AN EXPLORATION OF THE RELATIONSHIP OF EXPLANATORY STYLE TO ACADEMIC ACHIEVEMENT, COLLEGE STUDENT PERSISTENCE, ACT/SAT COMPOSITE SCORES, AND COLLEGE STUDENT INVENTORY MEASURES

by

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ABSTRACT

The purpose of this study was to determine the relationship of explanatory style to academic performance, SAT or ACT composite scores, College Student Inventory (CSI) data, and retention or attrition of Montana State University College of Agriculture students. The predictive capability of measured independent variables to anticipate first to second year attrition of freshmen in the College of Agriculture (COA) at Montana State University (MSU) was tested. The potential for using the Academic Attributional Style Questionnaire (AASQ) to identify COA students most susceptible to attrition during their freshmen year at MSU was ascertained. Freshmen took the CSI during summer orientation and the AASQ was administered to students in four COA classes. A cohort group of COA full-time, first-time freshmen that had taken both the CSI and AASQ was established and tracked from the fall of 2004 through the fall of 2005. Retention was defined as enrollment in the COA for a second fall semester.

The majority of the cohort group was female, white/Caucasian, had been enrolled in a high school agriculture class, graduated from high schools with enrollments less than 400 students, had been involved in 4-H or FFA, and intended to seek a graduate level degree. Mothers were more highly educated than fathers. Most students planned to work while in college. The only independent variable significantly correlated with retention was second semester cumulative GPA. The combination of second semester cumulative GPA, plans to work, degree sought, and high school agriculture class enrollment was able to predict 19 percent of the variance in retention rates. However, contrary to the literature, high school agriculture class enrollment was negatively correlated with retention. The majority of students demonstrated neither optimistic nor pessimistic explanatory styles. Significant relationships were shown between explanatory style and high school GPA, study habits, sociability, and openness to financial guidance. The AASQ demonstrated little value for recognizing students in the cohort susceptible to attrition from the COA, but did indicate some usefulness for use as an advising tool.
INTRODUCTION

Student persistence is a critical issue for public and private 2-year, 4-year, and technical post-secondary institutions. Retention percentages, as well as student academic performance, are considered significant indicators of institutional performance. Public media ranking systems include graduation rates as an indication of institutional “quality.” Student retention and graduation rates can also be translated into a form of institutional accountability as post-secondary educational institutions are forced to cope with tight and/or shrinking budgets (Tinto, 2005). Dyer, Lacey, and Osborne (1999) placed monetary values on student persistence in agriculture programs and indicated the relationship between lower enrollments and less money for instructional budgets. As a valuable asset to all institutions of higher education, predicting student achievement and retention can assist colleges and universities in academic and administrative programming and planning. “The increase in retention and graduation rates demonstrates the accountability of institutions to their constituents. The investment in advising and retention efforts brings dramatic results and helps to offset budget reductions.” (Glennen, Farren, & Vowell, 1996).

Agriculture is a rapidly shifting industry. Reports by the National Research Council (1988, 1995, 1996) suggested changes in agriculture curricula and colleges of agriculture at land grant universities in order to meet the human resource demands of the dynamic agriculture industry. Dyer, Breja, and Andreassen (1999) and Ball, Garton, and Dyer (2001) articulated the implications of the ever-changing industry to recruiting and
retention of students who will productively contribute to the advancement of agriculture.

In order for colleges of agriculture to remain viable, attention must be focused on
retaining qualified students and guiding them to academic success.

Motivation, perseverance, and determination are critical factors inherent in the
success of college students. An individual’s optimistic or pessimistic tendency can affect
these traits. Peterson, Buchanan and Seligman (1995) examined a method they termed
‘explanatory style’. According to these researchers, people explain in a reliable way why
different events happen to them. This explanatory style describes a person’s level of
optimism or pessimism. Three dimensions of explanatory style are evaluated: internality
versus externality, stability versus instability, and globality versus specificity (Abramson,
Seligman, & Teasdale, 1978).

Retention activities at Montana State University (MSU) currently involve the
College Student Inventory (CSI) as administered through Student Affairs and the Dean of
Students’ Office. Used as an early intervention tool, the CSI identifies students who may
be at-risk for attrition and aids advisors in getting students on the right track for academic
success at MSU. This inventory survey measures academic motivation, general coping
skills, receptivity to support services, and internal validity (Noel-Levitz, 2001). These
scales have distinct key terms, such as coping with academic difficulties, educational
stress, or new social situations, which also suggest a possible link to explanatory style.
Statement of Purpose

The purpose of this study was to determine the relationship of explanatory style to academic performance, SAT or ACT composite scores, College Student Inventory (CSI) data, and retention or attrition of Montana State University College of Agriculture students. The following questions were addressed:

1. Is explanatory style related to college GPA, ACT or SAT composite scores, or College Student Inventory (CSI) measures?
2. Can explanatory style be used to identify College of Agriculture freshmen who are most susceptible to attrition during their freshmen year at Montana State University (MSU)?

Objectives

The objectives of this study were to:

(1) Develop a preliminary description of College of Agriculture freshmen at Montana State University based on College Student Inventory data and demographic variables identified in the literature as important to College of Agriculture students’ persistence;

(2) Identify the explanatory style of freshmen in the College of Agriculture at Montana State University;

(3) Determine the nature and extent of the relationship between explanatory style and high school grade point average (GPA), cumulative college GPA, ACT or SAT composite scores, and College Student Inventory (CSI) data;
Test the predictive capability of measured independent variables to anticipate first to second year attrition of freshmen in the College of Agriculture at Montana State University; and

Ascertain the potential for using the Academic Attributional Style Questionnaire (AASQ) to identify College of Agriculture students most susceptible to attrition during their freshmen year at Montana State University (MSU).

Need for the Study

Retention, described interchangeably in this document with student persistence, is a complex idea and has been researched from many perspectives. Studies have attempted to develop student profiles by examining reasons for student attrition or persistence, explored possible predictors for persistence, and evaluated specific campus programs designed for improving student retention rates. These topics have also been considered from academic as well as student affairs perspectives, both specific to certain student demographics and from a holistic institutional viewpoint. The definition of retention, or student persistence, has also varied between studies and institutions of higher education. According to the U.S. Department of Education (2000), retention is the institution’s perspective on whether a student remains at a particular institution. Persistence, on the other hand, is defined from the student’s perspective and considers whether a student has achieved a degree, regardless of the institution of choice (U.S. Department of Education, 2000). Moxley, Najor-Durack, and Dumbrigue (2001) defined retention as “the process
of helping students to meet their needs so they will persist in their education toward the achievement of the educational aims they value” (p. 37). Retention is not a simple matter of finishing a degree and gaining the skills necessary for a successful career. It is also helping students to successfully perform according to their own educational values and aspirations (Moxley, Najor-Durack, & Dumbrigue, 2001). Comparatively, Ball, Garton, and Dyer (2001) considered enrollment status at the beginning of the sophomore year to define retention and regarded cumulative college grade point average (GPA) as a measure of academic performance.

Voluntary school or college enrollment is not capricious. Students (or their parents) must consciously act to maintain their status in education, as it gets ever more costly to do so. Because of these costs, those who choose voluntary school or college enrollment must see school enrollment benefits outweighing these costs to persist in the educational system. This student-initiated decision is persistence, from the institutional perspective, this is retention. (Mortenson, 2005, p. 31)

The decision to withdraw from college can be costly to both students and institutions. From a student perspective, persistence can have significant and direct monetary benefits, as well as the indirect benefits that result from higher income. To illustrate, consider that the “median weekly earnings of the nation’s 103.3 million full-time wage and salary workers were $643 in the second quarter of 2005” (U.S. Department of Labor, 2005, ¶ 1). High school graduates age 25 and over, with no college training and working full-time earned $584, while those with some college or an associate’s degree earned $661 (Bureau of Labor Statistics, 2005). A bachelor’s degree raised median weekly earnings to $996 and an advanced degree moved the number to $1,174 for median weekly earnings. Comparing men to women, median weekly earnings
for men with a high school diploma and no college experience was $654, but women with the same educational attainment earned only $491 per week. Men with a bachelor’s degree earned $1,150 weekly while women with a bachelor’s degree only earned a median of $873 per week (U.S. Department of Labor, 2005). From a public institutional perspective, larger student enrollment translates to higher funding levels. Retaining students at the institution obviously means increased student numbers. However, retention rates also have an indirect impact on enrollment numbers through publications that use retention rates for comparing the quality of education at individual institutions. Continued research on retention and persistence is necessary to help meet the needs of both students and post-secondary educational institutions.

A number of different factors have been identified and studied as possible reasons students fail to persist in post-secondary education. Some examples in order of importance include commuter status, high school grades, desire to finish college, financial security, intellectual interests, parental education, desire to transfer, degree aspirations, college prep level, family emotional support, study habits, receptivity to social enhancement, and receptivity to academic assistance (Miller, 2005). Student populations, and naturally their attrition risk factors, differ depending on the institution and vary according to academic divisions or colleges within the institution itself. To accurately address retention, this variation dictates the need for describing the college of agriculture student body.

The work of Astin (1977, 1985), Tinto (1975, 1993), and Bean & Metzner (1985), among several others, underscored the complexity of college student persistence. The
research strongly suggested that there is much more to retention than just grade point averages or admissions criteria. Indeed, Terenzini and Pascarella (1977) studied Tinto’s (1975, 1993) integrational model of student attrition and discovered evidence that both academic and social factors are important to voluntary freshman attrition. Psychosocial characteristics, personality traits, academic and social integration into the institutional environment, and various demographic and background variables have also been used to develop models of attrition or shown to have predictive value for different student groups (Bean & Metzner, 1985; Brown & Kurpius, 1997; Dyer, et al., 2000; Gerdes & Mallinckrodt, 1994; Pascarella & Chapman, 1983; Tinto, 1975, 1993). Because of the variety of perspectives, definitions, and variables involved in student retention and academic performance, post-secondary institutions are in need of more universal tools to predict student persistence and ultimately help students be successful academically.

Studies have indicated consistent connections with college academic achievement, as measured by grade point average, and persistence (Kirby & Sharpe, 2001; Metzner & Bean, 1987; Ryland, Riordan, & Brack, 1994). Additional connections are demonstrated in college admission standards. Admissions criteria are a universal method of selecting students with the goal of retaining them until they obtain their degree. Traditionally, high school grade point average, and SAT or ACT scores are included as criteria. A longitudinal study of college men found that lower SAT scores and a lower high school GPA were related to increased vulnerability to attrition (Daugherty & Lane, 1999). Another study showed that students were more likely to remain in college if they were more academically prepared, defined by higher secondary
GPA’s, higher SAT scores, and better first semester college grade point averages (McGrath & Braunstein, 1997). On the other hand, some research has indicated that a portion of students leaving college are actually doing well or average academically and apparently do not leave because of low GPA’s (Rummel, Acton, Costello, & Pielow, 1999; Tinto, 1993).

Additionally, a study by Garton, Ball, and Dyer (2002) examined the value of traditional admissions criteria, including ACT score, high school core GPA, and high school class rank, for predicting the academic performance and retention of college of agriculture students. The only traditional admissions variable able to successfully predict the first-year, cumulative college GPA was high school core GPA. The typical admissions criteria studied had limited value for predicting retention of college of agriculture students. Another study found that for agriculture students, prior agriculture experience and enrollment in high school agriculture classes were better predictors of student retention when compared to other factors such as gender, GPA, ACT score, geographical background, class rank, and 4-H and FFA membership. In fact, students ranking higher in their high school graduating class were actually more likely to drop out of colleges of agriculture than students with a background of agricultural experience or a high school agriculture class. Additionally, freshman students were more likely to complete an agriculture degree if they had agriculture experience, were a 4-H or FFA member, lived in a rural setting, or enrolled in a high school agriculture class (Dyer, Breja, & Wittler, 2000). These findings raise the issue of the effectiveness of standard college admissions variables as applied to persistence of agriculture students.
Attribution theory is perhaps one of the most active and relevant areas of research in psychology (Kunkel, 1997). Attribution theory, as derived from learned helplessness in humans, postulates that people attribute causes to what happens to them (Abramson, et al., 1978) and they tend to do so in a consistent, habitual manner. This tendency was termed explanatory style (Peterson, et al., 1995). More specifically, an individual’s explanatory style could be expressed along three dimensions: internal or external (personalization), stable or unstable (permanence), and global or specific (pervasiveness) (Abramson, et al., 1978).

Explanatory style has been implicated in relation to numerous day-to-day applications. Examples include: work (Seligman, 1998; Corr & Gray, 1995; Seligman & Schulman, 1986), athletic performance (Seligman, 1998; Seligman, Nolen-Hoeksema, Thornton & Thornton, 1990), depression (Peterson & Seligman, 1984; Seligman, 1998) and physical health (Dua, 1994, 1995; Seligman, 1998).

Explanatory style has been recognized to have potential for education and academic achievement as well. Peterson and Barrett (1987) found that a negative, pessimistic explanatory style among college freshmen was related to poor grades as measured by college GPA. Ritchie (1999) showed that explanatory style could predict college GPA. Henry, Martinko, and Pierce (1993) also linked attributional style to academic performance. However, another study assessed attributional style, or explanatory style, and traditional measures, e.g. SAT scores, high school GPA, and high school class rank, to compare their predictive value for academic performance. Attributional style was not related to college student performance. Of the traditional
variables studied, only SAT scores showed any correlation to academic performance (Bridges, 2001). Additionally, Fazio and Palm (1998) and Tiggemann and Crowley (1993) found few connections between explanatory style and academic performance.

