frequencies</th>
<th>Academic Standing = 1 (good)</th>
<th>Expected Frequencies</th>
<th>Observed Frequencies</th>
<th>Academic Standing = 0 (not good)</th>
<th>Expected Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>132</td>
<td>69</td>
<td>65.19</td>
<td>63</td>
<td>66.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>132</td>
<td>86</td>
<td>85.12</td>
<td>46</td>
<td>46.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>132</td>
<td>88</td>
<td>94.50</td>
<td>44</td>
<td>37.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>132</td>
<td>106</td>
<td>101.69</td>
<td>26</td>
<td>30.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>132</td>
<td>101</td>
<td>106.67</td>
<td>31</td>
<td>25.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>132</td>
<td>114</td>
<td>111.68</td>
<td>18</td>
<td>30.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>132</td>
<td>118</td>
<td>115.79</td>
<td>14</td>
<td>16.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>132</td>
<td>119</td>
<td>120.07</td>
<td>13</td>
<td>11.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>132</td>
<td>121</td>
<td>123.90</td>
<td>11</td>
<td>8.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>134</td>
<td>133</td>
<td>130.39</td>
<td>1</td>
<td>3.61</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The overall classification table (table 25) demonstrates that overall the model predicted 74.0% of students' academic standing correctly. Additionally, 74.0% (n = 780) of students in good academic standing and 74.3% (n = 198) of students not in good standing were predicted correctly.

Table 25. Comparison of Number of Students Observed and Expected Frequencies for Academic Standing for Non-Cognitive Variables

<table>
<thead>
<tr>
<th>Predicted</th>
<th>Observed</th>
<th>Academic Standing</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (good)</td>
<td>780</td>
<td>74.0%</td>
</tr>
<tr>
<td></td>
<td>0 (not good)</td>
<td>275</td>
<td></td>
</tr>
<tr>
<td>Academic</td>
<td>1 (good)</td>
<td>69</td>
<td>74.3%</td>
</tr>
<tr>
<td>Standing</td>
<td>0 (not good)</td>
<td>198</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>64.2%</td>
<td>35.8%</td>
<td>74.0%</td>
</tr>
</tbody>
</table>

The pseudo R^2 calculated from intercepts only (IO) and intercept and covariates (I+C) numbers reported in the model fit statistics table for -2 Log L was low (R^2 = 0.126). The final model test, Wald test of regression coefficients of individual independent variables revealed gender [(male), \( z = 14.811, p = .0001 \)]; HSGPA [\( z = 66.14, p < \)
choosing this college to be able to get a better job [(decide1) \( z = 1.46, p = 0.036 \)]; having the drive to work on anything important [(att74), \( z = 5.99, p = 0.0143 \)]; and Perceived Faculty Support [(PFS), \( z = 14.88, p = .0001 \)] reliably predicted good academic standing.

A model was run using only gender, HSGPA, choosing this college to get a better job, having the drive to work on something important, and PFS. Cases with missing data were deleted (n = 1,529). The likelihood-ratio test of the full model with all the independent variables included against a constant-only model (no independent variables) revealed a statistically significant full model \( X^2 (5, N = 1,529) = 129.86, p < .0001 \). This indicates that as a set, the independent variables reliably distinguished between students in good academic standing and students not in good academic standing at the end of the first semester. The Hosmer and Lemeshow goodness-of-fit test revealed a significant Chi-square \( X^2 (8, N=1,529) = 15.98, p = 0.04 \), indicating the model was not good and the null hypothesis could not be rejected. However, the goodness-of-fit deciles displayed in table 26 indicate that there may have been differences between students in good academic standing and students not in good academic standing.
Table 26. Deciles of Observed and Expected Frequencies of Reduced Model for Academic Standing for Non-Cognitive Variables

<table>
<thead>
<tr>
<th>Group</th>
<th>Total (n)</th>
<th>Academic Standing = 1 (good)</th>
<th>Academic Standing = 0 (not good)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed Frequencies</td>
<td>Expected Frequencies</td>
<td>Observed Frequencies</td>
</tr>
<tr>
<td>1</td>
<td>153</td>
<td>85</td>
<td>86.77</td>
</tr>
<tr>
<td>2</td>
<td>154</td>
<td>106</td>
<td>103.31</td>
</tr>
<tr>
<td>3</td>
<td>153</td>
<td>122</td>
<td>111.26</td>
</tr>
<tr>
<td>4</td>
<td>153</td>
<td>106</td>
<td>117.49</td>
</tr>
<tr>
<td>5</td>
<td>154</td>
<td>128</td>
<td>123.71</td>
</tr>
<tr>
<td>6</td>
<td>153</td>
<td>127</td>
<td>127.56</td>
</tr>
<tr>
<td>7</td>
<td>153</td>
<td>132</td>
<td>131.96</td>
</tr>
<tr>
<td>8</td>
<td>153</td>
<td>128</td>
<td>136.45</td>
</tr>
<tr>
<td>9</td>
<td>153</td>
<td>143</td>
<td>141.21</td>
</tr>
<tr>
<td>10</td>
<td>150</td>
<td>146</td>
<td>143.29</td>
</tr>
</tbody>
</table>

Further analyses were not performed because the null hypothesis was not rejected.

Research Question 8: Is there significant difference between the non-cognitive attributes and academic standing of at-risk first-year students who were retained to the following fall semester and at-risk first-year students who were not retained to the following fall semester?

Hypothesis 8: There are no significant differences between students’ non-cognitive attributes and academic standing of at-risk first-year students who were retained and at-risk first-year students who were not retained to the following fall semester.

The likelihood-ratio test of the full model with all the independent variables included against a constant-only model revealed a statistically significant full model $X^2 (51, N = 1,322) = 272.78, p < .0001$. This indicates that as a set, the independent variables reliably distinguished between students who were retained to the following fall semester and those who were not retained. The Hosmer and Lemeshow goodness-of-fit
test revealed a non-significant Chi-square test $\chi^2 (8, N=1,322) = 11.27, p = 0.19,$ indicating the model was good and the null hypothesis was rejected. Additionally, goodness-of-fit ordered deciles (table 27) demonstrates that most of the cases with outcomes 1 (retained) were in the higher deciles and the cases with outcome 0 (not retained) were in the lower deciles, indicting the current model was good.

**Table 27. Deciles of Observed and Expected Frequencies of Retention for Non-Cognitive Variables**

| Group | Total (n) | Retention = 1 (retained) | | Retention = 0 (not retained) |
|-------|----------|--------------------------| |-----------------------------|
| 1     | 132      | 35                       | | 97                          |
| 2     | 132      | 46                       | | 86                          |
| 3     | 132      | 76                       | | 56                          |
| 4     | 132      | 101                      | | 31                          |
| 5     | 132      | 100                      | | 32                          |
| 6     | 132      | 108                      | | 24                          |
| 7     | 132      | 116                      | | 16                          |
| 8     | 132      | 111                      | | 21                          |
| 9     | 132      | 115                      | | 17                          |
| 10    | 134      | 119                      | | 15                          |

The overall classification table (table 28) demonstrates that overall the model predicted 76.4% of students' retention. Additionally, 76.3% (n =707) of students who were retained and 76.7% (n = 303) of students who were not retained to the following fall semester were correctly predicted.
Table 28. Comparison of Number of Students Observed and Expected Frequencies of Retention for Non-Cognitive Variables

<table>
<thead>
<tr>
<th>Predicted Retention</th>
<th>Observed</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (retained)</td>
<td>707</td>
<td>76.3%</td>
</tr>
<tr>
<td>0 (not retained)</td>
<td>220</td>
<td>76.7%</td>
</tr>
</tbody>
</table>

The pseudo $R^2$ calculated from intercepts only (IO) and intercept and covariates (I+C) numbers reported in the model fit statistics table for -2 Log L was very low ($R^2 = 0.169$). Lastly, the individual independent variables' regression coefficients (Wald test) that reliably predicted retention to the following fall semester were academic standing [(good), $z = 164.25, p < .0001$]; gender [(male), $z = 4.85, p = 0.028$]; HSGPA, [$z = 3.75, p = 0.05$]; and choosing this college not to get away from home [(decide3), $z = 5.73, p = 0.0167$].

A logistic regression using academic standing, gender, HSGPA, and choosing this college not to get away from home was performed after removing the missing cases (n = 3,563). The likelihood-ratio test of the full model with all the independent variables included against a constant-only model revealed a statistically significant full model $X^2(4, N = 3,563) = 979.96, p < .0001$. This indicates that as a set, the independent variables reliably distinguished between students who were retained to the following fall semester and those who were not retained. The Hosmer and Lemeshow goodness-of-fit test revealed a non-significant Chi-square $X^2(8, N=3,563) = 7.51, p = 0.48$, also indicating the model was good and the null hypothesis was rejected. The goodness-of-fit deciles displayed in table 29 also indicate the model was good.
Table 29. Deciles of Observed and Expected Frequencies for Reduced Model of Retention for Non-Cognitive Variables

<table>
<thead>
<tr>
<th>Group</th>
<th>Total (n)</th>
<th>Observed Frequencies</th>
<th>Expected Frequencies</th>
<th>Observed Frequencies</th>
<th>Expected Frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>360</td>
<td>82</td>
<td>75.05</td>
<td>278</td>
<td>284.95</td>
</tr>
<tr>
<td>2</td>
<td>358</td>
<td>80</td>
<td>83.90</td>
<td>278</td>
<td>274.10</td>
</tr>
<tr>
<td>3</td>
<td>356</td>
<td>96</td>
<td>100.82</td>
<td>260</td>
<td>255.18</td>
</tr>
<tr>
<td>4</td>
<td>355</td>
<td>236</td>
<td>245.20</td>
<td>119</td>
<td>109.80</td>
</tr>
<tr>
<td>5</td>
<td>357</td>
<td>268</td>
<td>267.07</td>
<td>89</td>
<td>89.93</td>
</tr>
<tr>
<td>6</td>
<td>357</td>
<td>274</td>
<td>273.77</td>
<td>83</td>
<td>83.23</td>
</tr>
<tr>
<td>7</td>
<td>356</td>
<td>288</td>
<td>281.05</td>
<td>68</td>
<td>74.95</td>
</tr>
<tr>
<td>8</td>
<td>359</td>
<td>302</td>
<td>288.75</td>
<td>57</td>
<td>70.25</td>
</tr>
<tr>
<td>9</td>
<td>360</td>
<td>288</td>
<td>294.16</td>
<td>72</td>
<td>65.84</td>
</tr>
<tr>
<td>10</td>
<td>345</td>
<td>284</td>
<td>288.22</td>
<td>61</td>
<td>56.78</td>
</tr>
</tbody>
</table>

Table 30, the correct classification table, demonstrates that overall the model predicted 76.9% of students' retention correctly. Furthermore, only 76.6% \((n = 1,684)\) of students were correctly predicted to be retained and 77.4% \((n = 1,056)\) of students who were not retained to the following fall semester.