Other studies have shown that attributional interventions encouraging college students to explain academic failures less (transiently) permanently and less pervasively can increase subsequent persistence and performance in college classes (Wilson & Linville, 1982, 1985; Ames & Lau, 1982). Day (1999) compared psychological variables, including attributional style, to each other and to depression, anxiety, and self-esteem, looking for effects on college adjustment and academic success. Several relationships were discovered and the recommendation was made that students identified as at-risk for failure, should receive interventions and training to mitigate and decrease the effects of maladaptive attributional style, depression, anxiety, and low self-esteem. The results of studies such as these, coupled with Peterson and Barrett’s (1987), “imply that students most in need of academic attribution therapy can be identified by their explanatory style before encountering difficulties. Perhaps preventive measures can be taken” (p. 606).

Explanatory style exhibits great potential for use in academic situations such as predicting performance and identifying students at-risk for difficulties or attrition. Most college students will experience some form of negative challenge in the course of their academic careers. Identifying how students explain those challenges may be a valuable tool in predicting persistence and academic performance. This potential alone
demonstrates a need to further explore the relationships between explanatory style and academic performance and persistence.

Additionally, inconsistency in successfully applying explanatory style to academic situations demonstrates a need for more focused study on this topic. Day’s (1999) results further indicate that explanatory style may interact with several variables related to student persistence. Research is needed to study the predictive value of explanatory style for student academic achievement and persistence, both by itself and in conjunction with other methods and factors.

At Montana State University, the Dean of Students office is using the College Student Inventory (CSI) to identify students at-risk for attrition early in their college careers. The CSI measures academic motivation, social motivation, general coping skills, and receptivity to support services. As part of the results, a summary of academic motivation is comprised of scores for dropout proneness, predicted academic difficulty, educational stress, and receptivity to institutional help. Results also incorporate student background information that has been shown to be of importance to early intervention strategies and student retention, including senior year GPA, ethnic origin, mother’s and father’s education levels, when the student decided to enroll, what degree the student plans to seek, and how many hours per week the student expects to work (Noel-Levitz, 2001).

Students take the College Student Inventory during summer orientation before the start of classes. Trained advisors then distribute the results to students during the first, critical six to eight weeks of the fall semester. Results are given to the student in a
private, one-on-one session with an advisor who helps provide the students with necessary resources. Advisors follow up with students as necessary (A. Weatherhead, personal communication, February 21, 2006).

Since the College Student Inventory is already a part of retention programming at Montana State University (MSU), it seems logical to consider its relationship and utility in comparison to and in conjunction with any retention study at MSU. It is also worthwhile to consider the CSI in this study because of its application to first-time freshmen. The CSI is used to “flag” students at-risk for attrition, one of the hypothetical uses for explanatory style being considered in this study. Additionally, the CSI scales assessing motivation and general coping suggest viable correlations to attributional style that would be beneficial to investigate further. The results of the CSI will also be helpful in building a preliminary description of students entering the College of Agriculture at Montana State University.

Freshmen to sophomore retention rates at Montana State University have averaged about 70.7 percent between 1996 and 2004 (Montana State University, 2004). Of the students who began with a major in the College of Agriculture between 1996 and 2002, about 66 percent were still enrolled in an agriculture major after the second fall, while approximately 76 percent were still at MSU (R. Gough, personal communication, January 10, 2006). In other words, 34 percent of the students left the College of Agriculture overall. Of those, 10 percent stayed at MSU, but 24 percent left Montana State altogether. With only 693 undergraduate students enrolled for the fall of 2005, the College of Agriculture is the smallest of the eight colleges at MSU by over 100
undergraduate students (Montana State University, 2005). These numbers suggest that retention research concerning the College of Agriculture would be beneficial.

In 2002, approximately 14.3 percent of the United States workforce was employed in farm or agricultural related jobs. Agricultural and related jobs employed 17.9 percent of Montana’s workforce during the year 2002 (Economic Research Service, 2005). However, according to an agricultural and natural resource employment forecast for 2005-2010 published by the Cooperative State Research, Education and Extension Service, the number of jobs available in agriculture exceeds the number of qualified agricultural and natural resource graduates available to fill those positions by roughly 19,700 jobs. To fill the void, employers are hiring graduates in allied fields such as biological sciences and business. Even with the additional pool of graduates from which to draw, the agriculture industry will still have an excess of 2,700 positions open annually for the next five years (CSREES, 2005). The agriculture industry is in dire need of graduates from colleges of agriculture, adding another reason to research retention and persistence of agriculture students.

As the agriculture industry is faced with labor challenges and universities struggle with rising costs and growing expectations, the need for discovery of viable retention activities is obvious. This study is needed to address the challenges and explore the possibilities for the College of Agriculture at Montana State University. By retaining and graduating competent individuals with agriculture degrees, the College of Agriculture at MSU can positively contribute to the agriculture industry by fulfilling the critical, national need for qualified workers.
Assumptions

The following assumptions existed for this study:

(1) Students responded honestly concerning their way of thinking about events that happened to them.

(2) The survey instruments used in this study were reliable methods for collecting the data necessary for investigation of this specific population.

(3) A student’s perception of events that happened to him or her was either optimistic or pessimistic and that perception affected a student’s ability to perform.

(4) Student persistence was important to post-secondary institutions, including individual colleges or academic divisions within the institution.

(5) Early identification of students at-risk for attrition between their first and second year of post-secondary education was a valuable asset to academic advisors and student affairs personnel working to help students achieve their educational goals.

Limitations

Limitations for this study were as follows:

(1) The cohort for this study was limited to freshmen in the College of Agriculture at Montana State University enrolled in AgEd 251US Leadership Development for Agribusiness and Industry Employees, AgEd 105 Microcomputers in Agriculture, ARNR 100 Introduction to Animal Science,
or ARNR 102 Principles of Rangeland Management Lab, and present on the day of the survey administration.

(2) Surveys were administered on the World Wide Web or by paper copy in order to accommodate computer availability. Data was collected using Microsoft Access.

(3) The Academic Attributional Style Questionnaire was administered by the researcher during the months of November and December of 2004 and 2005, and February and March of 2005 and 2006.

(4) The College Student Inventory was administered during 2004 summer orientation to all incoming freshmen by the Dean of Students office.

Definition of Terms

For the purposes of this study, the following terms were defined as follows:

(1) Academic Achievement: For the purpose of this study, academic achievement was defined and compared using Grade Point Average.

(2) Academic Attributional Style Questionnaire (AASQ): An instrument developed by Peterson and Barrett (1997), the AASQ was patterned after the Attributional Style Questionnaire (Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982). However, the AASQ presents subjects with 12 bad events specific to academic situations and is most relevant in studies investigating academic issues such as achievement.
(3) At-risk: In this study, at-risk refers to a student’s level of susceptibility for dropping out of post-secondary education.

(4) Attrition: The number of first-time, full-time degree seeking students enrolled in the College of Agriculture at Montana State University for a second fall semester defined attrition for the purpose of this study. The term ‘dropping out’ was also be used in reference to student attrition. If a student was not enrolled at the beginning of what would be their second fall semester, attrition had occurred.

(5) College of Agriculture at Montana State University-Bozeman (MSU): The College of Agriculture at MSU in Bozeman is one of eight colleges and offers the following undergraduate program options: Bachelor of Science degree in Agricultural Business, Agricultural Education, Agricultural Operations Technology, Animal Science, Biotechnology, Environmental Sciences, Horticulture, Land Rehabilitation, Land Resource Sciences, Plant Science, Range Science; Minor in Entomology; and a Pre-veterinary Medical Program.

(6) College Student Inventory (CSI): Part of the Noel-Levitz Retention Management System, the CSI was designed to identify student cognitive and affective factors connected with attrition susceptibility, including motivation and attitudes (Noel-Levitz, Getting started). Montana State University administers the 100-question Form B on paper during summer orientation sessions.
Explanatory Style: “The automatic, natural, habitual way you explain events” (youmeworks.com, 2004, Explanatory style section); one’s tendency to attribute similar explanations for different events (Peterson, Buchanan & Seligman, 1995). Explanatory style was further defined along three dimensions: 1) internal/external or personalization; 2) stable/unstable or permanence; and 3) global/specific or pervasiveness (Abramson, et al., 1978; Seligman, 1998). A student with an optimistic explanatory style for bad events or setbacks would turn the cause outward, making it less personal and more external. The attribution would be less likely to remain (less permanent) and affect other aspects of that student’s life (less pervasive). Conversely, explanations of bad events indicative of a pessimistic explanatory style would be more personal/internal, permanent/stable, and pervasive/global. Refer to Table 1. See also Appendix A, Academic Attributional Style Questionnaire.

Table 1. Definition of Explanatory Style for Bad Academic Events

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Classification and Example</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Optimistic</td>
</tr>
<tr>
<td>Personalization</td>
<td>External - My teacher didn't give me an example on how to solve that kind of problem.</td>
</tr>
<tr>
<td>Permanence</td>
<td>Unstable - I didn't have time to study for this test.</td>
</tr>
<tr>
<td>Pervasiveness</td>
<td>Specific - I skipped the previous class.</td>
</tr>
</tbody>
</table>
(8) Grade Point Average (GPA): GPA is a means of measuring student scholastic achievement and is calculated by dividing the total number of grade points (credits multiplied by grade point equivalent to a letter grade) by the total credit hours. This study utilized high school GPA and cumulative college GPA.

(9) Optimism: a tendency to expect the best possible outcome or dwell on the most hopeful aspects of a situation (Soukhanov, 1992).

(10) Pessimism: a tendency to stress the negative or unfavorable or to take the gloomiest possible view (Soukhanov, 1992).

(11) Persistence: The terms retention and persistence generally differ in the way transfers are considered. “Persistence represents the student perspective” (U.S. Department of Education, 2000, p. 6). In general, persistence is defined as staying in post-secondary education at some institution. As Mortenson (2005) describes, persistence considers a student’s decision to stay or withdraw from an institution. Throughout this study, persistence will be described interchangeably with ‘retention’ and will be defined as a student’s continued enrollment within the College of Agriculture at Montana State University, specifically through their second fall semester.

(12) Retention: “Retention represents the institutional perspective” (U.S. Department of Education, 2000, p. 6). In comparison to ‘persistence’, students who transfer to another institution to complete a degree have persisted, but they have not been retained by the original institution. For the
purpose of this study, retention will be defined interchangeably with ‘persistence’ as enrollment status within the College of Agriculture at MSU at the beginning of a first-time, full-time, degree seeking student’s second fall semester. A student who has been retained or has persisted will be enrolled for classes as a student in the College of Agriculture at Montana State University at the beginning of their second fall semester.

This study considers student withdrawal from an institutional perspective by attempting to establish a model for attrition from the College of Agriculture. Therefore, the term ‘retention’ is appropriate. However, both the College Student Inventory and the Academic Attributional Style Questionnaire measure constructs directly addressing student challenges and decisions. Consequently, the term ‘persistence’ is also appropriate for this study. For these reasons, retention and persistence will be used interchangeably throughout this study.
REVIEW OF THE LITERATURE

Introduction

An extensive body of research exists surrounding the topic of student persistence and retention, and it is arguably one of the most widely studied topics in higher education (Tinto, 2005). College student retention has been studied from theoretical, policy, institutional, and individual perspectives (Bean, 2005). Research has identified several factors that affect student attrition. Predictors of student retention, along with various programs and activities designed to enhance retention, have been the subjects of numerous studies as well. Evaluating the retention research across more than 25 years, including numerous studies and experiences of his own, Bean (2005) categorizes the plethora of factors affecting student retention into nine themes: 1) student’s background; 2) money and finance; 3) grades and academic performance; 4) social factors; 5) bureaucratic factors; 6) the external environment; 7) psychological and attitudinal factors; 8) institutional fit and commitment; and 9) intentions.

To focus this review, retention, persistence, and attrition were addressed in relationship to the themes of student background characteristics, including certain demographic traits and admissions criteria. Academic performance was discussed along with certain psychological and attitudinal factors. These themes were chosen based on relevancy to this particular research study and because they provided a solid foundation from which to base future retention studies concerning agriculture students.
A relevant description of the population and subsequent sample must be developed for any research study. Retention research, particularly from policy, institutional, and individual perspectives, dictates the need to first identify what type of students are involved, not only to utilize findings for the benefit of the student and the institution, but also for applicability beyond the institutional borders. With that said, admissions criteria are a type of background characteristic or pre-college trait which comes with the student. While the specific criteria may vary somewhat between institutions, the concept is universal. Probing the field of college student retention reveals consistent support for admissions criteria as a factor in student retention.

Academic achievement and performance also has consistent support as an important component of college student persistence. Many retention studies consider grades and other measures of performance not only as a descriptor for their student population, but also as a tangible indicator of how well the students and subsequently the institution are performing. Finally, personal characteristics (psychological and attitudinal factors) such as motivation and personality are pertinent to the explanatory style construct.

The College Student Inventory and agriculture students were specifically examined. The evolution of attributional theory and explanatory style was considered along with different examples of where and how explanatory style has been used. More detailed discussion concerning explanatory style in educational situations, specifically academic achievement (performance), retention, and intervention, completes the literature review.
Retention research in the last thirty-five years has largely contemplated, developed, and tested theories relating to why some students persist in college while others don’t (Tinto, 2005). A few studies have been consistently cited in conjunction with all areas of retention research, theoretical, programmatic, or predictive in nature. Among these are the work of Spady, Tinto, Astin, and Pascarella and Terenzini.

The 1970’s and early 1980’s marked a shift in retention research to one of building and developing theory. In a historical review of retention research, Berger and Lyon (2005) labeled the beginning of the era with the publication of William Spady’s 1970 article, “Dropouts from Higher Education: An Interdisciplinary Review and Synthesis.” Berger and Lyon (2005) considered this article pivotal because it marked the first attempt to synthesize the existing empirical research and build a conceptual framework for student retention. Spady (1970) also initiated study of retention from a sociological perspective versus the demographic or psychological views as previous research had done. He called for an interdisciplinary approach to the study of retention that regarded both academic and social systems of the university as critical frameworks. He further advocated attention on the interaction between student attributes such as disposition and attitude, and the university environment. Berger and Lyon (2005) commented, “If the student and the environment are congruent in their norms, the student will assimilate both socially and academically, increasing the likelihood of persistence” (p. 19).
In 1975, Vincent Tinto built upon Spady’s initial model, and using more emerging evidence on the college departure process, put forth a model that has become one of the best known and most often cited theories of student attrition (Berger & Lyon, 2005). Tinto (1975, 1993) first explained that conflicting evidence for reasons students depart from college was partially the fault of the lack of definition and subsequent delineation of the definition of “drop-out”. “Roughly speaking, student departure takes two forms, academic dismissal and voluntary withdrawal. The latter is more common” (Tinto, 1993, p. 81). Tinto’s model reflects this distinction. He argued that if student departure was largely the fault of the individual, then improving student skills and/or selecting individuals who possess the personality traits necessary for the rigors of college work could reduce attrition. However, he found little evidence to support such a claim. While admitting that there is undoubtedly some impact of personality and other psychological factors on student departure, Tinto claimed that there must be more at play in a student’s dropout from higher education.

Tinto (1975, 1993) described a theory of interaction between the individual and the institution, the process of which might lead different individuals to voluntarily withdraw from different post-secondary institutions. “Given individual characteristics prior experiences, and commitments the model argues that it is the individual’s integration into the academic and social systems of the college that most directly relates to his continuance in that college” (Tinto, 1975, p. 96). In other words, with everything else equal, the more integrated a student is within the social and academic structure of the institution, the more committed he/she will be to that institution and the goal of
completing post-secondary education (Tinto, 1975). Applying this theory to attrition, Tinto (1975) stated that ultimately, “…. it is the interplay between the individual’s commitment to the goal of college completion and his commitment to the institution that determines whether or not the individual decides to drop out from college and the forms of dropout behavior the individual adopts” (p. 96). The theory also sought to differentiate processes that result in varying but distinct types of college withdrawal and incorporated both psychological and social organizational theoretical models.

Individual departure from institutions of higher education arises from several major causes or roots. These have been described here as intention, commitment, adjustment, difficulty, congruence, isolation, obligations, and finances. The first two pertain to dispositions with which individuals enter institutions of higher education, the next four to experiences they have after entry, and the latter two to external forces which impinge upon their experiences within the institution. (Tinto, 1993, p. 81)

Pascarella and Terenzini were prolific researchers on the topic of college student retention during this same time. Berger and Lyon (2005) credit their empirical studies for providing a foundation that led to a more systematic understanding of retention and an abundance of retention studies. An initial study by Terenzini and Pascarella (1977) attempted to operationalize Tinto’s model by testing the level of the functional relationship between social and academic integration and attrition. Their results supported Tinto’s theory finding that social and academic integration were about equally important factors in a student’s decision to stay or leave an institution (Terenzini & Pascarella, 1977).

Notably, Pascarella and Terenzini further tested a “multidimensional measure of social and academic integration based on the elements of Tinto’s conceptual model”
(Pascarella & Terenzini, 1980, pg. 61). Five institutional integration variables based on Tinto’s model were studied, including peer-group interactions, interactions with faculty, faculty concern for student development and teaching, academic and intellectual development, and institutional and goal commitments. The five measures of integration were capable of identifying freshmen persisters and voluntary dropouts a high percentage of the time, lending credence to Tinto’s integrational model of voluntary student withdrawal. They further noted the particularly strong influence of student-faculty relationships on a students’ decision to leave college (Pascarella & Terenzini, 1980). A subsequent study by Pascarella (1980) examined this aspect of integration more in depth and found that:

With the influence of student preenrollment traits held constant, significant positive associations exist between extent and quality of student-faculty informal contact and students’ educational aspirations, their attitudes toward college, their academic achievement, intellectual and personal development, and their institutional persistence. (p. 545)

At the same time Tinto was developing his theory of college dropout, Alexander Astin was analyzing student data collected from hundreds of colleges across the country (Astin, 1977; Berger & Lyon, 2005). Clear patterns of the effects of college on students emerged. Astin (1977) described the number of ways that students can change during college and acknowledged that those patterns of change can be affected by many factors such as characteristics of the student when he/she enters college, the type of college attended, and the extent of the student’s involvement in the college environment, both academically and socially. Astin (1977) deduced that even though students do not follow a uniform pattern of change throughout college, the distinctly different patterns could be
distinguished using the concept of involvement. Involvement directly influenced departure decisions (Berger & Lyon, 2005). The more time and effort, physical and psychological energy, a student invested in the college experience, the more likely that student would persist to graduation and reap the benefits of positive developmental change offered by the undergraduate experience. “All three patterns of high involvement—interpersonal, academic, and athletic—lead to increased chances of completing college, implementing career objectives, and satisfaction with the undergraduate experience” (Astin, 1977, p. 241). Berger and Lyon (2005) indicated that the simplicity of Astin’s theory made it easy to use. Subsequently, it served as a foundation for post-secondary retention activities across the country.

Background Characteristics

Consistently, retention research has implicated the nature of a student’s background as important in decisions to leave or stay in college (Astin & Oseguera, 2005). Demographic traits such as gender and race, as well as admissions criteria including ACT or SAT test scores and high school GPA, have been a part of numerous retention studies.

Demographic Traits. Retention studies in post-secondary education are basically attempting to find differences between those who persist in college and those who do not. Whether the focus of the study or as a descriptor, certain demographic traits that students bring to college are associated with the retention research at some point. Astin (1997) identified four pre-college characteristics that accounted for the greater part of the predictive value of pre-college characteristics. Two were gender and race. Tinto (1975)
also included these two characteristics as important for his model of student attrition, along with family backgrounds. In a review of the literature on student retention, Pantages and Creedon (1978) discussed a number of background demographic characteristics and the mixed results for relationships between them and student attrition or persistence. Factors included age (See also Metzner & Bean, 1987.), gender, socioeconomic status, father’s occupation, family income, parental education, hometown location and size, and size and type of high school. Metzner and Bean (1987) also included number of credit hours enrolled in studying student attrition. The vast majority of retention research has incorporated these basic traits or some combination thereof.

Specific to the study of retention among college of agriculture students, again, a number of background demographic traits have been consistently utilized for prediction of persistence or academic performance, and/or as a descriptive factor. Other than those mentioned in the previous paragraph, additional factors included involvement in 4-H or FFA (Ball, Garton, & Dyer, 2001; Dyer, Breja, & Wittler, 2000; Dyer, Lacey, & Osborne 1996), agricultural experience (Dyer, Breja, & Andreason, 1999; Dyer, Lacey, & Osborne 1996; Wildman & Torres, 2001), participation in high school agriculture curricula (Abbasi, 1989; Dyer, Breja, & Andreason, 1999; Dyer, Breja, & Wittler, 2000; Dyer, Lacey, & Osborne 1996), and having a farm or rural background (Dyer, Breja, & Andreason, 1999; Dyer, Breja, & Wittler, 2000). Of the few studies focusing explicitly on predicting retention of college of agriculture students, 4-H and FFA involvement (Ball, Garton, & Dyer, 2001; Dyer, Breja, & Wittler, 2000; Dyer, Lacey, & Osborne 1996), participation in a high school agriculture or vocational class (Abbasi, 1989; Dyer,
Breja, & Wittler, 2000), having prior experience in agriculture (Dyer, Breja, & Wittler, 2000), and coming from a rural setting (Dyer, Breja, & Wittler, 2000) were successful predictors of whether students persisted in college of agriculture programs.

**Admissions Criteria.** All institutions of higher education have established criteria for admission. These criteria are established with the ultimate goal of selecting students who will persist to graduation. Typical of many public four-year institutions, Montana State University uses high school grade point average, rank in high school class, or ACT or SAT test scores (Montana State University, 2006). Astin (1997) claimed that the types of students who enroll can account for more than half of the variance in retention rates. An institution can therefore calculate an expected retention rate based on entering student inputs as measured by admissions criteria and certain demographic variables.

In conclusion, when it comes to assessing institutional performance or accountability through the use of student outcome measures, there is really no substitute for longitudinal studies that permit us to take student input characteristics into account. Controlling for inputs is not merely a methodological nicety but rather an absolute requirement in cases where institutions are known to differ substantially in entering student characteristics that predict the outcome(s) under investigation. (Astin, 1997, p. 656)

Astin (1997) further identified high school GPA and ACT or SAT scores as two common admissions criteria that accounted for a large portion of the predictive value of background characteristics. In summarizing the research involving pre-college characteristics, Astin & Oseguera (2005) cited a number of studies supporting the value of admissions criteria as predictors of student retention and commented, “Although the predictive power of traditional admissions criteria varies somewhat from study to study, standardized test scores and high school grades have consistently been shown to be
among the strongest predictors of degree attainment among undergraduates” (p. 246-247).

From another perspective, Dyer, Breja, and Andreasen (1999) suggested that traditional admissions criteria might not be the best predictors of actual retention rates among College of Agriculture students. Instead, more efficient and accurate predictors were completing a high school agriculture class and/or agriculture experience (Dyer, Breja, & Andreasen, 1999). However, an extensive study of agriculture student persistence conducted by Abbasi (1989), found that high school GPA and rank in graduating high school class were significant predictors of persistence both with and without considering first semester college variables. Moreover, Abbasi (1989) found that agriculture student persisters also had higher ACT composite scores.

A study by Garton, Ball, and Dyer (2002) examined the value of traditional admissions criteria, along with learning styles, in predicting the academic performance and retention of college of agriculture students. Field-independent learners exhibited a tendency for higher academic performance than field-dependent learners. However, learning style of first-year college of agriculture students was not a predictor of academic performance. The only traditional admissions variable able to successfully predict the first-year, cumulative college GPA was high school core GPA. In the first year of the study, learning style and high school core GPA appeared to influence student retention to the sophomore year. In the second year, however, only high school core GPA had significant predictive value for retaining agriculture students (Garton, Ball, & Dyer, 2002).
Grades and Academic Performance

Post-secondary education is especially concerned with academic achievement, not only as a measure of efficacy, but also as a significant variable in student persistence. Public perception generally holds up grade point averages as a means of gauging how well the university or college is educating its students. Additionally, low academic achievement is usually implicated as responsible for involuntary student departure (Tinto, 1993). Academic achievement has also been associated with voluntary withdrawal with mixed results. In some cases, academic achievement has predictive value for persistence or attrition (Kirby & Sharpe, 2001; Metzner & Bean, 1987; Ryland, Riordan, & Brack, 1994), but in other instances, students who voluntarily withdraw from post-secondary education are succeeding academically (Rummel, Acton, Costello, & Pielow, 1999; Tinto, 1993).

A study by Kirby and Sharpe (2001) revealed that academic reasons were the most frequently mentioned reason for a student’s decision to leave, while academic problems were the most significant source of withdrawal. A study by Murtaugh, Burns, and Schuster (1999) conducted at Oregon State University also found decreased attrition rates associated with higher first-quarter grade point averages. Zhu (2002) scrutinized a sample of over 1,000 students and followed them through to graduation up to six years after starting college. She found that first-year cumulative GPA was a critical indicator of whether a student completed a bachelor’s degree or not. In fact, “the odds for students with higher first-year cumulative GPA to graduate is more than eight times higher than
they are for the students who had lower cumulative GPA in the first year” (Zhu, 2002, p. 6).

McGrath and Braunstein (1997) studied full-time freshmen at a private college and examined the effects of various demographic, academic, financial, and social factors on voluntary withdrawal between the freshman and sophomore years of college. Significant differences among persisters and nonpersisters for high school grade point average and first semester college GPA emerged. Those with better high school and first semester college GPAs were more likely to have chosen to remain in school.

Institutional research conducted at a larger Midwestern university reported that among a number of student development considerations, students with higher freshmen cumulative grade point averages were more likely to re-enroll for the following fall semester (Institutional Research, n.d.). Another study compared first year attrition rates for first-time freshmen and transfer students in their first year at a large, urban, commuter university. The researchers found that various academic aspects significantly impacted student persistence. Academic performance had a positive effect on student retention for both groups, although the effect on freshmen persistence was greater than that on new transfer students (Johnson & Richardson, 1986).

A model for dropout of nontraditional students, similar to the model proposed for traditional students, was presented by Metzner & Bean (1987). Nontraditional students were defined as over 24 years old, a commuter, and/or enrolled only part-time; institutional social environment was not influential; and primarily concerned with what the school offered academically. The researchers found that college GPA had the most
significant effect on nontraditional student dropout. Other variables had indirect affects on dropout through GPA, including absence from class, age, high school performance, and ethnicity. “…, the effects coefficients for high school academic performance and college GPA show that nontraditional students who are academically ill-prepared and who do not perform well academically in college are likely to drop out of school” (Metzner & Bean, 1987, p. 30).

Conversely, academic achievement may not always be a reliable predictor of student departure. Tinto (1993) indicated that dropout because of failure to meet the institution’s academic standards accounted for only about 15 to 25 percent of all student departure. Many times the students who voluntarily withdraw are academically successful, and even more committed and creative than the typical persister (Tinto, 1993). Rummel, Acton, Costello, and Pielow (1999) lent support to this observation. In a study spanning six years, 20 percent of the students who departed were maintaining a 3.0 GPA or above. Overall, 55 percent of those who left were maintaining sufficient GPAs and would not have been identified for retention intervention programming based on grades (Rummel, et al., 1999). Additionally, when Pascarella and Terenzini (1980) studied Tinto’s (1975) integrational theory of voluntary withdrawal and attempted to develop a predictive model for student attrition, freshman year grade performance provided little explanation for student dropout.