Table 30. Comparison of Number of Students Observed and Expected Frequencies for Reduced Model of Retention for Non-Cognitive Variables

<table>
<thead>
<tr>
<th>Predicted</th>
<th>Observed</th>
<th>Retention</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (retained)</td>
<td>0 (not retained)</td>
<td></td>
</tr>
<tr>
<td>Retention to the following fall semester</td>
<td>1,684</td>
<td>514</td>
<td>76.6%</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td>55.9%</td>
<td>44.1%</td>
<td>76.9%</td>
</tr>
</tbody>
</table>

For this model, the pseudo \(R^2\) was low \((R^2 = 0.212)\), therefore the predictive power of this model was low. Lastly, the Wald test revealed the variables that reliably
predicted retention to the following fall semester were: academic standing [(good), \( z = 712.75, p < .0001 \)]; gender [(male), \( z = 16.48, < .0001 \)]; and HSGPA, \( z = 6.56, p = .011 \).

This final model was significant and the null hypothesis was rejected, indicating that there are differences between the non-cognitive factors and academic standing of at-risk first-year students who were retained to the following fall semester and those who were not retained.

**Summary**

The purpose of this study was to determine if there were significant differences in non-cognitive attributes between at-risk first-year students who were in good academic standing and those who were not in good academic standing at the end of the first semester. Additionally, this study examined if there were significant differences in non-cognitive attributes for at-risk first-year students who were retained to the following fall semester and those who were not retained to the following fall semester. Logistic regression was used to determine if the null hypotheses could be rejected or accepted. Seven out of eight models tested were significant models and all variables within the models, as a whole, reliably predicted at-risk first-year students' first semester academic standing or retention to the following fall semester. The one model that was not significant was the differences between institutional experiences of at-risk first-year students who were retained or not retained to the following fall semester. Furthermore, all but one of the hypotheses could be rejected, which indicates that there are significant differences in non-cognitive attributes for at-risk first-year students who were in good academic standing and those who were not at the end of the first semester and for those
who were retained and those who were not retained to the following fall semester. However, upon reviewing the observed and expected frequencies there may not be significant differences between groups due to the evenly distributed frequencies. For each hypothesis, most of the models correctly predicted more than half of students’ academic standing or retention. The variance explained within each model did not exceed 16.9%, indicating that there is a low correlation between observed and actual values.

Within the models, there were significant individual independent variables. These independent variables were then tested in separate models to determine if more efficient prediction models were produced. Three out of seven follow-up logistic regression models produced significant overall models, again indicating that the variables, as a whole, can reliably predict students’ academic standing or retention. As with the larger, full models, the Hosmer and Lemshow tests revealed that there were differences between groups; however, due to the evenly distributed observed and expected frequencies, the differences between the groups may be minimal. The reduced, or efficient, models correctly predicted more than half of students’ academic standing or retention. Lastly, the variance explained by each reduced model was slightly more that the full models, but still very low and did not exceed 21.2%.

A summary of the findings are discussed in chapter 5. Additionally, conclusions, future directions, and possible limitations of this study are included in the following chapter.
CHAPTER 5
Conclusion and Discussion

Summary of Study

This study examined at-risk students' non-cognitive attributes, such as pre-college characteristics, goals and commitments, and first-semester institutional experiences to determine if there were significant differences between students' academic standing at the end of their first semester, and if there were significant differences between students' who were retained or not retained to the following fall semester. All at-risk first-year students entering the institution during fall semesters of 2004 to 2006 were examined in this study.

The following questions were investigated:

1. Is there a significant difference between the pre-college characteristics of academically successful at-risk first-year students and the pre-college characteristics of academically unsuccessful at-risk first-year students at the end of the fall semester?

2. Is there a significant difference between the goals and commitments of academically successful at-risk first-year students and the goals and commitments of academically unsuccessful at-risk first-year students at the end of the fall semester?

3. Is there a significant difference between the types of institutional experiences of academically successful at-risk first-year students and the types of
institutional experiences of academically unsuccessful at-risk first-year students' at the end of the fall semester?

4. Is there a significant difference between the pre-college characteristics of at-risk first-year students who were retained to the following fall semester and the pre-college characteristics of at-risk first-year students who were not retained to the following fall semester?

5. Is there a significant difference between the goals and commitments of at-risk first-year students who were retained to the following fall semester and the goals and commitments of at-risk first-year students who were not retained to the following fall semester?

6. Is there a significant difference between the types of institutional experiences of at-risk first-year students who were retained to the following fall semester and the types of institutional experiences of at-risk first-year students who were not retained following fall semester?

7. Is there a significant difference between the non-cognitive attributes of academically successful at-risk first-year students and the non-cognitive attributes of academically unsuccessful at-risk first-year students at the end of the fall semester?

8. Is there a significant difference between the non-cognitive attributes and academic standing of at-risk first-year students who were retained to the following fall semester and the non-cognitive attributes and academic standing of at-risk first-year students who were not retained to the following fall semester?
The following null hypotheses were constructed from the above research questions and tested:

1. There are no significant differences between the pre-college characteristics of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

2. There are no significant differences between the goals and commitments of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

3. There are no significant differences between the types of institutional experiences of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.

4. There are no significant differences between the pre-college characteristics of at-risk first-year students who are retained and at-risk first-year students who are not retained to the following fall semester.

5. There are no significant differences between the goals and commitments of at-risk first-year students who are retained and at-risk first-year students who are not retained to the following fall semester.

6. There are no significant differences between the types of institutional experiences of at-risk first-year students who are retained and at-risk first-year students who are not retained to the following fall semester.

7. There are no significant differences between students’ non-cognitive attributes of academically successful at-risk first-year students and academically unsuccessful at-risk first-year students at the end of the fall semester.
8. There are no significant difference between students' non-cognitive attributes and academic standing of at-risk first-year students who are retained and at-risk first-year students who are not retained to the following fall semester.

Data regarding first-year students' pre-college characteristics and goals and commitments were collected during the summer prior to their enrollment in the fall semesters of 2004 to 2006 from the *Transition to College Inventory* (TCI). Additional data were collected from the First-Year Biographical Questionnaire (BioQ) during the fall semesters of 2004 to 2006. Data compiled from the TCI and BioQ included students' pre-college characteristics, such as family background, personal attributes, skills, and dispositions. Additional pre-college characteristic data on financial resources and pre-college education and achievements were gathered from the institutional student information system (SIS). Data on students' goals and commitments (intentions, goals, and institutional commitment) were also gathered from the TCI. Additional data gathered included institutional experiences of at-risk first-year students during fall semesters of 2004 to 2006. These data included college academic performance, faculty and staff interactions, and peer group interactions. Data were collected during fall semesters of 2004 to 2006 from the First-Year Experiences Survey (FES), which contains the Sense of Belonging Scale (SOB). The SOB contains four sub-scales: Perceived Faculty Support (PFS), Perceived Peer Support (PPS), Perceived Classroom Comfort (PCC), and Perceived Isolation (PI). Data regarding students' college academic performance (grades) and enrollment to the following fall semester (retention) were obtained from the SIS.
Summary of Findings

Logistic regression was used to test the previously stated hypotheses to determine if there were significant differences between at-risk first-year students' non-cognitive attributes and first semester academic standing or retention to the following fall semester. Significance was set at $p = 0.05$ for all analyses.

Three Non-Cognitive Dimensions and Academic Standing

For students' first semester academic standing, three of the models tested were statistically significant, indicating that at-risk first-year students' pre-college characteristics, goals and commitments, and institutional experiences can reliably predict their first-semester academic standing. Each of the null hypothesis was rejected, suggesting that there were significant differences between non-cognitive attributes of students in good academic standing and students not in good academic standing. However, further examination of the observed and expected frequencies for the goals and commitments model revealed evenly distributed values. This suggests that even though the Hosmer and Lemeshow test indicated that the null hypothesis could be rejected, the differences between the goals and commitments of students in good academic standing and the goals and commitments of students not in good academic standing may not have been considerably different.

A review of students' observed and predicted academic standing revealed that all three full models correctly predicted at-risk first-year students' in good academic standing, with the pre-college characteristics model identifying a greater number of students in good academic standing (71%), followed by the institutional experiences model (58%), and lastly the goals and commitment model (53%). However, an
examination of the calculated $R^2$ for each model revealed that very little variance could be accounted for in each model (0.6% to 13%), making each model fit very poor.