**Psychological and Attitudinal Factors—Personal Characteristics**

Many different psychological variables have been implicated in academic performance and student retention, both voluntary and involuntary. One example studied
the ability of conscientiousness as a personality variable to predict college grade point average (GPA) and student retention. A conscientious student was described as diligent, disciplined, careful, organized, and well-planned; the opposite description was unreliable, imprecise, disorganized, and impetuous. Results showed that students who were more conscientious had higher GPA’s. Additionally, conscientiousness had direct predictive value for retention, as well as indirectly through its influence on college GPA (Tross, Harper, Osher, & Kneidinger, 2000).

As another example of personality variables used to predict academic achievement, a study by Nyland, Ybarra, Sammut, Rienecker, and Kameda (2000) tested relationships between personality type as measured by the Myers-Briggs Type Indicator and anxiety as measured by the Anxiety Sensitivity Index, for value in predicting college academic achievement. The Anxiety Sensitivity measures an individual’s sensitivity to anxiety or simply their anxiety level (Nyland, Ybarra, Sammut, Rienecker, & Kameda, 2000). The Myers-Briggs Type Indicator depicts personality preferences in four different indices. Brief descriptions of each index as used by Nyland, et al. (2000) follow:

1. Extraverts tend to focus on the outer world and are attuned to the external environment, whereas introverts tend to focus on the inner world of ideas and experiences. (2) Sensing types rely on information taken in through the five senses and trust experience and observable facts, whereas Intuitive types focus primarily on “big picture” information and unconscious data, and are abstract and theoretical. (3) Thinking types focus on the logical consequences of a choice or action and strive for impersonal and objective truth, whereas Feeling types tend to consider what is important to themselves and others. (4) Judging types tend to live planned and orderly lives; they are systematic and methodical, where as Perceiving types are more flexible and open-ended. (Nyland, et al., 2000, pp. 734-735)
Intuitive personality types tended to have higher GPAs than Sensing types, while Judging types had higher GPAs when compared to Perceiving types. Students with higher GPAs were more likely to be a Judging type with a high level of anxiety sensitivity versus a Perceiving type with high anxiety. However, students with low anxiety and a Perceiving type personality also obtained higher GPAs, while a Judging type with low anxiety or a Perceiving type with high anxiety correlated with lower GPAs. When comparing Extraverts, large differences in GPA between high and low anxiety students were revealed. This same effect was not found among Introverts. These findings suggest that Extraverts and/or Perceiving may be more susceptible to the debilitating effects of anxiety sensitivity. Academic achievement of students with Judging personality types may be somewhat facilitated by levels of sensitivity to anxiety (Nyland, et al., 2000).

Finally, these interactions between Myers-Briggs personality dimensions and anxiety sensitivity, along with the significant main effects of Sensing-Intuition and Judging-Perceiving on GPA and the nonsignificant effect of the Anxiety Sensitivity Index alone on GPA are all supportive of the importance of personality factors in modulating the effect of “trait anxiety” on academic performance. (Nyland, et al., 2000, p. 738)

A study conducted by Allen (1997) at a medium-sized, 4-year, public institution in the Southwest assessed the impact of key motivational factors and selected pre-college variables on retention and first year college GPA. Motivational factors were chosen from the College Student Inventory published by Noel-Levitz and included desire to finish college; impression of the institution; and family emotional support. Among nonminority students, strong family emotional support was the only motivational factor to affect GPA.
On the other hand, GPAs of minority students were affected by the motivational variables impression of the institution and desire to finish college, but not by family emotional support. When considering the outcome of persistence behavior in both minority and nonminority students, all three of the motivational variables directly affected a student’s choice to stay or leave the university. Allen (1997) summarized the significance of these findings as follows:

First, it empirically verifies the conventional wisdom that motivation affects behavior and is responsible at least in part for influencing academic achievement. Second, the findings of this study also suggest the possibility of theoretical linkages between precollege motivational factors and student departure. (Allen, 1997, p. 11)

A study at a small, private four-year university in the mid-eastern United States examined the predictive value of personality factors on academic standing and enrollment status, as well as combinations of the two categories (Welter, 2002). The researcher administered the Sixteen Personality Factors Questionnaire to first-time, incoming freshmen during orientation prior to the start of scheduled classes. This questionnaire measures primary and global personality factors including warmth, reasoning, emotional stability, dominance, liveliness, rule-consciousness, social boldness, sensitivity, vigilance, abstractedness, privateness, apprehension, openness to change, self-reliance, perfectionism, and tension. Results demonstrated that personality factors were accurate in predicting enrollment status fall to fall, particularly for those who remained at the institution. The combination of perfectionism, privateness, and openness to change personality factors seemed to most powerfully distinguishpersisters from dropouts. “That is, students who continued their pursuit of higher education, tended to be similar
with regard [to] the first set of personality factors being, on average, more perfectionistic, more private, and more traditional than students who did not continue their pursuit of higher education” (Welter, 2002, p. 109). Again, when considering personality factors as predictors of academic standing (good or poor), those in good standing were significantly more accurately predicted than those in poor standing. Apprehension, reasoning, and perfectionism emerged as the strongest distinguishing personality factors for academic standing, with anxiety also being a difference between students in good and poor standing. In general, personality traits were good predictors of student retention at the institution, while accuracy increased with the addition to the equation of personality traits connected with academic standing (Welter, 2002).

First-Year Students

The study of retention often takes place in conjunction with a student’s first year. Tinto (1993) explains, “The character of one’s experience in that year does much to shape subsequent persistence” (p. 14). Practically speaking, students are most impressionable, most affected, or most influenced when the college experience is new to them. For universities, this is also the time when the largest number of students falls prey to attrition, either voluntary or involuntary. Indeed, at Montana State University between 1996 and 2004, an average of 29 percent of entering freshmen left during the first year, while only 12 percent left during the second year. Between 1996 and 2002 specifically within the College of Agriculture, approximately 35 percent withdrew from the college during the first year, while only 14.2 percent left during the second year (Montana State University, 2004).
Early Intervention

Identification and early intervention for at-risk students is the strategy of choice for many retention programs and forms the basis for the efficacy of efforts such as the College Student Inventory as used at Montana State University. Pantages and Creedon (1978) are often cited in reference to the importance of early intervention strategies. Their paper, “Studies of College Attrition: 1950-1975” provided an extensive and methodical review of the attrition literature, including critiques of college attrition studies, analysis of factors that possibly affect retention or attrition, the common withdrawal process, and most notably, a review of programs that may be effective in increasing persistence. The first part of the last paragraph provides an important crux of their work:

In summary, a variety of programs should be initiated or extended which are designed either to prevent or to intervene at an early stage in the process of withdrawal. Such programs should be systematically evaluated for their impact on attrition. Innovative intervention should not be the responsibility of any single sector of the college: above all, students and faculty should be encouraged to invest their energies in solving a problem that continues to plague both the large state university and the small, private liberal arts college. (Pantages & Creedon, 1978, p. 96)

College Student Inventory

In many cases, a student chooses to withdraw before the institution is even aware of a problem or challenge facing the student (Stratil, n.d.). Designed to be a proactive, early intervention strategy to identify students at-risk for attrition, the Noel Levitz Retention Management System uses the College Student Inventory (CSI) to “identify dropout-prone students as they walk on campus and put in their path a prevention plan
before the student experiences the feelings of being lost, confused, overwhelmed, underprepared and uncertain” (Stratil, n.d., p. 1). The Stratil Counseling Inventory, published in 1984, was a precursor to the College Student Inventory Form A and Form B published in 1988 and 2000 respectively.

Stratil (n.d.) identifies the following objectives for the Retention Management System and the College Student Inventory:

1. Assess students’ individual academic and personal needs
2. Recognize students’ specific strengths and coping mechanisms so that successful intervention techniques in areas of need can be implemented
3. Identify students who are at risk for academic and/or personal difficulties and who may even drop out
4. Understand students’ attitudes and motivational patterns so that intervention is more successful
5. Enable advisors to have effective and rewarding personal contact with students early in the first term. (Stratil, n.d., p. 2)

To accomplish these goals, the CSI Form B as used at Montana State University organizes 16 different scales into three categories: Academic Motivation, General Coping Skills, and Receptivity to Support Services. The CSI analyzes the scores for each of these scales to compile a Summary of Academic Motivation. The summary is provided as the vital component of the Coordinator report (Appendix F). As shown in Table 2, this summary includes an evaluation of an individual student’s dropout proneness; predicted academic difficulty; educational stress; and receptivity to institutional help (Stratil, n.d.). While the first three scales indicate a potential negative occurrence (i.e. dropping out, academic difficulty, educational stress), the fourth scale
suggests a positive opportunity (i.e. how open a student is to receiving institutional support).

Table 2 also lists the three parts of the CSI motivational assessment and their component measures. The academic motivation component of the CSI motivational assessment consists of measures of study habits, intellectual interests, verbal confidence, math and science confidence, desire to finish college, and attitude toward educators. Measures of sociability, family emotional support, opinion tolerance, career closure, and sense of financial security, are the five components included within the general coping section of the CSI motivational assessment. Openness to academic assistance, personal counseling, social enrichment, career counseling, and financial guidance are the component measures of the section entitled receptivity to support services. Appendix E provides a more detailed description of each of the CSI measures.

Table 2. Component Measures of the College Student Inventory

<table>
<thead>
<tr>
<th>Summary of Academic Motivation</th>
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<tr>
<td>Dropout Proneness</td>
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<tr>
<td>Predicted Academic Difficulty</td>
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<tr>
<td>Educational Stress</td>
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<tr>
<td>Receptivity to Institutional Help</td>
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<table>
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<tr>
<th>Motivational Assessment</th>
<th>Academic Motivation</th>
<th>General Coping</th>
<th>Receptivity to Support Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Motivation</td>
<td>Study Habits</td>
<td>Sociability</td>
<td>Academic Assistance</td>
</tr>
<tr>
<td></td>
<td>Intellectual Interests</td>
<td>Family Emotional Support</td>
<td>Personal Counseling</td>
</tr>
<tr>
<td></td>
<td>Verbal Confidence</td>
<td>Opinion tolerance</td>
<td>Social Enrichment</td>
</tr>
<tr>
<td></td>
<td>Math and Science Confidence</td>
<td>Career Closure</td>
<td>Career Counseling</td>
</tr>
<tr>
<td></td>
<td>Desire to Finish College</td>
<td>Sense of Financial Security</td>
<td>Financial Guidance</td>
</tr>
<tr>
<td></td>
<td>Attitude Toward Educators</td>
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</tbody>
</table>
A study by Allen (1997) examined two of the major motivational components measured specifically in the CSI Form B, particularly desire to finish college (academic motivation) and family emotional support (general coping ability). Institutional impressions were also measured in this study. However, as a specific score in Form A, but not Form B, it won’t be discussed at this point. The researcher assessed the effects of certain background characteristics on each of these motivational variables, and then considered each motivational component’s impact on GPA and persistence. Gender was one of the most important variables affecting a student’s desire to finish college. Financial aid status and parental education levels also were found to influence motivation to finish college and receive a degree. When considering family emotional support, both minority and nonminority students with strong family support also tended to be female and receiving some form of financial aid. Among nonminority students, lower rank in their high school class and parents with more education also indicated strong family emotional support.

In a study at a community college, Basham and Lunenburg (2001) evaluated the usefulness of the CSI as a needs assessment tool. Their findings suggest some important implications for retention programming. Non-persisters actually indicated they were more open to receiving academic help. Academically unsuccessful students also suggested more willingness to accept assistance than those who were successful academically. Questions then arise as to why, even though the unsuccessful students were receptive to support services, they didn’t persist. The authors suggested that
identification of risk factors may have come too late and recommend using an early identification, early intervention tool, such as the CSI, to rectify this challenge.

Another study examined only CSI dropout proneness scores of college freshmen in a mathematics course. The scores of three groups of students were compared: completers, grade C or better; nonsuccessful completers, grade D or F, and noncompleters, grade W. Results revealed successful completers with lower dropout proneness scores than nonsuccessful completers, and no differences between noncompleters and nonsuccessful completers (Autrey, Horton, Kher, Molstead, & Juneau, 1999). Conversely, McGrath and Braunstein (1997) included the CSI as part of a study of freshmen attrition considering selected demographic, academic, financial and social factors. In comparing persisters and nonpersisters, academic motivation, social motivation (Form A score only), general coping skills, and receptivity to support services all revealed little differences.

Attributional Theory

The field of social psychology provides the roots for attributional theory. Heider (1958) first suggested that people are “naïve psychologists,” always looking for a reason or cause for the events that occur and the results of our behavior. Bernard Weiner and Andy Kukla followed with an attributional analysis in relation to achievement motivation (1970). An early paper by Weiner portrayed the attribution process and its effects on achievement motivation in education, specifically examining the “influence of causal beliefs on both teacher and pupil behaviors” (Weiner, 1972, p. 203). Weiner found that
the attribution process, or people attributing causal explanations for performance, does significantly shape performance and learning in the classroom (Weiner, 1972).

Subsequent work outlined a theory of attributional causation for achievement in which the perceived reasons for success or failure were described along three dimensions: locus (internal or external), stability (constant or changing), and controllability (Weiner, 1985).

Weiner’s (1985) attributional theory for achievement motivation has been frequently studied in connection with educational performance (Bol, Hacker, O’Shea, & Allen, 2005; Dietz, 1997; Henry, Martinko, & Pierce, 1993), and thus deserves some discussion within the context of this study. However, explanatory style as evolved from learned helplessness theory (Abramson, et al., 1978) is the focus for the current research.

Learned helplessness theory was first developed through testing with dogs that were exposed to shocks from which they could not escape no matter what they did (Seligman & Maier, 1967; Seligman, 1998). The dogs were moved to a location where they could easily escape by jumping over a low barrier and again exposed to shocks. Instead of quickly getting away, they simply lay down and gave up. “They had concluded, or “learned,” that nothing they did mattered. So why try” (Seligman, 1998, p. 20)? Further description of learned helplessness theory as reformulated by Abramson, Seligman, and Teasdale (1978) is provided in the following excerpt from their paper:

The cornerstone of the hypothesis is that learning that outcomes are uncontrollable results in three deficits: motivational, cognitive and emotional. The hypothesis is “cognitive” in that it postulates that mere exposure to uncontrollability is not sufficient to render an organism helpless; rather, the organism must come to expect that outcomes are uncontrollable in order to exhibit helplessness. In brief, the motivational deficit consists of retarded initiation of voluntary response and is seen as a consequence of the expectation that outcomes are uncontrollable. If the
organism expects that its responses will not affect some outcome, then the likelihood of emitting such responses decreases. Second, the learned helplessness hypothesis argues that learning that an outcome is uncontrollable results in a cognitive deficit since such learning makes it difficult to later learn that responses produce that outcome. Finally, the learned helplessness hypothesis claims that depressed affect is a consequence of learning that outcomes are uncontrollable. (p. 50)

Learned helplessness theory (Abramson, et al., 1978) differs from Weiner’s (1985) attributional theory for achievement motivation most notably in the three dimensions they involved. Both theories identified personalization, or locus, and permanence. Weiner’s theory (1985) added a third dimension that he termed controllability, as in how much power an individual has to change the cause of success or failure. Comparatively, the third dimension of learned helplessness theory (Abramson, et al., 1978) was pervasiveness, described as the extent to which the cause of an event affects other areas of a person’s life. For example, “People who make universal explanations for their failures give up on everything when a failure strikes in one area. People who make specific explanations may become helpless in that one part of their lives yet march stalwartly on in the others” (Seligman, 1998, p. 46). Learned helplessness theory, and subsequently explanatory style, was also described more as a habit of explanation versus a single reason for a specific event (Seligman, 1998).

Explanatory Style

Description

Explanatory style has its roots in learned helplessness theory and depression. Simply, everyone has setbacks that happen to him or her, and generally they happen several times a day. Those setbacks may be things that happened that were not desired,
or something that did not happen that was desired. The reformulated model of learned helplessness (Abramson, Seligman, & Teasdale, 1978) suggested that individuals attribute causes to these negative events and they do so along three dimensions: internal or external (personalization); global or specific (pervasiveness); and stable or unstable (permanence). Further explanation of these dimensions is offered by Peterson and Barrett (1987):

An internal cause points to something about the self (“it’s me”), whereas an external cause points to other people or circumstances (“it’s the heat in this place”). A stable cause invokes a long-lasting factor (“it’s never going to go away”), whereas an unstable cause is transient (“it was a one-time thing”). Finally, a global cause is one that affects a wide domain of activities (“it’s going to undercut everything I do”), whereas a specific cause is circumscribed (“it has no bearing on my everyday life”). (p. 603)

The term ‘explanatory style’ can be defined as the habitual way people explain the events that happen to them; or people tend to attribute similar types of causes to the events that affect them (Peterson, Buchanan, & Seligman, 1995). The consequences of attributing causes in certain combinations of the three dimensions may result in learned helplessness. “Accordingly, explanatory style is a distal influence on helplessness and the failures of adaptation that involve helplessness” (Peterson, et al., 1995, p. 5). The learned helplessness model (Abramson, et al., 1978) postulated that explaining bad events internally, globally, and stably and good events along external, unstable, and specific lines (pessimistic explanatory style) tended to lead to depression. Peterson and Seligman (1984) found support for this theory and implicated explanatory style as a risk factor for depression rather than a cause.

Given uncontrollable events and the lack of a clear situational demand on the proferred attribution for uncontrollability, explanatory style
should influence how the person responds. Helplessness will be long-lasting or transient, widespread or circumscribed, damaging to self-esteem or not, all in accordance with the individual’s explanatory style. (Peterson, et al., 1995, p. 5)

**Explanatory Style and Achievement**

The consequences of explanatory style have since been studied in a number of arenas, including work, education, politics, athletics, and health. As people habitually make explanations for their own success or failure, they begin to develop expectations for how they will respond and perform. These expectations subsequently affect behavior (Schulman, 1995). “Individuals with an optimistic explanatory style may be more likely, for example, to take initiative, persist under adversity, take risks, be decisive, engage in quality problem-solving strategies, and be more assertive than individuals with a pessimistic style” (Schulman, 1995, p. 160). From an educational perspective, Kunkel (1997) presents the following description:

For example, one student might ascribe her good grade to diligent study, while another talks about good luck (e.g., "They asked the right questions"). Plausible explanations of negative events, such as low exam grades, are usually more numerous: One person might ascribe a poor score to inadequate study, another to a hard test, another to not feeling well that day, another to an unfair teacher, and still another to bad luck (e.g., "the test did not cover the material I studied.") The explanation an individual selects, especially for a negative event, affects subsequent behavior. In the above example, only students who admit that they did not study enough are likely to study more for the next test. The other students are likely to hope that the presumed causal factors will not operate next time--the test will be easier, I'll feel better, or the "right" questions will be asked. (p. 97)

The effect of explanatory style on athletic, work, and educational achievement provided vivid examples of the consequences of thinking either optimistically or pessimistically according to explanatory style. People performing in these fields are
inevitably faced with challenges on a daily basis. Success and achievement come with practice and with practice, come setbacks or failure. Learned helplessness theory (Abramson, et al., 1978) held that an individual with a pessimistic explanatory style is more likely to “display helplessness deficits such as poor grades or the ultimate act of learned helplessness, quitting, when confronted with failure” (Henry, Martinko, & Pierce, 1993, p. 344). How a student, employee, or athlete explained the causes of failure (explanatory style), and the consequences of such thinking, has been shown to have significant impact on performance, as the following examples illustrate.

A study of world-class swimmers at the University of California at Berkeley found that explanatory style could predict athletic performance, particularly after defeat. Throughout the season, more pessimistic swimmers were more likely to perform below expectations than those athletes with an optimistic explanatory style. Of particular significance were the consequences of a pessimistic explanatory style on resiliency, or the ability to maintain or improve after a disappointing performance. Swimmers were asked to swim their best event and when finished were given a slower time than what they had actually achieved. After an adequate rest, the athletes again swam their best event. Following a disappointing defeat, the performance of swimmers with a pessimistic explanatory style deteriorated while that of the optimistic swimmers did not (Seligman, Nolen-Hoeksema, Thornton, & Thornton, 1990).

Life insurance sales is a profession that involves frequent setbacks and was thus the subject of a study by Seligman and Schulman in 1986. The researchers examined the learned helplessness model (Abramson, et al., 1978) to determine whether a pessimistic
explanatory style predisposes quitting or giving up, and whether the negative events common in life insurance sales trigger giving up when an individual has a pessimistic explanatory style. The study also marked an initial application of explanatory style in relationship to work performance. Results were intriguing. Sales agents with an optimistic explanatory style were more productive and sold more insurance than agents with a pessimistic explanatory style. Implications for hiring sales agents were also interesting. Turnover for pessimistic agents was twice that of optimistic agents. In other words, optimistic sales agents survived the first year of employment at twice the rate of those with a pessimistic explanatory style. Overall, optimistic life insurance sales agents were more productive and more likely to stay in the job than those who explained events more pessimistically (Seligman & Schulman, 1986).

Explanatory Style and Academics

A number of intriguing studies concerning the potential for explanatory style in predicting academic performance can be found in the literature as well.

Peterson and Barrett (1987) found that explanatory style, as measured by the Academic Attributional Style Questionnaire (AASQ) (Peterson & Barrett, 1987), was related to grades among college freshmen. Students with higher grades during their freshmen year explained bad academic events with external, unstable, and specific causes, while students with lower grades used internal, stable, and global explanations. Holding initial ability (measured by the Scholastic Aptitude Test (SAT)) and initial depression (measured by the Beck Depression Inventory) constant, this pattern was still evident. In addition, lower grades were related to nonspecific goals and decreased use of
advising. Students less likely to have specific academic goals and less likely to use academic advising had a negative explanatory style (Peterson & Barrett, 1987).

Ritchie (1999) examined the explanatory style of college students in relation to academic performance. He analyzed the data relative to gender, age, and race. The study demonstrated that college GPA’s for traditional-aged female and Caucasian female students could be predicted by explanatory style scores as measured by the AASQ. SAT composite scores for females, Caucasian females, traditional-aged (18-22 years of age) students, traditional-aged females, traditional-aged Caucasian females, and nontraditional (23+ years of age) Caucasian males could also be predicted by explanatory style scores (Ritchie, 1999).

Another study investigating the predictive value of explanatory style on first-year grades and dropping out was conducted at the United States Military Academy at West Point, New York. Dropouts from boot camp or the first year of classes had a more pessimistic explanatory style, according to results of the Attributional Style Questionnaire (ASQ) (Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982). When SAT scores were partialed out, explanatory style also significantly predicted first year grade point average. These results have important implications for selection, choosing a major (placement), and the type and method of education (training) (Schulman, 1995).

A longitudinal study was conducted comparing attributional style and success in a beginning computer programming course for students at four different 4-year public colleges. Researchers administered the ASQ to evaluate explanatory style and found that
students who explained positive events with a more optimistic explanatory style (internal, stable, and global) received higher grades than those with a more pessimistic explanatory style for positive events (Henry, Martinko, & Pierce, 1993).

Other studies have not shown the same correlations between explanatory style and grades or dropout. In addition to Bridges (2000) who found that attributional style was not related to academic performance, Fazio and Palm (1998) also found that attributional style did not correlate with grade point averages. This latter study had one significant difference from that of Peterson and Barrett’s (1987) pivotal investigation. The sample studied by Fazio and Palm (1998) demonstrated a markedly restricted range of GPAs and consisted of upperclassmen rather than freshmen. In comparison to Fazio and Palm (1998), Tiggemann and Crowley (1993) used a modified Academic Attributional Style Questionnaire (AASQ) to assess the role of attributional style in developing depressive effects after a negative event and how those negative, pessimistic attributions might influence ensuing performance. These researchers also found no connection between explanatory style and exam performance after a prior failing grade (Tiggemann & Crowley, 1993).

Academic performance and achievement as predicted by explanatory style was the subject of another interesting study conducted by Satterfield, Monahan, and Seligman (1997). The sample in this case involved law students over the course of their entire law school education. Explanatory style was assessed using the ASQ prior to the beginning of law school on the last day of orientation. Achievement measures collected each semester included course grades, class participation ratings, extra-curricular involvement,
moot court performance, and try-outs for law reviews. Using the literature as a guide, the researchers hypothesized that “It is possible that explanatory style could predict law school achievement above and beyond LSAT [Law School Admissions Test] and undergraduate GPA especially since the intensity and competitiveness of the law school environment seem to demand the degree of persistence, motivation, and resilience optimism can inspire” (Satterfield, Monahan, & Seligman, 1997, p. 96). Specifically, students with a more optimistic explanatory style would be higher achievers, while those who explained events bad events internally, stably, and globally (pessimistic) would succumb to “depression-like behavioral and achievement deficits” (Satterfield, et al., 1997, p. 96). What they found was the opposite. Students with pessimistic and midrange explanatory styles significantly outperformed optimistic students, receiving higher class grades, better GPAs and showing more successful executive board memberships. The authors delved into a number of intriguing reasons for contrary results, most beyond the scope of this study. However, a few are obligatory to include. Compared to Peterson and Barrett’s (1987) and Ritchie’s (1999) studies, this research utilized the ASQ and not the AASQ. Additionally, this study was longitudinal and measured achievement over a three-year span, further distinguishing this research from other studies of explanatory style and academic achievement. These law students were already comparatively high achievers with LSAT scores ranking in the 91st percentile and a mean undergraduate GPA of 3.6. Finally, the benefits from pessimism found in law students may be portrayed as prudence or caution rather than learned helplessness as discussed by Abramson, et al. (1978). The researchers commented (Satterfield, et al., 1997):
Perhaps under the more rigorous demands and specific intellectual requirements of law school, diligent students who develop a sense of healthy skepticism are the highest achievers. In fact, careful attention to detail, considering all sides of an argument, seeing all potential pitfalls or catastrophes, attention to precedent rather than salutatory creativity, and thoroughness are typically seen as important traits for the successful lawyer. (p. 103)

In a study of upper-level marketing majors, a similar result was discovered. More pessimistic students outperformed optimistic students in both the course of interest and college overall. These researchers also compared their results to that of Peterson and Barrett (1987) and underscored the difference in level of college experience and major decision. While Peterson and Barrett (1987) examined explanatory style in relation to grades for beginning freshmen with undecided majors, this study looked at upper level undergraduates decisively enrolled in the marketing major. The researchers speculated on the third dimension of Weiner’s (1985) attributional theory, the level of controllability, as being a possible factor in considering the attributional or explanatory style of college students (LaForge & Cantrell, 2003). “Stressors in college students’ lives may be perceived to become more controllable with increasing autonomy that comes with choice of major and academic rank” (LaForge & Cantrell, 2003, p. 865).