Further examination of each model's individual independent variables revealed that there were significant variables within each model. In the pre-college characteristics dimension model, gender (male), HSGPA, attending college *not to get a better job*, and father's education (2 year degree and above) reliably predicted good academic standing. A logistic regression was performed using only the four significant variables. The reduced, or efficient, model was significant which indicated that the four variables together reliably predicted at-risk first-year students' good academic standing. Next, the null hypothesis was rejected, again indicating that there were significant differences between pre-college characteristics of at-risk first-year students who were in good academic standing and students who were not in good academic standing. The reduced model correctly predicted 67.4% of at-risk first-year students in good academic standing; however, as with the full model, very little variance could be explained by the model (6.9%). Additionally, the reduced model produced three significant variables that predicted at-risk first-year students' academic standing, gender (male), HSGPA, and father's education (2 year degree and above). Attending college *not to get a better job* was not a significant predictor in the reduced model.

The next dimension model, goals and commitments model, revealed that *admiring good students* (att69), *having the drive to work on something important* (att74), and *having the drive to complete work* (att75) reliably predicted students' good academic standing. The three variables were then used in a logistic regression analysis, which produced an overall significant model. The Hosmer and Lemeshow test revealed that
there were differences between students who were in good academic standing and at-risk first-year students who were not in good academic standing. However, only 24.9% of students in good academic standing were correctly predicted and very little of the variance could be explained by the reduced model (0.3%).

In the third dimension model, institutional experiences, Perceived Faculty Support (PFS) was the only variable that reliably predicted students' good academic standing. A follow-up logistic regression analysis performed using only PFS produced a statistically significant model. The predictor variable in the reduced model reliably distinguished between at-risk first-year students in good academic standing and at-risk first-year students not in good academic standing at the end of the first semester. Although the Hosmer and Lemeshow test revealed that there were differences between students in good academic standing and students not in good academic standing, the even distribution of the observed and expected frequencies suggested that the differences may have been minimal. Furthermore, 55.3% of students in good academic standing were correctly predicted but the reduced model can explain only 0.1% of the variance.

After all three non-cognitive dimension models were tested, a model that contained each dimension was tested to identify if there were differences between academically successful and unsuccessful at-risk first-year students' non-cognitive attributes. This model revealed that gender (male), HSGPA, not choosing this college to be able to get a better job (decide1), having the drive to work on anything important (att74), and Perceived Faculty Support (PFS) reliably predicted good academic standing. A follow-up logistical regression using the five significant variables produced a significant model. Hosmer and Lemeshow and the observed and expected frequencies
indicate that there were no differences between at-risk first-year students who are in good academic standing and at-risk first-year students who are not in good academic standing. Further analyses on the reduced model were not performed because the null hypothesis was not rejected.

Overall, the four models revealed that there are significant differences in at-risk first-year students who are academically successful and those who are academically unsuccessful. Specifically, students' pre-college characteristics, goals and commitments, and institutional experiences can be significant factors in students' academic standing at the end of their first semester.

Non-Cognitive Dimensions and Retention

Two out of the three models, pre-college characteristics model and goals and commitments model, were statistically significant, suggesting that each dimension can consistently predict at-risk first-year students' retention to the following fall semester. The institutional experiences model was not significant and further analyses were not performed. Of the two significant models, all null hypotheses were rejected, indicating that there were significant differences between at-risk first-year students who were retained and at-risk first-year students who were not retained to the following fall semester. However, further examination of the observed and expected frequencies revealed that there may have been minimal differences between at-risk first-year students' goals and commitments for those who were retained and those who were not retained. The pre-college characteristics model correctly identified the most at-risk first-
year students retained (63.9%) and goals and commitments correctly predicting 51.8%.
The amount of variance that can be explained by each model did not exceed 7%.

Further examination of each models' individual variables revealed several significant variables within the models. For the first dimension model, pre-college characteristics, gender (male), HSGPA, and attending college not to “get away from home” (decide3) reliably predicted at-risk first-year students who were retained to the following fall semester. A logistical regression was performed using the three significant variables. The reduced model was statistically significant; however, the null hypothesis could not be rejected due to a significant Hosmer and Lemeshow test, which indicated that there were no significant differences between pre-college characteristics of at-risk first-year students who were retained and at-risk first-year students who were not retained to the following fall semester. Further analysis was not performed because the null hypothesis could not be rejected.

The second dimension model, goals and commitments, produced two significant variables: allowing sufficient time for studying in college (att71) and predicting completion of bachelor's degree at this college (suces86). Using the two significant variables in a logistic regression model produced a statistically significant reduced model. The Hosmer and Lemeshow goodness-of-fit test indicated that the null could not be rejected, indicating that there were no significant differences between the goals and commitments of at-risk first-year students who were retained and those who were not retained to the following fall semester. Further analyses were not performed.

After the three dimension models were tested. A model containing students non-cognitive attributes plus academic standing was tested to identify if there were significant
differences in at-risk first-year students who were retained or not retained. The model revealed that the individual variables that reliably predicted retention to the following fall semester were: academic standing (good), gender (male), HSGPA, and choosing this college not to get away from home (decide3). A logistical regression performed using only the four significant variables produced a statistically significant model. The Hosmer and Lemeshow test revealed that there were significant differences between at-risk first-year students who were retained and at-risk first-year students who were not retained. The differences between students who were retained and students who were not retained is supported by the observed and expected frequencies. Lastly, the reduced model correctly predicted 76.6% of at-risk first-year students who were retained and 21.2% of the variance could be explained.

Overall, these analyses revealed that there were significant differences between at-risk first-year students’ who were retained to the following fall semester and those who were not retained. Specifically, students’ pre-college characteristics and goals and commitments were significantly different for those who were retained. When all dimensions were combined with students’ academic standing, academic standing became a significant predictor in the model, indicating that academic success has a significant impact on at-risk first-year students’ retention.

These findings suggest that pre-college characteristics, goals and commitments, and institutional experiences were significantly different for at-risk first-year students in good academic standing and those who were not in good academic standing at the end of their first semester. Additionally the findings indicate that pre-college characteristics and
goals and commitments were significantly different for at-risk first-year students who were retained and those who were not retained to the following fall. However, as demonstrated in the follow-up logistical regression analyses, there can be more efficient, or reduced, models used to examine at-risk first-year students' first semester academic standing and retention to the following fall semester. Furthermore, although most of the null hypotheses were rejected, indicating that there were significant differences between at-risk first-year students' non-cognitive attributes and their academic standing and retention, close examination of the observed and expected frequencies revealed that the differences may have been minimal. Lastly, even though most of the models correctly predicted more than half of at-risk first-year students' academic standing or retention the variance that could be explained within each model was very low and did not exceed 21%. This low variance indicates that there was poor model fit.

Conclusions

Overall, each model fit was statistically significant suggesting that at-risk first-year students' non-cognitive attributes, such as pre-college characteristics, goals and commitments, and institutional experiences were significantly different for students who were academically successful or academically unsuccessful and for those who were retained or not retained to the following fall semester. Analyses revealed that across the three non-cognitive dimensions, the significant variables of at-risk first-year students' first semester academic standing are gender, HSGPA, father's education, choosing this college to get a better job, admiring good students, having the drive to complete work, having the drive to work on something important, and Perceived Faculty Support. This
indicates that at-risk first-year students who were in good academic standing significantly differ from at-risk first-year students who were not in good academic standing on these eight variables representing the following attributes within each dimension: family background, personal attributes, dispositions, pre-college education and achievements, intentions, goals and institutional commitment, and faculty and staff interactions.

Analyses regarding at-risk first-year students' retention to the following fall semester revealed that gender, HSGPA, attending college not to get away from home, allowing sufficient time to study, and predicting completion of a bachelor's degree from this college are significant variables. When all three non-cognitive dimensions were combined along with students' first semester academic standing, academic standing becomes another significant variable of at-risk first-year students' retention to the following fall semester. This indicates that at-risk first-year students who were retained to the following fall semester significantly differed from students who were not retained on these six variables, which represent the following attributes within each dimension: personal attributes, dispositions, pre-college education and achievements, intentions, and goals and institutional commitment.

Lastly, when comparing the academic standing models with the retention models, two variables were significant across both models: gender and HSGPA. This suggests that students' personal attributes are significantly different for at-risk first-year students in good or not in good academic standing, and for those who were retained and those who were not retained.
Discussion

Overall these findings support the literature on academic success and retention of at-risk first-year students. A discussion of the findings along with relevant literature is provided in the following section.

Pre-college Characteristics

At-risk first-year students’ pre-college characteristics, such as gender, HSGPA, and father’s education (2 year degree and above), and disposition (attending college not to get a better job) were significantly different for those who were in good academic standing and those who were not in good academic standing at the end of the first semester. These findings support the existing research on HSGPA and father’s education, as significant variables of academic success (Astin & Osegurea, 2005; Braxton & Lee, 2005; DuBrock, 1999; Lotkowski, Robbins, & Noeth, 2004; Nora, Barlow, & Crisp, 2005; Pascarella & Terenzini, 2005s). However, there is a considerable amount of literature that does not support the likelihood of males being more academically successful than females. Research suggests that females perform academically better overall than males (Dixon, 2003; Ereckson, 1992; Kinloch, Frost, & MacKay, 1993; Zhu, 2005). However, new research performed by Sax (2008) suggests that males and females perform differently at different types of institutions, with females performing better than males at liberal arts institutions. There should be further examination of this finding in future research.