The same study that scrutinized personality traits as measured by the Sixteen Personality Factors Questionnaire in relation to student retention and academic standing, also examined the predictive value of explanatory style on those same categories (Welter, 2002). Using the ASQ, the researcher measured explanatory style of first-time, incoming freshmen during summer orientation prior to the start of regular classes. Overall, attributional style did not distinguish students in good academic standing from poor
performance, nor did it have significant predictive value for student retention. However, differences in attributional styles for each of the categories did emerge. For example, persisters were more optimistic in their explanations for negative events than were students who dropped out. Further categorizing persisters and nonpersisters by academic standing, students doing poorly academically and who dropped out of the institution were more pessimistic in their attributional styles for negative events than were those students in good academic standing who remained at the university (Welter, 2002). It should be noted that this study used the Attributional Style Questionnaire which measures explanatory style using both negative and positive general life events. The AASQ on the other hand, uses only negative events that are specific to an academic situation.

**Academic Attributional Style Questionnaire**

The Academic Attributional Style Questionnaire (AASQ) was developed by Peterson and Barrett (1997) to measure the optimistic and pessimistic tendencies (explanatory style) of individuals in an academic setting. It was patterned after the Attributional Style Questionnaire (ASQ), the original measure of explanatory style (Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982). While the ASQ contains both negative and positive general life events, the AASQ consists of 12 negative situations specific to academic scenarios. The AASQ is most relevant in studies investigating academic issues such as achievement.

As measured by the AASQ, an optimistic explanatory style is indicated with a composite score below 3.5 and a pessimistic explanatory style is signified by a composite score greater than 5.0. Scores between 3.5 and 5.0 suggest an explanatory style that is
neither optimistic nor pessimistic (Ritchie, 1999). The AASQ, like the ASQ, also gauges the three dimensions of explanatory style. Each of the 12 academic situations has four questions. The first question helps the student focus on the exact cause of the bad event. The second question evaluates a student’s level of personalization (internal/external), while the third and fourth questions respectively, assess the levels of permanence (stable/unstable) and pervasiveness (global/specific) associated with the cause. For example, if a student explained the negative academic event on the AASQ “You cannot understand the points a lecturer makes” by saying “He/she is vague in his/her instructions,” that student might have rated the explanation a ‘1’ for personalization (more external, due to others), a ‘2’ for permanence (less stable, never present), and a ‘2’ for pervasiveness (more specific, affecting just this situation). This explanation is representative of an optimistic explanatory style. On the other hand, if a student explained why he/she couldn’t understand a lecturer by saying, “I am stupid,” the scores would have been on the higher end of the scale and representative of a pessimistic explanatory style. The student might have rated the explanation or cause a ‘7’ for personalization (very internal, totally due to me), a ‘6’ for permanence (stable, always present), and a ‘7’ for pervasiveness (global, affecting all situations or everything the student does). Refer to the definition of explanatory style included in Chapter One and Appendix A, Academic Attributional Style Questionnaire, for further clarification.
Attributional Retraining

Explanatory style theory holds that deficits in well-being, motivation, and performance after failure are related to the cause an individual attributes to the poor result (Buchanan & Seligman, 1995). The premise of Martin Seligman’s book (1998), Learned Optimism: How to Change Your Mind and Your Life, is reflected in its title. Pessimists can learn to be more optimistic and therefore mitigate or eliminate the negative behaviors associated with a pessimistic explanatory style, according to the author. He states:

…, becoming an optimist consists not of learning to be more selfish and self-assertive, and to present yourself to others in overbearing ways, but simply of learning a set of skills about how to talk to yourself when you suffer a personal defeat. You will learn to speak to yourself about your setbacks from a more encouraging viewpoint. (Seligman, 1998, p. 207)

Seligman goes on to outline a strategic technique for learning to think and attribute causes more optimistically. Some research has been conducted in college academic settings testing different methods of attributional retraining along the different dimensions (Abramson, et al., 1978) of explanatory style.

A study by Wilson and Linville (1982) investigated the effects of attempting to alter attributions for academic difficulties from stable or permanent to more unstable causes. Freshmen students were presented with information showing that grades tended to improve over the course of college study, including videotaped testimonials from upperclassmen. These students, as compared to those who were not presented with grade information, were more likely to remain in school after their second year, had a significantly larger increase in GPA one year after the study, and also exhibited higher
achievement on sample Graduate Record Exam (GRE) items. Helping students attribute more temporary causes to academic challenges succeeded in improving their performance (Wilson & Linville, 1982). This study has significant implications for early identification retention strategies.

In a double experiment conducted with college freshmen, another study examined the efficacy of attribution-based intervention and study strategy training on academic achievement. After receiving mid-term grades, participants were shown videotaped testimonials from upperclassman who had taken the course previously. The older students described why they thought they had done poorly on their mid-term exams and explained the various methods they had used to earn good grades on the final exam. Results of this experiment demonstrated that attribution-based intervention increased the number of students who passed the final exam, indicating that attributional intervention may be an effective tool for boosting motivation to study. In a second experiment, the researchers compared a similar attributional change program to a short study skills course. Again, more students in the attributional change program passed the final exam, while the study skills course produced no effect on academic performance. In addition to the support these experiments gave to attributional training and retraining, this study is also notable because it was conducted in two different academic domains, thus indicating a more broad applicability to academic situations thus far lacking in the research. In discussing the puzzling lack of improvement in academic performance through the study strategies course, the researchers speculated that an attribution change program more
focused on specific and technical aspects of certain learning strategies may indeed improve the efficacy of study skills courses (Van Overwalle & De Metsenaere, 1990).

A recent study by Martin-Krumm, Sarrazin, and Peterson (2005) explored the possibility that explanatory style may have only a distal effect on student achievement and the effect may be mediated by more proximal variables, in this case success expectancies and subjective task value. Results supported this hypothesis demonstrating that explanatory style did correlate with grades, but when other variables were controlled, explanatory style did not affect student academic performance. “In other words, the effects of explanatory style on students’ GPEC [grades in physical education class] are mediated by more proximal variables, …” (Martin-Krumm, Sarrazin, & Peterson, 2005, p. 1654). Their results confirmed links between one’s perception of ability and actual achievement, but it also indicated that how students explain successes or failures does play an important part in student performance. Specifically, “An optimistic explanatory style may buffer a low perceived ability whereas a pessimistic one tends to increase the harmful effects of a low perceived ability (Martin-Krumm, et al., 2005, p. 1654). The authors summarized from an applied perspective: “…, it seems important to enhance at the same time the self-concept of pupils’ ability, and their self-confidence to increase their own competences at school, in particular by reinforcing an optimistic way of looking into the causes of events at school” (Martin-Krumm, et al., 2005, p. 1654). This research suggested support for the value of attributional retraining. While this study looked at high school physical education classes, its findings suggest implications for a complex topic such as college student retention. Inconsistencies reported by other studies
in the predictive value of explanatory style for academic achievement in college may also be partially explained with these results.

Additional support for using instruments that measure attributional style was offered by Henry, Martinko, and Pierce, (1993). The researchers suggest that from a practical point of view, such instruments “may be useful in both screening and identifying those who may be susceptible to frustration and failure” (p. 350). If students likely to struggle in college can be flagged early in their academic endeavors, appropriate intervention measures can be taken to help those students succeed and ultimately persist in post-secondary education. Intervention measures may include attributional retraining, more specific advising, and/or linking students to appropriate resources.

From another perspective, while optimism certainly has positive effects, too much optimism may actually be deleterious because it is unrealistic (Peterson, 2000). From this basis, Ruthig, Perry, Hall, and Hladkyj (2004) explored the effects of attributional retraining programs on college students who were highly optimistic. Essentially, the attributional retraining consisted of a videotape presentation, handout, and/or discussion encouraging performance attributions more within the control of the student (i.e. effort, strategy). While this study did not use explanatory style to measure levels of optimism, it was based on Weiner’s attributional theory and utilized an adapted version of Scheier and Carver’s (1985) Life Orientation Test (LOT). The researchers considered the LOT measure of dispositional optimism as well established, having been used in a number of arenas such as health, athletic and academic settings. Not only did attributional retraining for highly optimistic students lead to improved academic performance in the specific
sample class, but it also contributed to higher cumulative GPAs and lower voluntary withdrawal rates (Ruthig, Perry, Hall, & Hladkyj, 2004).

…, without AR [attributional retraining], high-optimism students had the lowest cumulative GPA and the highest VW [voluntary withdrawal] rates of all four groups in the study. However, simply giving high-optimism students a single AR session resulted in high optimism students achieving the highest cumulative achievement (GPA), the lowest VW rates, and lowest level of test anxiety, compared to the other three groups of students. (Ruthig, et al., 2004, p.724)

**Summary**

Student persistence is a complex topic concerning colleges and universities. Because of this complexity, research is voluminous and approaches the topic from many angles. Different retention challenges and issues are likely to be found depending on the individual institution and with respect to individual academic situations within the institution. This study will likely discover the same is true for the College of Agriculture at Montana State University. Early identification strategies such as the College Student Inventory seem to be preferred choices in many academic arenas.

A strong body of evidence exists for the value of explanatory style in relationship to achievement and motivation. Studies have connected grade point average to persistence and explanatory style to grades. Research predicting achievement of younger, freshmen college students by identifying explanatory style using the Academic Attributional Style Questionnaire has been successful. These connections, coupled with evidence of the effects of pessimistic explanatory style in the workplace and at school,
along with the apparent effectiveness of attributional retraining, suggest that explanatory style may be a valuable tool for early identification of students at risk for attrition.

Using the literature as a guide, the hypothesis was made that the Academic Attributional Style Questionnaire and explanatory style will be useful for identifying students at higher risk of attrition during their first year of college. Additionally, explanatory style will be related to first-year grades and certain College Student Inventory scales, including dropout proneness, predicted academic difficulty, educational stress, study habits, desire to finish college, and career closure. Specifically considering agriculture students, involvement in 4-H or FFA, having taken a high school agriculture class, and high school GPA will have predictive value for future performance and retention between the first and second fall semesters.
METHODS OF INVESTIGATION

This study was designed to determine what relationships may exist between explanatory style as determined by the Academic Attributional Style Questionnaire (AASQ), and academic performance, ACT/SAT composite scores, College Student Inventory (CSI) data, and persistence of freshmen in the College of Agriculture at Montana State University-Bozeman. The predictive value of these factors for College of Agriculture student retention was evaluated.

To accomplish the objectives and fulfill the purpose of this study, the following methodologies were implemented. The study population and cohort are described along with the design of the instruments, data collection methods and data analysis procedures.

Population and Cohort Description

The target population for this study was first-time, full-time, degree-seeking freshmen entering the College of Agriculture (COA) at Montana State University (MSU) in the fall of 2004. The accessible sample consisted of freshmen enrolled in ARNR 100 Introduction to Animal Science, ARNR 101 Natural Resource Conservation, AgEd 251 Leadership Development for Agribusiness and Industry Employees, and AgEd 105 Microcomputers in Agriculture, and present on the day the survey was administered. The cohort was further limited to those students who completed both the College Student Inventory (CSI) and the Academic Attributional Style Questionnaire (AASQ).
For students beginning college in the fall of 2004 and enrolled in the College of Agriculture, 57 took both the CSI and the AASQ. The cohort was similar to the population of College of Agriculture traditional aged freshmen beginning at MSU. Table 3 compares the cohort group to the larger College of Agriculture population from which it was drawn.

Table 3. Comparison of Background Characteristics for Entering Freshmen* in the Fall of 2004

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Cohort</th>
<th>COA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>57</td>
<td>100</td>
</tr>
<tr>
<td>Males</td>
<td>23</td>
<td>50</td>
</tr>
<tr>
<td>Females</td>
<td>34</td>
<td>50</td>
</tr>
<tr>
<td>High School GPA</td>
<td>3.44</td>
<td>3.37</td>
</tr>
<tr>
<td>ACT Composite</td>
<td>23.15</td>
<td>22.63</td>
</tr>
<tr>
<td>SAT Composite</td>
<td>1101.25</td>
<td>1086.52</td>
</tr>
</tbody>
</table>

*first-time, full-time students

Instrument Design

The Academic Attributional Style Questionnaire (AASQ) (Appendix A) was administered to determine the explanatory style of first-year, full-time College of Agriculture students. Peterson and Barrett (1987) found the AASQ to be reliable (Cronbach’s Alpha = .84) and its criterion valid. Ritchie (1999) further evaluated each of the dimensions and found the following Cronbach’s Alpha reliabilities: internality, 0.64; stability, 0.85; and globality, 0.84. The AASQ (Peterson & Barrett, 1987) was patterned after the Attributional Style Questionnaire (Peterson, et al., 1982) that contained six positive and six negative life events. Comparatively, the AASQ consists of twelve negative events that could happen to a college student and are specific to an academic
situation. Each event has four questions. The first question helps the student focus on a single cause for the particular event. The following three questions assess the three dimensions of explanatory style: internality versus externality, stability versus instability, and globality versus specificity (Abramson, et al., 1978). Refer to the definition of explanatory style included in Chapter One and the literature review for further explanation. Respondents chose a ranking from one to seven that indicated the degree to which they attributed the cause of the event to themselves, how likely the cause will always be present, and to what extent the cause affected other areas of their life. Higher scores indicated a more internal, stable, and global explanatory style (pessimistic), while lower scores indicated an explanatory style that was more external, unstable, and specific (optimistic).

An additional demographic questionnaire, attached as a cover sheet, addressed demographic variables identified in the literature as important to persistence and motivation of agriculture students (Appendix B). These variables were: gender, 4-H and FFA experience, prior classroom agricultural experience, high school size, high school grade point average, and expected earnings after graduation. Students were given the option to receive their results from the AASQ accompanied by a brief explanation. Appendix C is the results form.