The existing study’s finding that males were predicted to be academically successful could be due to that fact that the data contained about the same number of
males as females (47% and 53%, respectively). Another possibility could be the notion of intersectionality or interaction effects, between the variables.

When pre-college characteristics and at-risk first-year students’ retention were examined, gender, HSGPA, and dispositions were significantly different for those who were retained to the following fall semester and those who were not retained. Specifically, the current research findings suggest that at-risk first-year students who were male, have a higher HSGPA and want to attend college are predicted to be retained. These findings support the existing literature regarding HSGPA (Astin & Osegurea, 2005; Astin, 1993; Isonio, 1995; Lotkowski, Robbins, & Noeth, 2004; Titus, 2003) and positive dispositions (choosing to attend college not to get away from home) (Astin & Osegurea, 2005; Robbins, Allen, Casillas, Peterson, & Le, 2006; Robbins, Lauver, Le, Davis, & Langley, 2004) as an attribute related to retention. However, again, we see males as a significant predictor in the current study, but not fully supported by the existing literature (NCES, 2005; Nora, Barlow, & Crisp, 2005; Zhu, 2005). Recent new research by Linda Sax (2008) may provide more insight to male success and possibly contradict previous research and male and female retention in higher educational institutions.

Goals and Commitments

At-risk first-year students’ level of dedication to attain their educational goals (intentions) and the degree of their dedication to attainment of their goals and their dedication to the institution (goals and institutional commitment) were significant indicators of first semester academic standing and retention to the following fall
semester. Specifically, in these analyses, at-risk first-year students who indicated that they admired good students, possessed the drive to complete their work on time, and possessed the drive to work on important tasks were predicted to be in good academic standing at the end of the first semester. These findings support the literature and reinforce theories about a strong connection between educational goals and academic performance (Coleman & Freeman, 1996; Ramirez & Evans, 1988; Robbins, Allen, Casillas, Peterson, & Le, 2006; Robbins, Lauver, Le, Davis, & Langley, 2004; Schmitt, Oswald, Kim, Imus, Merritt, Friede, & Shivpuri, 2007).

At-risk first-year students, who were retained to the following fall semester, were more likely to indicate that they allowed time to study and wanted to complete a bachelor’s degree from the current institution. Along with the findings of the current study, there is a body of research that supports the positive effects of at-risk first-year students’ goals and commitments and first-year retention rates (Coleman & Freeman, 1996; Ramirez & Evans, 1988; Robbins et al., 2004; Robbins et al., 2006; Schmitt et al., 2007). At-risk first-year students’ commitment to attaining educational goals and commitment to the institution in which they enroll can have an effect on their academic performance, retention, and degree completion rates (Bradburn, 2002; Cabrera et al. 2005; Ishanti & DesJardins, 2002; Lotkowski et. al, 2004; Robbins et al., 2004; Robbins et al., 2006).

Institutional Experiences

At-risk first-year students who perceived support from faculty members were significantly more likely to be in good academic standing at the end of the first semester.
This finding supports Tinto’s repeated assertion that faculty interaction with students in and out-of the classroom is critical to their academic performance. (Tinto, 1987, Tinto, 1993; Tinto, 1999; Tinto & Pusser, 2006; Tinto, 2007; TG & EPI, 2008). Additionally, the current research and numerous research studies support the effect faculty support and interaction have on students’ academic performance (Astin, 1993; Cuseo, 2008; Dey, 1991; Franklin, 1995; Frost, 1991; Kim, 2001; Kuh, 1995; Kitchner, Wood & Jensen, 1999; Pascarella & Terenzini, 2005). However, this study’s findings did not support the current literature that faculty support was a significant factor in students’ retention to the institution. Much of the literature supports the positive effects of faculty interactions on students’ retention and graduation rates. Pascarella and Terenzini (2005) cautioned that retention and graduation rates may be influenced by students’ characteristics such as, dispositions (dimension 1), intellectual and social skills (dimension 1), and goal commitment (dimension 2).

**Follow-Up Analyses Regarding Males**

Follow-up logistical regressions were performed on hypotheses 7 and 8, using datasets that only contained males. The first model contained all three non-cognitive dimensions to determine if there were significant differences in male at-risk first-year students who were academically successful and those who were not successful. Analyses revealed that race (White), HSGPA, and PFS were significant predictors of at-risk first-year male students who were academically successful. The reduced model produced the same significant variables. Regarding male retention, a model that included the three non-cognitive dimensions plus students’ academic standing was tested. The model was
significant; however, a quasi-complete data warning occurred, indicating that there may not have been enough cases of the dependent variable (retained) observed in each independent variable (SAS, 2008). The only test within this model that can be safely interpreted is the overall model significance (Allison, 1999). Although this last model could not be interpreted, the first model did reveal that race may be interacting with gender; therefore being male results in a significant predictor of academic success as indicated in the analyses discussed in chapter 4.

Summary

At-risk first-year students’ academic success and retention are important issues for higher education today. It is important to examine the “student departure puzzle” (Braxton et. al., 1997) thoroughly to gain a better understanding of this complex issue. The issue of student departure or retention is inherently idiosyncratic because individuals are different, they cannot be just measured by 1s and 0s. Although this study adds to the existing body of literature regarding the student departure puzzle, by investigating the differences between at-risk first-year students who were academically successful and those who were not, and between at-risk first-year students who were retained to the following fall semester and those who were not, it is important to continue to research this area due to individual differences. Specifically, this study sought to determine what factors contributed to certain at-risk first-year students’ being successful, while other at-risk first-year students were not successful. The findings from this research study encourages higher education practitioners to develop programs and services that assist at-
risk first-year students with a few key issues to help them become academically successful and be retained to the following year.

Students enter institutions with existing pre-college characteristics and goals and commitments. This study revealed that certain pre-college characteristics, such as HSGPA, gender, father’s education level, and dispositions can help at-risk first-year students become academically successful and be retained to the following year. Additionally, at-risk first-year students’ goals and commitments, such as drive and desire to obtain a degree and finish class work, admire good students, and being committed to the institution (i.e. complete a degree at institution) can also facilitate at-risk first-year students’ academic success and retention.

The last dimension, institutional experiences, which is the most controllable by institutions, can lead to or detract from at-risk first-year students’ academic success and retention. Specifically, the current study’s findings revealed that perceived faculty support is a major factor in students’ academic success. Supporting students and helping them achieve academic success can lead to their retention in the institution. This finding not only is supported by existing research, but can also be managed by institutions. For example, institutions may not be able to change admitted students’ pre-college characteristics and goals and commitments, but they can offer programs and services that lead to more faculty and student interaction to enhance perceived faculty support. Cuseo (2008) asserts that faculty and staff interaction with students outside of the classroom “has been found to exert a direct effect on student retention” (p. 11), regardless of the students’ level of commitment, goals, intentions, or pre-college education. Promoting faculty and staff interaction with first-year students may not require considerable
resources. For example, faculty members who interact with students in small classroom settings or make themselves available to students do not require additional money. The culture of the institution may have to shift from mostly rewarding research endeavors to rewarding faculty members who mentor and support first-year students. This reward could be built into the promotion and tenure packages. When resources become available, additional faculty could be hired to help create smaller classroom settings to allow for more interactions within the classroom.

Faculty and student interaction need to be intentional and deliberate. For example, first-year seminars, learning communities, and smaller classroom settings give students and faculty an opportunity to interact with each other more so than large lecture courses or just during faculty office hours. The formal and informal interactions with faculty in and out of the classroom help students feel supported by a member of the institution.

Limitations

This study only examined at-risk first-year students who entered the fall semesters between 2004 and 2006 at one-urban, research-extensive institution in the Mid-Atlantic region. Additionally, only students who completed the Transition to College Inventory, First-Year Experiences Survey, and First-Year Biographical Questionnaire were included in the data analyses. The data gathered from the survey were self-reported by the students and each attribute may have only been measured by one or two questions. This study did not control for major, course of study, or courses taken in the first year, which could have had an impact on their academic success. Lastly, the complex concept of intersectionality of the variables was not examined. Although follow-up analyses
revealed that there may be an interaction effect with gender and race, it is not known if the interaction of race and gender effected at-risk first-year students' academic and social integration into the institution.

Future Research Considerations

This study measured the three dimensions of non-cognitive attributes of students. The main finding was that students will differ on pre-college characteristics and goals and commitments; however, institutions can create an environment in which students' experiences, such as faculty support, can assist with their successful transition into college. In this study, perceived faculty support was measured by a survey, which does not give insight into what the students define as faculty support. A qualitative study conducted through focus groups or student interviews would help identify students' definition of faculty support. Furthermore, focus groups or interviews could reveal when and how students interact with faculty.

Future research could also improve upon this work by conducting a quasi-experimental study on specific student populations, such as those participating in learning communities, a university orientation course, and those not participating in any program or service. Examining the non-cognitive differences in these populations could help institutions understand what could help at-risk first-year students succeed. It is crucial to know what program or service will help these students succeed, so higher education practitioners can make informed decisions. This study should be replicated at different types of institutions (private, liberal arts colleges, HBCUs, etc.) to determine if there are differences in non-cognitive attributes with different types of populations. Additionally,
examining first-year students who have chosen a major and those who are still undecided could reveal various differences in non-cognitive attributes for those groups.

Lastly, further examination is needed to address students' gender differences. This study did not focus on these areas, but included them as part of the models. Future research that examines the differences in non-cognitive attributes in these populations as it relates to academic success and retention is needed to enhance the overall understanding of the "student departure puzzle".
References


APPENDIX A

2006 TRANSITION TO COLLEGE INVENTORY

Developed by
James A. Calliotte, PhD
J. Worth Pickering, EdD

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The Transition to College Inventory (TCI) is a required part of Freshman Assessment at Old Dominion University. It is also an advising tool that your advisor can interpret with you to assist you to be more successful at Old Dominion.

The TCI was developed by Dr. James A. Calliotte, Director of Counseling & Advising Services and Dr. J. Worth Pickering, Director of University Assessment. The purpose of the TCI is to help staff and faculty to better understand the attitudes, characteristics, and behaviors of incoming first year students so that appropriate assistance can be provided to support each student's academic success. The potential benefit to you is the identification of attitudes, characteristics, and behaviors that may cause you academic difficulty and that your academic advisor can help you to improve in order to be more successful.

All information on the TCI will be held in the strictest confidence on secure computers with password protection. Only data on first year students as a group will be reported. Your name and University identification number (UIN) are required in order to create a record of your completed assessment. With your permission, your name and UIN will also be combined with other institutional data about you (e.g., high school GPA, SAT / ACT scores) that will assist your academic advisor in interpreting your results. Any immediate questions about the TCI can be directed to the person administering the Inventory.

We would strongly encourage you to release this information to your academic advisor so that she or he may discuss the results with you and assist you in resolving any potential problems that could interfere with your academic success during your first year.

Please answer all questions from the TCI as accurately and as honestly as possible on the separate TCI Answer form using a No. 2 pencil. In addition, please indicate on that form whether or not you agree to release your results to your academic advisor for discussion with you.

By signing on the TCI Answer Sheet, you are saying that you have read the information above or had it read to you, and that you agree to release your results to your advisor.
Deciding to Attend College

The purpose of this section is to determine the reasons you chose to attend college after high school. Using the following scale, please indicate how important each of the following reasons was in your decision to go to college.

A. Very Important          B. Somewhat Important          C. Not Important

1. To be able to get a better job
2. To broaden my perspectives
3. To get away from home
4. To be able to make more money
5. To learn more about things which interest me
6. To attain feelings of accomplishment and self-confidence
7. To develop and use my athletic skills
8. To prepare myself for graduate or professional school
9. To participate in college social life
10. To develop interpersonal skills

Selected items on the Transition to College Inventory were adapted or adopted from the Freshman Survey conducted by the Higher Educational Research Institute at UCLA. Used with permission.
Choosing This College

In this section we are interested in finding out how and why you chose to attend this particular college. Please rate the degree of importance you would attach to each of the following items according to the following scale.

A. Very Important  B. Somewhat Important  C. Not Important

11. Parents
12. High School counselor or teacher
13. Talking with an admissions representative on campus
14. High school visits by the Admissions Staff
15. This college’s students who are friends or acquaintances
16. A faculty member(s) from this college.
17. This college’s recruitment publications
18. Open House / campus visitation day
19. This college's good academic reputation
20. I was offered financial aid
21. Cultural diversity
22. This college's good social reputation
23. Availability of my chosen major
24. I was not accepted by my higher choice college(s)
25. This college’s attractive location
26. This college’s graduates get good jobs
27. Cost of attending this college.
28. Opportunity to work part-time
29. Opportunity to participate in varsity athletics
30. The appearance of the campus
31. Availability of extracurricular activities
### High School Experiences

In this section, we would like to learn more about your experiences during your LAST YEAR in high school. First, how much time did you spend in each of the following activities during the average week in your LAST YEAR of high school?

<table>
<thead>
<tr>
<th></th>
<th>A. 0 Hours</th>
<th>B. 1-5 Hours</th>
<th>C. 6-15 Hours</th>
<th>D. 16-20 Hours</th>
<th>E. Over 20 Hours</th>
</tr>
</thead>
</table>

32. Studying or doing homework  
33. Socializing with friends  
34. Talking with teachers outside of class  
35. Participating in organized sports  
36. Exercising on my own  
37. Partying  
38. Working for pay  
39. Participating in organized clubs and groups  
40. Watching TV  
41. Playing computer/video games  
42. Using the internet  
43. Doing hobbies

Now, please indicate how frequently you had each of the following experiences during your LAST YEAR in high school according to the following scale.

<table>
<thead>
<tr>
<th></th>
<th>A. Frequently</th>
<th>B. Occasionally</th>
<th>C. Never</th>
</tr>
</thead>
</table>

44. Failed to complete a homework assignment on time  
45. Drank alcoholic beverages  
46. Had difficulty concentrating on assignments  
47. Made careless mistakes on tests  
48. Felt overwhelmed by all I had to do  
49. Was too bored to study  
50. Felt depressed
Abilities and Traits

In this section, we are interested in learning more about how you would rate yourself on various abilities and traits. Please rate yourself on each of the following abilities or traits compared to the average person your age according to the following scale.

A. Top 10%  B. Above Average  C. Average  D. Below Average  E. Lowest 10%

Academic Abilities and Traits

51. General academic ability
52. Mathematical ability
53. Reading comprehension
54. Study skills
55. Time management skills
56. Writing ability
57. Computer skills

Other Abilities and Traits

58. Drive to achieve
59. Popularity with the opposite sex
60. Leadership ability
61. Physical health
62. Self confidence
63. Interpersonal communication skills
Attitudes About Being a College Student

Please rate the extent to which you agree with each of the following statements about being a college student.

A. Strongly Agree    D. Slightly Disagree
B. Moderately Agree  E. Moderately Disagree
C. Slightly Agree    F. Strongly Disagree

64. It is important to me to be a good student
65. I expect to work hard at studying in college
66. I am committed to being an active participant in my college studies
67. I will be proud to do well academically in college
68. I want others to see me as an effective student in college
69. I admire people who are good students
70. I find learning to be fulfilling
71. I will allow sufficient time for studying in college
72. I see myself continuing my education in some way throughout my entire life
73. I feel really motivated to be successful in my college career
74. I don't seem to get going on anything important
75. I don't seem to have the drive to get my work done

In this section, we are interested in your predictions about how successful you will be in your career at this college. Please select the best answer to each question.

Predictions About Academic Success

76. Nationally, about 50% of college students typically leave before receiving a degree. If this should happen to you, which of the following do you think would be the MOST LIKELY cause?

A. I am absolutely certain that I will obtain a degree
B. To accept a good job
C. To enter military service
D. It would cost more than my family could afford
E. To get married
F. Disinterested in study
G. Lack of academic ability
H. Inefficient reading or other study skills

Above item contributed by Dr. William Sedlacek, University of Maryland. Used with permission.
77. Please check the one description below that you feel best represents your career plans at this time.

A. I have NOT made a career choice at this time and do not feel particularly concerned or worried about it.
B. I have NOT made a career choice and I am concerned about it. I would like to make a decision soon and need some assistance to do so.
C. I have chosen a career and although I have not investigated it or other career alternatives thoroughly, I think I would like it.
D. I have investigated a number of careers and have selected one. I know quite a lot about this career including the kinds of training or education required and the outlook for jobs in the future.

How great are the chances that the following situations will happen to you?

<table>
<thead>
<tr>
<th>A. Very Good Chance</th>
<th>B. Some Chance</th>
<th>C. No Chance</th>
</tr>
</thead>
</table>

78. Graduate with honors
79. Miss more than one class per week
80. Develop a good relationship with at least one faculty member or an advisor
81. Earn at least a "B" average
82. Study with other students
83. Fail one or more courses
84. Find my courses boring
85. Receive emotional support from my family if I experience problems in college
86. Complete a bachelor’s degree at this college.
87. If needed, seek assistance for personal, career, or academic problems from the appropriate office on campus
88. Be placed on academic probation
89. Drop out of college temporarily
90. Drop out of college permanently
91. Transfer to another college at the end of my freshman year
92. Transfer to another college sometime in the future
93. Return for the fall semester of my sophomore year
94. Be satisfied with this college.
95. Have serious disagreements with my family regarding my personal, social, academic, or career decisions
Predictions About Involvement With This College

In this section, we are interested in your estimates about how involved you might be in various activities at this institution in addition to your courses.

<table>
<thead>
<tr>
<th>A. Never</th>
<th>B. Occasionally</th>
<th>C. Often</th>
<th>D. Very Often</th>
</tr>
</thead>
</table>

During your freshman year, how often do you expect to:

96. Use the library as a place to study and do research for your classes?
97. Talk with faculty informally outside of class?
98. Think about course material outside of class and/or discuss it with other students?
99. Participate in cultural events (art, music, theater) on campus?
100. Use the student center as a place to eat and/or socialize with friends?
101. Use campus athletic facilities for individual or group recreational activities?
102. Participate in campus clubs and organizations?
103. Read articles or books or have conversations with others on campus that will help you to learn more about yourself?
104. Make friends with students who are different from you (age, race, culture, etc.)?
105. Have serious discussions with students whose beliefs and opinions are different from yours?
106. Use what you learn in classes in your outside life?
107. Actively participate in your classes?

How great are the chances that the following situations will happen to you?

<table>
<thead>
<tr>
<th>A. Very Good Chance</th>
<th>B. Some Chance</th>
<th>C. No Chance</th>
</tr>
</thead>
</table>
108. Work full-time while attending college
109. Work part-time while attending college
110. Do volunteer work
111. Establish some close friendships with students I meet during my freshman year
112. Be elected an officer in an organization
113. Participate in varsity sports
114. Feel overwhelmed occasionally by all I have to do
Making a College Choice

115. When it came to choosing among all of the colleges to which you were accepted, what choice was this institution?

A. First choice
B. Second choice
C. Third choice
D. Lower than third choice

Please, be sure you have signed the “Consent to Participate” in the designated space on the front of the answer sheet.