The Dean of Students Office administered Form B of the College Student Inventory (CSI) to incoming freshmen during summer orientation in 2004 (Appendix D). Refer to Table 2 in Chapter Two for the individual components of the CSI Coordinator Report (Appendix F) and Student Report (Appendix G). Refer to Appendix E for a
description of each measure. Noel-Levitz (2001), developer of the CSI, conducted scale reliability tests and established a Cronbach’s alpha coefficient of 0.79. The CSI Form B scales, particularly dropout proneness and predicted academic difficulty, correlate significantly with their target criterion variables (Noel-Levitz, 2001).

Specifically, the CSI analyzes the scores for each of the scales measuring academic motivation, general coping, and receptivity to support services to compile a summary of academic motivation consisting of scores for dropout proneness, predicted academic difficulty, educational stress, and receptivity to institutional help. The scores are given as stanines and classified by the researcher as very low (1), low (2-3), average (4-6), high (7-8), and very high (9). Values for the CSI motivational assessment are given in percentile rankings and categorized by the researcher as low (1-25), medium low (26-50), medium high (51-75), and high (76-99).

Data Collection Methods

The AASQ was administered to students in ARNR 100, ARNR 101, AgEd 251US, and AgEd 105 during the months of November and December of 2004 and 2005, as well as February and March of 2005. Due to computer availability, students in ARNR 100 took the survey on paper, while the other students completed the survey online. For the cohort, high school GPA, SAT and/or ACT scores, cumulative college GPA, and enrollment status were obtained from the Office of the Registrar. High school core GPA was calculated based on courses required by the university for admission. Coordinator reports with comprehensive data from the College Student Inventory Form B as
administered during summer orientation 2004 were obtained from the Dean of Students office and entered into a database for descriptive purposes and data analysis. Retention was determined based on enrollment status in the College of Agriculture at the beginning of the sophomore year.

Using a unique identification number, the cohort was established and tracked throughout the course of the study by matching AASQ scores, CSI measures, and data from the Registrars Office. Table 4 displays a summary of the data collected, cohort membership, and cohort retention.

<table>
<thead>
<tr>
<th>Table 4. Data Collection Summary and Cohort Establishment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MSU Admissions</strong></td>
</tr>
<tr>
<td>2004 Fall Admits*</td>
</tr>
<tr>
<td>2005 Spring Admits*</td>
</tr>
<tr>
<td>2005 Fall Admits*</td>
</tr>
<tr>
<td>2006 Spring Admits*</td>
</tr>
<tr>
<td><strong>AASQ</strong></td>
</tr>
<tr>
<td>Total AASQ Surveys</td>
</tr>
<tr>
<td>Duplicate AASQ Surveys</td>
</tr>
<tr>
<td>Net AASQ Surveys</td>
</tr>
<tr>
<td><strong>CSI Surveys Taken by COA</strong></td>
</tr>
<tr>
<td>2004 CSI Students</td>
</tr>
<tr>
<td><strong>Cohort</strong></td>
</tr>
<tr>
<td>2004 Cohort</td>
</tr>
<tr>
<td>(Student took both CSI and AASQ)</td>
</tr>
</tbody>
</table>

*First-time, full-time freshmen  
**College of Agriculture
Data Analysis Procedures

Data was initially compiled into a Microsoft Excel spreadsheet and a Microsoft Access database. Scores for individual explanatory style dimensions were calculated by averaging the responses for the corresponding questions. A composite score for explanatory style was the average of the three dimensions. SPSS 13.0 for Windows and expert guidance were employed to analyze the data. To evaluate the objectives, Pearson-Product Moment Correlation Coefficients, independent sample t-tests, and multiple regression analysis were employed. A 0.05 alpha level was the criterion for significance. Descriptive statistics, including means and frequencies, were also utilized.

Specifically, to test the predictive capability and accuracy of the independent variables used in this study for forecasting first to second year attrition (dependent variable) for College of Agriculture freshmen, multiple linear regression analysis was employed using the entered method. Three potential models for attrition among this cohort were devised based on the following categories of independent variables: 1) background characteristics, expected college experience, and academic performance—high school GPA, ACT score, gender, 4-H and FFA involvement, enrollment in a high school agriculture class, size of high school, ethnic origin, parental education, decision to enroll, degree sought, plans to work, cumulative GPA for fall 2004 and spring 2005 semesters; 2) explanatory style—personalization, permanence, pervasiveness, and composite scores; and 3) College Student Inventory measures. Of the 57 students in the original cohort, 39 (68.4 percent) were enrolled in the College of Agriculture in the fall of 2005, meeting the definition for retention used in this study.
According to Shavelson (1988), there should be at least 10 times as many cases as independent variables when conducting a multiple linear regression analysis. With a cohort size of N=57, five independent variables could have been included.
RESULTS OF THE STUDY

Introduction

The study was designed to explore the relationship of explanatory style to academic achievement, college student persistence, ACT/SAT composite scores, and College Student Inventory scales among first-year, full-time freshmen students in the College of Agriculture at Montana State University. To satisfy the objectives of the study, the results were divided as follows: 1) College of Agriculture Freshman Student Description; 2) Explanatory Style; 3) Relationships; 4) Predicting Attrition; and 5) Potential of the Academic Attributional Style Questionnaire.

College of Agriculture Freshman Student Description

A number of different variables were used to describe the student population enrolling as first-time, full-time freshmen in the College of Agriculture (COA) at Montana State University (MSU) in the fall of 2004. These variables included gender, age, ethnic origin, level of parental education, enrollment in a high school agriculture class, participation in 4-H and FFA, and an estimate of the size of the high school from which the participants graduated. Students were further described using the admissions criteria of cumulative high school GPA, SAT and ACT composite scores. Cumulative college GPAs after each of the two semesters spanning this study were also included. Student perceptions of their future college experience, such as when they decided to enroll, what degree they were seeking, and the number of hours they planned to work
further portrayed the characteristics of this group of students. Finally, the summary of academic motivation and the motivational assessment as depicted by the College Student Inventory (CSI) results were also included.

Background Characteristics

Figure 1 displays the gender distribution for the cohort of full-time, first-time College of Agriculture freshmen beginning college in the fall of 2004. Almost 60 percent (59.6 percent) were female and just over 40 percent (40.4 percent) were male. Students ranged in age from 17 to 20 years with 68.5 percent aged 18 years.

The vast majority (91.2 percent) were of white/Caucasian ethnic origin while 3.5 percent were of American Indian/Alaskan heritage. Ethnic backgrounds for the cohort are represented in Table 5.
Table 5. Ethnic Origin of the 2004 Cohort

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic or Latino</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>American Indian/Alaskan</td>
<td>2</td>
<td>3.5</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>52</td>
<td>91.2</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>I prefer not to respond</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>57</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The levels of parental education are depicted in Figures 2 and 3. The minimum parental level of education was completion of some high school and the maximum level was attainment of a doctorate’s degree. For mothers (Figure 2), 17.5 percent earned a high school diploma. About 35 percent (35.1 percent) had attended some college and another 35 percent (35.1 percent) had obtained a bachelor’s degree. Graduate level degrees were obtained by 12.3 percent, with 10.5 percent earning a master’s degree and 1.8 percent earning a doctorate degree. Fewer fathers (Figure 3) than mothers earned college degrees and generally had lower levels of education than mothers. In between three and four percent (3.5 percent) of fathers attended some high school and 24.6 percent had earned a high school diploma. The majority (42.1) percent of fathers had attended some college, while 26.3 percent earned a bachelor’s degree, and 1.8 percent each earned a master’s degree and a doctorate’s degree respectively.
Figure 2. Mother's Level of Education for the Cohort Group

Figure 3. Father's Level of Education for the Cohort Group
Over half of the entering freshmen had taken some kind of agriculture course while in high school. Figure 4 shows that 57.9 percent participated in a high school agriculture curriculum, but 42.1 percent did not.

![Figure 4. Cohort Enrollment in a High School Agriculture Class](image)

Because FFA is an intra-curricular student organization, the percent involvement should be quite similar to that of enrollment in a high school agriculture class. In this cohort, 54.4 percent participated in FFA and 45.6 percent were not involved (Figure 5). Among this group of students, Figure 6 shows involvement in 4-H was slightly higher than in FFA with 61.4 percent students involved and only 38.6 percent not involved.
Approximately 39 percent (38.6 percent) were involved in both organizations, but 22.8 percent did not participate in either FFA or 4-H. Close to 16 percent (15.8 percent)
were involved in FFA but not 4-H, while 22.8 percent were 4-H members but not members of the FFA. Refer to Table 6 for a comparison.

Table 6. Comparison of Cohort Involvement in Student Organizations

<table>
<thead>
<tr>
<th></th>
<th>FFA Participation</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
<td>Total</td>
<td>Count</td>
<td>% of Total</td>
</tr>
<tr>
<td>No</td>
<td>13.0</td>
<td>9.0</td>
<td>22.0</td>
<td>22.0</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>22.8</td>
<td>15.8</td>
<td>38.6</td>
<td>38.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Yes</td>
<td>13.0</td>
<td>22.0</td>
<td>35.0</td>
<td>35.0</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>22.8</td>
<td>38.6</td>
<td>61.4</td>
<td>61.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>26.0</td>
<td>31.0</td>
<td>57.0</td>
<td>57.0</td>
<td>100.0</td>
</tr>
<tr>
<td></td>
<td>45.6</td>
<td>54.4</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The relative size of the high schools from which these students graduated is illustrated in Figure 7. School size was categorized according to the Montana Office of Public Instruction classifications (A. Boehm, personal communication, March 27, 2006), although not all students within this cohort graduated from a Montana high school. The number and percent of students falling within each category are displayed. The greatest percentage of students (31.6 percent) graduated from class 4H high schools with enrollments between 76 and 200 students. Eight students (14 percent) each graduated from class 3H and class 5H schools with enrollments 201 to 400 students and less than 75 students respectively. Just over 19 percent (19.3 percent) of students graduated from the largest schools (class 1H) having enrollments over 1,250 students, while 21.1 percent graduated from the next smaller school (class 2H) with enrollments between 401 and 1,250.
Admissions Criteria

The mean cumulative high school GPA for the cohort was 3.44. Table 7 represents a breakdown of high school grade point averages over five ranges. No students had a high school GPA below a 2.5. Just over 19 percent (19.30 percent) of the cohort earned GPAs between 2.5 and 2.99, while 31.58 percent of the cohort obtained GPAs between 3.0 and 3.49. The majority of students (49.12 percent) had cumulative high school GPAs of 3.5 and higher.
Table 7. High School Grade Point Averages for the Cohort Group

<table>
<thead>
<tr>
<th>Ranges</th>
<th>Frequency</th>
<th>Percent</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2.0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0-2.49</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5-2.99</td>
<td>11</td>
<td>19.30</td>
<td></td>
<td>19.30</td>
<td></td>
</tr>
<tr>
<td>3.0-3.49</td>
<td>18</td>
<td>31.58</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.50-4.0</td>
<td>28</td>
<td>49.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>100.00</td>
<td>3.44</td>
<td>2.56</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Table 8 portrays the mean composite scores for the ACT and SAT tests for the cohort of freshman entering the College of Agriculture in the fall of 2004. Forty-six students took the ACT and averaged 23.15. Twenty-four students took the SAT test for a mean score of 1101.25. Thirteen students took both the ACT and SAT tests.

Table 8. Mean ACT and SAT Composite Scores for the Cohort Group

<table>
<thead>
<tr>
<th>Test</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>46</td>
<td>17</td>
<td>32</td>
<td>23.15</td>
</tr>
<tr>
<td>SAT</td>
<td>24</td>
<td>860</td>
<td>1340</td>
<td>1101.25</td>
</tr>
</tbody>
</table>

Note: 13 Students took both the ACT and the SAT.

College Student Inventory—Expected College Experience

The College Student Inventory questions students on three factors related to their anticipated college experience:

1. When did a student decide to enroll in the university?
2. What degree does a student plan to attain?
3. How many hours a week does the student plan to work?

As represented in Table 9, Decision to Enroll, all but one of these students chose Montana State University many months before the start of classes.
Table 9. The Time of Decision to Enroll of the Cohort Group

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Few days before</td>
<td>1</td>
<td>1.75</td>
</tr>
<tr>
<td>Many months before</td>
<td>56</td>
<td>98.25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>57</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Figure 8 demonstrates the level of college education the student intends to attain. The majority (45.6 percent) of the students planned to achieve a bachelor’s degree as compared to 22.8 percent who intended to earn a master’s degree and 31.6 percent who planned to seek a doctorate degree. However, comparing undergraduate to graduate degree seeking students revealed that more than half (54.4 percent) expected to seek a post-baccalaureate degree.

![Figure 8. Degree Level Sought by the Cohort Group](image-url)
The vast majority of freshman students entering the College of Agriculture in the fall of 2004 intended to work while attending college, as summarized in Figure 9. Most students (40.4 percent) planned to work between 11 and 20 hours per week. However, 35.1 percent planned to work up to 10 hours per week. Between 17 and 18 percent (17.5 percent) did not intend to work at all, but 7 percent intended to work 21 to 30 hours per week.

Figure 9. Number of Hours per Week the Cohort Planned to Work

College Student Inventory

The College Student Inventory (CSI) consists of 20 numerical scales. The Summary of Academic Motivation consists of four stanine scales. The Motivational Assessment is comprised of three groups of measures reported as percentile rankings. Appendix E is a description of what each scale measures. Appendix F is a sample of the
Coordinator’s Report from the CSI and Appendix G is a sample Student Report. The following discussion includes a breakdown of cohort scores for the Summary of Academic Motivation and the groups within the Motivational Assessment.