Thank you for your time and effort in completing the Transition to College Inventory

Good luck to you during your freshman year!
First-Year Biographical Questionnaire 2006-07

First-Year Student Biographical Questionnaire

This questionnaire contains 19 questions and should take you about 10 minutes to complete. Please answer ALL questions.

Please enter your name.

First
[Enter text answer]
[
]

Last
[Enter text answer]
[
]

Please enter your University ID number.
[Enter text answer]
[
]

1. What are your current living arrangements for this semester?

Choose one

( ) I am living ON-CAMPUS in university housing.
( ) I am living either alone or with friends (NOT with relatives) LESS THAN 1 MILE FROM CAMPUS.
( ) I am living alone or with friends (NOT with relatives) MORE THAN 1 MILE FROM CAMPUS.
( ) I am living at HOME WITH MY PARENTS.
( ) I am living at HOME WITH MY SPOUSE.
( ) I am living WITH OTHER ADULT RELATIVES.

2. What size is your home town?

Choose one

( ) Rural farm
( ) Small town (10,000 or fewer persons) MORE THAN thirty miles from a city of 100,000 or more people
( ) Small town (10,000 or fewer persons) LESS THAN thirty miles from a city of 100,000 or more people
( ) Mid-sized city (10,000 to 100,000 persons)
( ) Large city (100,000 or more persons)
3. What is your current marital status?

*Choose one*

- ( ) Single/never married
- ( ) Married AND living with spouse
- ( ) Separated / divorced / widowed

4. Are you a parent?

*Choose one*

- ( ) Yes
- ( ) No

5. Do you have any of the following disabilities? (check all that apply)

*Choose all that apply*

- ( ) Hearing impaired or deaf
- ( ) Speech
- ( ) Orthopedic
- ( ) Learning disability
- ( ) Health-related
- ( ) Partially sighted or blind
- ( ) None of the above

6. How many hours do you plan to work during this semester while attending Old Dominion?

*Choose one*

- ( ) None
- ( ) A few hours occasionally but not on a regular basis
- ( ) 10 or fewer hours per week
- ( ) 11 to 20 hours per week
- ( ) 21 to 30 hours per week
- ( ) More than 30 hours per week

7. Is anyone in your family, including yourself, active-duty, retired, ROTC, or National Guard/Reserves military? (check all that apply)

*Choose all that apply*

- ( ) You
- ( ) Father
- ( ) Mother
- ( ) Son or Daughter
- ( ) Your spouse
- ( ) No one

7a. Please select if you are....

*Choose all that apply*

- ( ) Active Duty
- ( ) Retired
- ( ) National Guard/Reserves
- ( ) Enrolled ROTC
7b. Please select the branch of service.
   (Choose all that apply)
   () Army
   () Marines
   () Navy
   () Air Force
   () Coast Guard

7c. Please select if a member of your family is ...
   (Choose all that apply)
   () Active Duty
   () Retired
   () National Guard/Reserves
   () Enrolled ROTC

7d. Please select the branch of service.
   (Choose all that apply)
   () Army
   () Marines
   () Navy
   () Air Force
   () Coast Guard

8. Please indicate those who lived with you this past year.
   (Choose all that apply)
   () Father
   () Mother
   () Brother(s) and/or sister(s)
   () Your spouse
   () Other adult relative(s)
   () Other adults
   () Your child(ren)
   () No one

9. Who was/were the Head(s) of Household in your house this past year?
   (Choose one)
   () You and your spouse
   () Just you
   () Just your spouse
   () Parent(s) / step-parent(s) / other adult relative(s) / other adult(s)
   () No one
10. What is the highest level of education achieved by your Father (or male adult who contributed the most to your support while you were growing up)? (If no father or male adult was present while you were growing up, please choose "Not Applicable").

[Choose one]

( ) Less than 7 years of school
( ) Completed junior high school (through 9th grade)
( ) Some high school
( ) Completed high school
( ) Postsecondary training other than college or community college
( ) Some college or community college
( ) Completed 2-year college degree
( ) Completed 4-year college degree
( ) Some graduate or professional school
( ) Completed a graduate or professional degree
( ) Not Applicable

11. What is the highest level of education achieved by your Mother (or female adult who contributed the most to your support while you were growing up)? (If no mother or female adult was present while you were growing up, please choose "Not Applicable").

[Choose one]

( ) Less than 7 years of school
( ) Completed junior high school (through 9th grade)
( ) Some high school
( ) Completed high school
( ) Postsecondary training other than college or community college
( ) Some college or community college
( ) Completed 2-year college degree
( ) Completed 4-year college degree
( ) Some graduate or professional school
( ) Completed a graduate or professional degree
( ) Not Applicable

12. IF YOU ARE MARRIED, what is the highest level of education achieved by your SPOUSE? (If you are NOT MARRIED, please choose "Not Applicable.")

[Choose one]

( ) Less than 7 years of school
( ) Completed junior high school (through 9th grade)
( ) Some high school
( ) Completed high school
( ) Postsecondary training other than college or community college
( ) Some college or community college
( ) Completed 2-year college degree
( ) Completed 4-year college degree
13. What is the highest level of education YOU have achieved?
Choose one
( ) Less than 7 years of school
( ) Completed junior high school (through 9th grade)
( ) Some high school
( ) Completed high school
( ) Postsecondary training other than college or community college
( ) Some college or community college
( ) Completed 2-year college degree
( ) Completed 4-year college degree
( ) Some graduate or professional school
( ) Completed a graduate or professional degree

14. To the best of your knowledge, are you the first one in your family (not including brothers or sisters) to attend college?
Choose one
( ) Yes
( ) No

15. What is your best estimate of the combined total income of the adult or adults with whom you lived during the past year for the most recent tax year?
Choose one
( ) Less than $10,000
( ) $10,000 to $14,999
( ) $15,000 to $19,999
( ) $20,000 to $29,999
( ) $30,000 to $39,999
( ) $40,000 to $49,999
( ) $50,000 to $99,999
( ) Greater than $100,000

16. Which category best describes your FATHER’S occupation (or male adult who contributed the most to your support while you were growing up)? (If no father or male adult was present while you were growing up, please choose "Not Applicable".)
Choose one
( ) High level executive (president or vice-president)/ major professional (e.g. physician or lawyer or college professor)/ large business owner
( ) Business Manager (department manager or director)/ other professional (e.g. accountant or teacher or nurse or engineer)/ medium business owner
( ) Administrative personnel (staff) / semi-professional (e.g. programmer or photographer or reporter) / small business owner / skilled office worker
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() Clerical / sales worker / technician (e.g. jeweler or computer operator or inspector)
() Skilled manual employee (e.g. carpenter or electrician or farmer or police officer)
() Machine operator / semi-skilled employee (e.g. truck driver or longshore worker)/ maintenance or service worker (e.g. janitor or waiter or waitress or mail carrier)
() Homemaker
() Retired or disabled
() Commissioned Officer/Warrant Officer/Non-Commissioned Officer/Enlisted Personnel
() Not Applicable

17. Which category best describes your MOTHER'S occupation (or female adult who contributed the most to your support while you were growing up)?
(If no mother or female adult was present while you were growing up, please choose "Not Applicable".)

(Choose one)

() High level executive (president or vice-president)/ major professional (e.g. physician or lawyer or college professor)/ large business owner
() Business Manager (department manager or director)/ other professional (e.g. accountant or teacher or nurse or engineer)/ medium business owner
() Administrative personnel (staff) / semi-professional (e.g. programmer or photographer or reporter) / small business owner / skilled office worker
() Clerical / sales worker / technician (e.g. jeweler or computer operator or inspector)
() Skilled manual employee (e.g. carpenter or electrician or farmer or police officer)
() Machine operator / semi-skilled employee (e.g. truck driver or longshore worker)/ maintenance or service worker (e.g. janitor or waiter or waitress or mail carrier)
() Homemaker
() Retired or disabled
() Commissioned Officer/Warrant Officer/Non-Commissioned Officer/Enlisted Personnel
() Not Applicable

16a. Please choose your father's (or male adult who contributed the most to your support while you were growing up) military rank:

(Choose one)

() Commissioned Officer
() Warrant Officer
() Non-Commissioned Officer
() Enlisted Personnel
() Unknown
16b. Please choose his military ranking (Commissioned Officers):

( ) O-1  ( ) O-2  ( ) O-3  ( ) O-4  ( ) O-5  ( ) O-6  ( ) O-7  ( ) O-8  ( ) O-9  ( ) O-10  ( ) Unknown

16b. Please choose his military ranking (Warrant Officers):


16b. Please choose his military ranking (Non-Commissioned Officers):

( ) E-4  ( ) E-5  ( ) E-6  ( ) E-7  ( ) E-8  ( ) E-9  ( ) Unknown

16b. Please choose his military ranking (Enlisted Personnel):

( ) E-1  ( ) E-2  ( ) E-3  ( ) E-4  ( ) Unknown

17a. Please choose your mother's (or female adult who contributed the most to your support while you were growing up) military ranking:

( ) Commissioned Officer  ( ) Warrant Officer
17b. Please choose her military ranking (Commissioned Officers):
(Choose one)
( ) O-1
( ) O-2
( ) O-3
( ) O-4
( ) O-5
( ) O-6
( ) O-7
( ) O-8
( ) O-9
( ) O-10
( ) Unknown

17b. Please choose her military ranking (Warrant Officers):
(Choose one)
( ) W-1
( ) W-2
( ) W-3
( ) W-4
( ) W-5
( ) Unknown

17b. Please choose her military ranking (Non-Commissioned Officers):
(Choose one)
( ) E-4
( ) E-5
( ) E-6
( ) E-7
( ) E-8
( ) E-9
( ) Unknown

17b. Please choose her military ranking (Enlisted Personnel):
(Choose one)
( ) E-1
( ) E-2
( ) E-3
( ) E-4
( ) Unknown
18. IF YOU ARE MARRIED and your spouse was employed this past year, which category best describes YOUR SPOUSE'S occupation?
(If you are NOT MARRIED, please choose "Not Applicable.")

( ) High level executive (president or vice-president)/ major professional (e.g. physician or lawyer or college professor)/ large business owner
( ) Business Manager (department manager or director)/ other professional (e.g. accountant or teacher or nurse or engineer)/ medium business owner
( ) Administrative personnel (staff) / semi-professional (e.g. programmer or photographer or reporter) / small business owner / skilled office worker
( ) Clerical / sales worker / technician (e.g. jeweler or computer operator or inspector)
( ) Skilled manual employee (e.g. carpenter or electrician or farmer or police officer)
( ) Machine operator / semi-skilled employee (e.g. truck driver or longshore worker)/ maintenance or service worker (e.g. janitor or waiter or waitress or mail carrier)
( ) Homemaker
( ) Retired or disabled
( ) Commissioned Officer/Warrant Officer/Non-Commissined Officer/Enlisted Personnel
( ) Not Applicable

19. IF YOU WERE EMPLOYED 30 or more hours per week this past year, which category best describes YOUR occupation?
(If you were NOT employed 30 or more hours per week this past year, please choose "Not Applicable.")

( ) High level executive (president or vice-president)/ major professional (e.g. physician or lawyer or college professor)/ large business owner
( ) Business Manager (department manager or director)/ other professional (e.g. accountant or teacher or nurse or engineer)/ medium business owner
( ) Administrative personnel (staff) / semi-professional (e.g. programmer or photographer or reporter) / small business owner / skilled office worker
( ) Clerical / sales worker / technician (e.g. jeweler or computer operator or inspector)
( ) Skilled manual employee (e.g. carpenter or electrician or farmer or police officer)
( ) Machine operator / semi-skilled employee (e.g. truck driver or longshore worker)/ maintenance or service worker (e.g. janitor or waiter or waitress or mail carrier)
( ) Homemaker
( ) Retired or disabled
( ) Commissioned Officer/Warrant Officer/Non-Commissined Officer/Enlisted Personnel
18a. Please choose your spouse's military rank:
[Choose one]
( ) Commissioned Officer
( ) Warrant Officer
( ) Non-Commissioned Officer
( ) Enlisted Personnel
( ) Unknown

18b. Please choose their military ranking (Commissioned Officers): [Choose one]
( ) O-1
( ) O-2
( ) O-3
( ) O-4
( ) O-5
( ) O-6
( ) O-7
( ) O-8
( ) O-9
( ) O-10
( ) Unknown

18b. Please choose their military ranking (Warrant Officers):
[Choose one]
( ) W-1
( ) W-2
( ) W-3
( ) W-4
( ) W-5
( ) Unknown

18b. Please choose their military ranking (Non-Commissioned Officers):
[Choose one]
( ) E-4
( ) E-5
( ) E-6
( ) E-7
( ) E-8
( ) E-9
( ) Unknown

18b. Please choose their military ranking (Enlisted Personnel):
[Choose one]
( ) E-1
( ) E-2
( ) E-3
( ) E-4
19a. Please choose your military ranking:

( ) Commissioned Officer
( ) Warrant Officer
( ) Non-Commissioned Officer
( ) Enlisted Personnel
( ) Unknown

19b. Please choose your military ranking (Commissioned Officers):

( ) O-1
( ) O-2
( ) O-3
( ) O-4
( ) O-5
( ) O-6
( ) O-7
( ) O-8
( ) O-9
( ) O-10
( ) Unknown

19b. Please choose your military ranking (Warrant Officers):

( ) W-1
( ) W-2
( ) W-3
( ) W-4
( ) W-5
( ) Unknown

19b. Please choose your military ranking (Non-Commissioned Officers):

( ) E-4
( ) E-5
( ) E-6
( ) E-7
( ) E-8
( ) E-9
( ) Unknown

19b. Please choose your military ranking (Enlisted Personnel):

( ) E-1
( ) E-2
( ) E-3
( ) E-4
( ) Unknown

Thank You for Completing the
First-Year Student
Biographical Questionnaire

Please click the "Finish" button below to submit your responses.
APPENDIX C

First-Year Student Experience Survey 2006-07

First-year Student Experience Survey

We want to know about your experiences during your first year as a student at Old Dominion University. We are asking for your student identification number to enable us to match these data with other data from the student database. Please help us by responding to the following survey items. Your responses are strictly confidential; only group data will be reported.

Please provide your 8-digit University Identification Number (UIN) (No dashes)

[Enter text answer]

Classroom Experiences

1. I have met with classmates outside of class to study for an exam
   (Choose one)
   () Completely Untrue
   () Mostly Untrue
   () Equally True and Untrue
   () Mostly True
   () Completely True

2. It is difficult to meet other students in class
   (Choose one)
   () Completely Untrue
   () Mostly Untrue
   () Equally True and Untrue
   () Mostly True
   () Completely True

3. I feel comfortable talking about a problem with faculty
   (Choose one)
   () Completely Untrue
   () Mostly Untrue
   () Equally True and Untrue
   () Mostly True
   () Completely True

4. If I miss class, I know students who I could get notes from
   (Choose one)
   () Completely Untrue
   () Mostly Untrue
5. I feel comfortable contributing to class discussions

( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

6. I discuss events which happen outside of class with my classmates

( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

* "Classroom Experiences" items contributed by University of Rhode Island

Classroom Experiences (continued)

7. I feel comfortable asking a teacher for help if I do not understand course-related material

( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

8. I feel that a faculty member would be sensitive to my difficulties if I shared them

( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

9. I feel comfortable asking a question in class

( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
10. No one in my classes knows anything personal about me

[Choose one]
( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

11. I have discussed personal matters with students who I met in class

[Choose one]
( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

* "Classroom Experiences" items contributed by University of Rhode Island

Classroom Experiences (continued)

12. I feel comfortable socializing with a faculty member outside of class

[Choose one]
( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

13. I rarely talk to other students in my classes

[Choose one]
( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

14. I feel comfortable volunteering ideas or opinions in class

[Choose one]
( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True
15. I feel that a faculty member would be sympathetic if I was upset

( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

16. I could contact another student from class if I had a question

( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

* "Classroom Experiences" items contributed by University of Rhode Island

17. I feel that a faculty member would take the time to talk to me if I needed help

( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

18. Other students are helpful in reminding me when assignments are due or when tests are approaching

( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

19. I know very few people in my classes

( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

20. If I had a reason, I would feel comfortable seeking help from a faculty member outside of class time (office hours etc.)

( ) Completely Untrue
21. I feel comfortable seeking help from a teacher before or after class
(Choose one)
( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

22. I have developed personal relationships with other students in class
(Choose one)
( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

23. I feel that a faculty member really tried to understand my problem when I talked about it
(Choose one)
( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

24. I invite people I know from class to do things socially
(Choose one)
( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

25. I feel comfortable asking a teacher for help with a personal problem
(Choose one)
( ) Completely Untrue

* "Classroom Experiences" items contributed by University of Rhode Island
26. Speaking in class is easy because I feel comfortable

( ) Completely Untrue
( ) Mostly Untrue
( ) Equally True and Untrue
( ) Mostly True
( ) Completely True

College Involvement

During your first semester, how much time have you spent in an average week doing the following?

Participating in organized clubs and groups

( ) 0 Hours
( ) 1-5 Hours
( ) 6-15 Hours
( ) 16-20 Hours
( ) Over 20 Hours

Studying or doing homework

( ) 0 Hours
( ) 1-5 Hours
( ) 6-15 Hours
( ) 16-20 Hours
( ) Over 20 Hours

Working for pay

( ) 0 Hours
( ) 1-5 Hours
( ) 6-15 Hours
( ) 16-20 Hours
( ) Over 20 Hours

Developed a good relationship with a faculty member or an advisor

( ) Never
( ) Occasionally
( ) Often
( ) Very often

**Studied with other students**

*Choose one*
( ) Never
( ) Occasionally
( ) Often
( ) Very often

**Did volunteer work**

*Choose one*
( ) Never
( ) Occasionally
( ) Often
( ) Very often

**Established close friendships with students I met during my freshmen year**

*Choose one*
( ) Never
( ) Occasionally
( ) Often
( ) Very often

Please rate how often you have done the following during your first semester.

**Used the library as a place to study and do research for your classes**

*Choose one*
( ) Never
( ) Occasionally
( ) Often
( ) Very Often

**Talked with faculty informally outside of class**

*Choose one*
( ) Never
( ) Occasionally
( ) Often
( ) Very Often

**Thought about course material outside of class and/or discussed it with other students**

*Choose one*
( ) Never
( ) Occasionally
( ) Often
( ) Very Often

Participated in cultural events (art, music, theater) on campus
(Choose one)
( ) Never
( ) Occasionally
( ) Often
( ) Very Often

Used Webb University Center as a place to eat and/or socialize with friends
(Choose one)
( ) Never
( ) Occasionally
( ) Often
( ) Very Often

Participated in campus clubs and organizations
(Choose one)
( ) Never
( ) Occasionally
( ) Often
( ) Very Often

Read articles or books or had conversations with others on campus that helped you learn more about yourself
(Choose one)
( ) Never
( ) Occasionally
( ) Often
( ) Very Often

Made friends with students who were different from you (age, race culture, etc.)
(Choose one)
( ) Never
( ) Occasionally
( ) Often
( ) Very Often

Had serious discussions with students whose beliefs and opinions are different from yours
(Choose one)
( ) Never
( ) Occasionally
( ) Often
( ) Very Often
Used what you learned in classes in your outside life

(Choose one)
  () Never
  () Occasionally
  () Often
  () Very Often

Actively participated in your classes

(Choose one)
  () Never
  () Occasionally
  () Often
  () Very Often

Abilities and Traits
Please rate yourself on each of the following abilities or traits compared to the average first-year student.

General academic ability

(Choose one)
  () Top 10 %
  () Above Average
  () Average
  () Below Average
  () Lowest 10%

Reading comprehension

(Choose one)
  () Top 10 %
  () Above Average
  () Average
  () Below Average
  () Lowest 10%

Study skills

(Choose one)
  () Top 10 %
  () Above Average
  () Average
  () Below Average
  () Lowest 10%

Writing ability

(Choose one)
  () Top 10 %
  () Above Average
  () Average
Below Average
( ) Lowest 10%

**Drive to achieve**

*Choose one*

( ) Top 10 %
( ) Above Average
( ) Average
( ) Below Average
( ) Lowest 10%

**Leadership ability**

*Choose one*

( ) Top 10 %
( ) Above Average
( ) Average
( ) Below Average
( ) Lowest 10%

**Interpersonal communication skills**

*Choose one*

( ) Top 10 %
( ) Above Average
( ) Average
( ) Below Average
( ) Lowest 10%

**Scientific Reasoning**

*Choose one*

( ) Top 10 %
( ) Above Average
( ) Average
( ) Below Average
( ) Lowest 10%

**Critical Thinking**

*Choose one*

( ) Top 10 %
( ) Above Average
( ) Average
( ) Below Average
( ) Lowest 10%

**Oral Communication**

*Choose one*

( ) Top 10 %
( ) Above Average
( ) Average
( ) Below Average
( ) Lowest 10%

**Computer Literacy**

*Choose one*

( ) Top 10 %
( ) Above Average
( ) Average
( ) Below Average
( ) Lowest 10%

**Quantitative Thinking**

*Choose one*

( ) Top 10 %
( ) Above Average
( ) Average
( ) Below Average
( ) Lowest 10%

Please choose which first-year experiences you participated in during your first year at ODU (check all that apply):

**Experiences**

*Choose all that apply*

( ) Convocation
( ) Debut
( ) FYE Hall (Rogers Main)
( ) Monarch Advantage Program (MAP)
( ) Preview
( ) University Orientation (ELS 101)

**I would recommend the Monarch Advantage Program (MAP) to a friend.**

*Choose one*

( ) Strongly agree
( ) Moderately agree
( ) Slightly agree
( ) Slightly disagree
( ) Moderately disagree
( ) Strongly disagree

**How great are the chances you will return to ODU in fall 2007?**

*Choose one*

( ) Very Good Chance
( ) Some Chance
( ) No Chance

**How great are the chances that you will graduate with honors?**
(Choose one)
   ( ) Very good chance
   ( ) Some chance
   ( ) No chance

Please reflect on your first year at ODU and answer the following questions:

Please tell us why you feel that you will or will not return in fall 2007.
(Enter answer in paragraph form)

Given what you know now and what you have experienced in the last year at ODU, what could ODU have done to improve your first year experience(s)?
(Enter answer in paragraph form)

Given what you know now and what you have experienced in the last year at ODU, what could YOU have done differently to improve your first year experience(s)?
(Enter answer in paragraph form)

Thank you for responding to the First-year Student Experience Survey. Good luck with your first year at ODU!

Please click the "Finish" button below to complete the survey
VITA
Tisha M. Paredes  
605 Sheafe Ct.  
Virginia Beach, VA 23454  
757-683-3154 (office) ~ 410-251-8946 (cell) ~ tparedes@odu.edu (email)

OBJECTIVE
To improve student learning through assessing and evaluating university programs and services

EDUCATION
Ph.D., Educational Leadership, Higher Education  
*Old Dominion University*, Norfolk, VA  
Dissertation Title:  
*The Non-Cognitive Attributes of First-Year At-Risk Students Who are Academically Successful and Retained at Old Dominion University*  
M.S., Applied Health Physiology  
*Salisbury University*, Salisbury, MD  
B.S., Exercise Science  
*Salisbury University*, Salisbury, MD

RELATED RESEARCH EXPERIENCES
• Participate in ongoing data collection and reporting on student learning outcomes that provides information for external and internal constituents  
• Report on graduating students (undergraduate and graduate) level of satisfaction with University services and their level of knowledge gained from their degree  
• Assist with current University-wide self-study of first year programs, policies, and services and report on what degree they relate to institutional mission and general education outcomes  
• Evaluate general education courses for first year students as it related to learning objectives and the University's mission  
• Assess student competencies, including oral communication and critical thinking, and the degree to which students are meeting acceptable standards

PROFESSIONAL EXPERIENCES

Research Associate  
March 2006 – present  
Office of Institutional Research and Assessment, Old Dominion University  
• Create and administer web-based surveys  
• Organize and analyze data using SAS  
• Manage student assessment databases  
• Assist in the preparation of Assessment reports and presentation  
• Respond to data inquires  
• Maintain Assessment web-site
Graduate Research Assistant for Office of Assessment  
Office of Institutional Research and Assessment, Old Dominion University  
July 2005 – March 2006

- Utilized computer and web-based programs for survey creation and analyses
- Input and transfer assessment data into SPSS, SAS, Excel and Access for analyses
- Managed data from student database and internet survey systems
- Prepared summary reports for administrators, staff and faculty
- Created tables and graphs to accompany data in reports
- Verified statistics included in summary reports
- Researched topics relevant to office needs
- Maintained a record of competed assessment and analyses
- Presented findings from data collected to supervisors and faculty as needed
- Designed and utilize various databases for analyses and reporting

Graduate Research Assistant for Office of Assessment and Evaluation  
Student Affairs, Old Dominion University  
January 2005 – June 2005

- Assisted directors of departments with assessment and evaluation tools for programs and activities
- Designed and utilized databases for analyses and reporting for the VP of Student Affairs
- Developed and administered internet surveys
- Managed data collected from student assessments and Student Affairs programs and services
- Prepared summary reports for student affairs administrators
- Input and transfer assessment data into databases for analyses
- Designed charts, graphs, and tables from data collected for reports to the VP of Student Affairs
- Utilized computer and web-based programs for survey creation and analyses
- Verified statistics used in reports

Graduate Assistant for Teacher Education Services  
Darden College of Education, Old Dominion University  
May 2004 – December 2004

- Assisted students with coursework, applications, and general information as needed
- Managed student information databases
- Assisted with statistical analyses of teacher education programs for accreditation groups
- Compiled reports for administrators using students data collected for internet surveys, interviews and Virginia State licensure data

Graduate Teaching Assistant for Health Science Advising Office  
College of Health Science, Old Dominion University  
May 2003 – April 2004

- Helped students with coursework and degree plan
- Aided visitors, prospective students, and family members with university and college questions or concerns
- Conducted program evaluations for administrators
### OTHER PROFESSIONAL EXPERIENCES

<table>
<thead>
<tr>
<th>Position</th>
<th>Institution</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advising Services Intern</td>
<td><em>Old Dominion University</em></td>
<td>May 2005 – December 2005</td>
</tr>
<tr>
<td>Instructor, University Orientation 101 &amp; Career Planning 121</td>
<td><em>Old Dominion University</em></td>
<td>Fall 2005</td>
</tr>
<tr>
<td>Facilitator, LADDERS</td>
<td><em>Old Dominion University</em></td>
<td>Fall 2003 – Fall 2004</td>
</tr>
<tr>
<td>Instructor, Health 101</td>
<td><em>Old Dominion University</em></td>
<td>Fall 2003</td>
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</tbody>
</table>

### AWARDS AND PRESENTATIONS

<table>
<thead>
<tr>
<th>Award</th>
<th>Institution</th>
<th>Dates</th>
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</thead>
<tbody>
<tr>
<td>Peggy Woolfer Scholarship</td>
<td><em>Old Dominion University</em></td>
<td>Fall 2005 – Spring 2006</td>
</tr>
<tr>
<td>Darden College of Education Fellowship</td>
<td><em>Old Dominion University</em></td>
<td>Fall 2006 – Spring 2007</td>
</tr>
<tr>
<td>SAS-COC Travel Grant</td>
<td><em>Southern Association of Colleges and Schools –Commission on Colleges</em></td>
<td>December 2006</td>
</tr>
<tr>
<td>“How to Write SMART Administrative Objectives”</td>
<td><em>Virginia Assessment Group Fall Conference</em></td>
<td>Fall 2007</td>
</tr>
<tr>
<td>“Applying Change Theory to Maintain the Momentum”(upcoming)</td>
<td><em>SACS-COC Annual Meeting</em></td>
<td>December 2008</td>
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</tbody>
</table>

### PROFESSIONAL ASSOCIATIONS

<table>
<thead>
<tr>
<th>Position</th>
<th>Institution</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>President-Elect, Association of University Administrators</td>
<td><em>Old Dominion University</em></td>
<td>July 2007 – June 2008</td>
</tr>
<tr>
<td>President, Association of University Administrators</td>
<td><em>Old Dominion University</em></td>
<td>July 2008 – June 2009</td>
</tr>
<tr>
<td>Marketing Director</td>
<td><em>Virginia Assessment Group</em></td>
<td>June 2008 – Fall 2010</td>
</tr>
</tbody>
</table>

### REFERENCES

Available upon request.