Table 10 tabulates the frequency and percentage of students scoring very low (1), low (2-3), average (4-6), high (7-8), and very high (9) on dropout proneness, predicted academic difficulty, educational stress, and receptivity to institutional help. For each of these scores, the majority of students scored in the average range. One notable difference is the percentage of students scoring in the high range (28.1 percent) on receptivity to institutional help, as compared to the other three scales.

<table>
<thead>
<tr>
<th>(Stanine Scale)</th>
<th>Dropout Proneness</th>
<th>Predicted Academic Difficulty</th>
<th>Educational Stress</th>
<th>Receptivity to Institutional Help</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number Percent</td>
<td>Number Percent</td>
<td>Number Percent</td>
<td>Number Percent</td>
</tr>
<tr>
<td>Very Low (1)</td>
<td>2 3.5</td>
<td>2 3.5</td>
<td>2 3.5</td>
<td>1 1.8</td>
</tr>
<tr>
<td>Low (2-3)</td>
<td>8 14.0</td>
<td>18 31.6</td>
<td>18 31.6</td>
<td>12 21.1</td>
</tr>
<tr>
<td>Average (4-6)</td>
<td>45 78.9</td>
<td>29 50.9</td>
<td>31 54.4</td>
<td>27 47.4</td>
</tr>
<tr>
<td>High (7-8)</td>
<td>2 3.5</td>
<td>8 14.0</td>
<td>6 10.5</td>
<td>16 28.1</td>
</tr>
<tr>
<td>Very High (9)</td>
<td>0 0.0</td>
<td>0 0.0</td>
<td>0 0.0</td>
<td>1 1.8</td>
</tr>
<tr>
<td>Total</td>
<td>57 100.0</td>
<td>57 100.0</td>
<td>57 100.0</td>
<td>57 100.0</td>
</tr>
</tbody>
</table>

Table 11 summarizes the frequency and percent of categorical rankings for each of the six CSI component measures of academic motivation, the five component measures of general coping, and the five component measures of receptivity to support services. Table 11 also includes the mean percentile rankings for this cohort.
For the academic motivation section, students ranked in the 66.7 percentile for attitude toward educators, the highest ranking in this part of the motivational assessment. They ranked the lowest (46.6) in verbal confidence. Study habits (51.3), desire to finish college (55.4), intellectual interests (57.2), and math and science confidence (57.5) mean percentiles all fell between 50 and 60. For any of the academic motivation scales in any of the categories, the highest percentage of students (45.6 percent) ranked in the high category on the measure of attitude toward educators.

Comparing general coping skills of the cohort as shown in Table 11, means were in the medium high range for family emotional support (66.9), career closure (63.5), and opinion tolerance. Sense of financial security and sociability mean percentile rankings were on the border between medium low and medium high falling at 49.5 and 47.1 respectively. The largest number of students fell in the high range of family emotional support.

Table 11 further summarizes the range of percentile rankings for the section of the CSI motivational assessment entitled receptivity to support services. As shown in this table, mean percentile rankings were somewhat lower on average for this category of the motivational assessment. On a percentile basis, students ranked at 61.5 for financial guidance and 54.5 for social enrichment. Students ranked in the upper end of the medium low category for academic assistance (46.8), personal counseling (45.4), and career counseling (43.0).
Table 11. CSI Motivational Assessment Percentile Rankings for the Cohort Group

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentiles</th>
<th>Low 1-25</th>
<th>Medium 26-50</th>
<th>Medium High 51-75</th>
<th>High 76-99</th>
<th>Mean</th>
<th>Category Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td># %</td>
<td># %</td>
<td># %</td>
<td># %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Habits</td>
<td>14</td>
<td>24.6</td>
<td>14</td>
<td>24.6</td>
<td>17</td>
<td>29.8</td>
<td>12</td>
</tr>
<tr>
<td>Intellectual Interests</td>
<td>12</td>
<td>21.1</td>
<td>10</td>
<td>17.5</td>
<td>13</td>
<td>22.8</td>
<td>22</td>
</tr>
<tr>
<td>Verbal Confidence</td>
<td>17</td>
<td>29.8</td>
<td>17</td>
<td>29.8</td>
<td>11</td>
<td>19.3</td>
<td>12</td>
</tr>
<tr>
<td>Math/Science Confidence</td>
<td>11</td>
<td>19.3</td>
<td>9</td>
<td>15.8</td>
<td>19</td>
<td>33.3</td>
<td>18</td>
</tr>
<tr>
<td>Desire to Finish College</td>
<td>12</td>
<td>21.1</td>
<td>12</td>
<td>21.1</td>
<td>19</td>
<td>33.3</td>
<td>14</td>
</tr>
<tr>
<td>Attitude Toward Educators</td>
<td>8</td>
<td>14.0</td>
<td>6</td>
<td>10.5</td>
<td>17</td>
<td>29.8</td>
<td>26</td>
</tr>
<tr>
<td>Sociability</td>
<td>19</td>
<td>33.3</td>
<td>14</td>
<td>24.6</td>
<td>10</td>
<td>17.5</td>
<td>14</td>
</tr>
<tr>
<td>Family Emotional Support</td>
<td>7</td>
<td>12.3</td>
<td>9</td>
<td>15.8</td>
<td>18</td>
<td>31.6</td>
<td>23</td>
</tr>
<tr>
<td>Opinion tolerance</td>
<td>16</td>
<td>28.1</td>
<td>13</td>
<td>22.8</td>
<td>11</td>
<td>19.3</td>
<td>17</td>
</tr>
<tr>
<td>Career Closure</td>
<td>6</td>
<td>10.5</td>
<td>9</td>
<td>15.8</td>
<td>21</td>
<td>36.8</td>
<td>21</td>
</tr>
<tr>
<td>Sense of Financial Security</td>
<td>13</td>
<td>22.8</td>
<td>19</td>
<td>33.3</td>
<td>9</td>
<td>15.8</td>
<td>16</td>
</tr>
<tr>
<td>Academic Assistance</td>
<td>17</td>
<td>29.8</td>
<td>13</td>
<td>22.8</td>
<td>17</td>
<td>29.8</td>
<td>10</td>
</tr>
<tr>
<td>Personal Counseling</td>
<td>15</td>
<td>26.3</td>
<td>25</td>
<td>43.9</td>
<td>10</td>
<td>17.5</td>
<td>7</td>
</tr>
<tr>
<td>Social Enrichment</td>
<td>14</td>
<td>24.6</td>
<td>8</td>
<td>14.0</td>
<td>18</td>
<td>31.6</td>
<td>17</td>
</tr>
<tr>
<td>Career Counseling</td>
<td>25</td>
<td>43.9</td>
<td>9</td>
<td>15.8</td>
<td>11</td>
<td>19.3</td>
<td>12</td>
</tr>
<tr>
<td>Financial Guidance</td>
<td>6</td>
<td>10.5</td>
<td>13</td>
<td>22.8</td>
<td>15</td>
<td>26.3</td>
<td>23</td>
</tr>
</tbody>
</table>
Cumulative college GPA after the fall semester of 2004, spring semester of 2005, and fall semester of 2005 is presented in Table 12. The mean GPA for these students after their first semester was 2.81. After two semesters the cumulative college GPA had increased slightly to 2.84, and after three semesters had further increased to 2.86.

Table 12. Cumulative College GPA for the Cohort Group for Three Semesters

<table>
<thead>
<tr>
<th>Range</th>
<th>Fall 2004</th>
<th></th>
<th>Spring 2005</th>
<th></th>
<th>Fall 2005</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>&lt;2.0</td>
<td>6</td>
<td>10.53</td>
<td>6</td>
<td>10.53</td>
<td>3</td>
<td>5.26</td>
</tr>
<tr>
<td>2.0-2.49</td>
<td>13</td>
<td>22.81</td>
<td>9</td>
<td>15.79</td>
<td>7</td>
<td>12.28</td>
</tr>
<tr>
<td>2.5-2.99</td>
<td>14</td>
<td>24.56</td>
<td>15</td>
<td>26.32</td>
<td>13</td>
<td>22.81</td>
</tr>
<tr>
<td>3.0-3.49</td>
<td>14</td>
<td>24.56</td>
<td>12</td>
<td>21.05</td>
<td>8</td>
<td>14.04</td>
</tr>
<tr>
<td>3.5-4.0</td>
<td>10</td>
<td>17.54</td>
<td>10</td>
<td>17.54</td>
<td>8</td>
<td>14.04</td>
</tr>
</tbody>
</table>

Minimum 1.24 1.13 1.83
Maximum 4.00 3.96 3.89
Mean 2.81 2.84 2.86
N 57 52 39

For a summary of significant results of objective one, refer to Chapter Five.

Explanatory Style

The purpose of objective two was to measure the explanatory style of College of Agriculture freshmen. To do this, the Academic Attributional Style Questionnaire (AASQ) was administered. Participants were given the option to receive a printout and brief description of their results. (See Appendix C for a results form.) Of this group, only 14 percent took advantage of this offer, while 86 percent declined. The AASQ was administered on the World Wide Web and using a paper copy. Just over 26 percent (26.3
percent) participants took the survey on paper and 42 (73.7 percent) took the AASQ via the Web.

Table 13 condenses participant scores on the Academic Attributional Style Questionnaire (AASQ) showing the mean composite score and means for each dimension. The personalization (B) score is a measure of the internal versus external dimension. The permanence (C) score represents the stable versus unstable dimension and the pervasiveness (D) score measures the global/specific dimension. The composite score is an average of the three dimensional scores and identifies an individual’s explanatory style as either optimistic or pessimistic. An optimistic explanatory style is represented by a lower score, explaining bad events more externally, unstable, and specific. On the other hand, if an individual attributes causes for bad events with a more pessimistic explanatory style, those causes tend to be more internal, stable and global. Subsequently, that individual would have a higher score. Ritchie (1999) classified an optimistic explanatory style score as less than 3.5 and a pessimistic explanatory style score as greater than 5.0. See also the definition of explanatory style in Chapter One, Table 1, and the discussion concerning the AASQ in Chapters Two and Three.

Table 13. Mean AASQ Scores for the Cohort Group

<table>
<thead>
<tr>
<th>AASQ Score</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>AASQ Personalization (B)</td>
<td>5.3</td>
</tr>
<tr>
<td>AASQ Permanence (C)</td>
<td>3.8</td>
</tr>
<tr>
<td>AASQ Pervasiveness (D)</td>
<td>3.7</td>
</tr>
<tr>
<td>AASQ Composite</td>
<td>4.3</td>
</tr>
</tbody>
</table>
Only 3.5 percent students scored less than 3.5 for the personalization (B Score) dimension while the majority (63.2 percent) favored a more internal perspective. See Figure 10. Referring back to Table 13, the mean personalization score was 5.3, or more internal.

Figure 10. Range of AASQ Scores for the Personalization (Internal/External) Dimension of Explanatory Style among the Cohort Group

Figure 11 represents the frequency and percent for the range of scores along the stable versus unstable (permanence) dimension. About 40 percent (40.4 percent) scored less than 3.5 (less stable) while 42.1 percent scored between 3.5 and 5.0. Between 17 percent and 18 percent (17.5 percent) of the scores were greater than 5.0 (more permanent or unstable). Referring again to Table 13 shows the mean score for permanence was 3.8.
Comparing scores for pervasiveness (global or specific) shows the vast majority scored below a 5.0, with 43.9 percent scoring between 3.5 and 5.0 and 40.4 percent of the scores less than 3.5. Only 15.8 percent of the scores were greater than 5.0. Students’ attributions for bad academic events were generally more specific. See Figure 12. The mean pervasiveness score was 3.7 (Table 13).
The AASQ composite scores illustrated by Figure 13 revealed a large majority of participants neither optimistic nor pessimistic in their views of negative academic events, with the mean AASQ composite score landing at 4.3 (Table 13). Six (10.5 percent) individuals demonstrated an optimistic explanatory style and six showed a pessimistic explanatory style. The remaining 78.9 percent scored between 3.5 and 5.0.
Figure 13. Range of AASQ Composite Scores for the Cohort Group

For a summary of significant results of objective two, refer to Chapter Five.

Relationships

The aim of objective three was to determine what kind of relationships may exist between explanatory style as measured by the AASQ and certain background characteristics, including high school GPA, ACT, and SAT scores. The objective was to further determine the nature and extent of the relationship that may exist between explanatory style and academic performance in college as evaluated by cumulative
college GPA. Finally, AASQ scores were compared to various measures of the College Student Inventory (CSI).

Data presented in Table 14 represents the relationship between the personalization, permanence, pervasiveness, and composite scores of the AASQ and test scores from the ACT and SAT exams. No significant correlations between AASQ scores and ACT scores emerged (AASQ B Personalization, \( p=0.180 \); AASQ C Permanence, \( p=0.531 \); AASQ D Pervasiveness, \( p=0.471 \); AASQ Composite, \( p=0.524 \)), nor were any relationships between AASQ scores and SAT scores significant (AASQ B Personalization, \( p=0.330 \); AASQ C Permanence, \( p=0.633 \); AASQ D Pervasiveness, \( p=0.445 \); AASQ Composite, \( p=0.807 \)).

Table 14. Correlation of AASQ Scores with ACT and SAT Composite Scores of the Cohort Group

<table>
<thead>
<tr>
<th></th>
<th>ACT Composite</th>
<th>SAT Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td>AASQ B Personalization</td>
<td>Corr. 0.201</td>
<td>Corr. 0.208</td>
</tr>
<tr>
<td></td>
<td>Sig. 0.180</td>
<td>Sig. 0.330</td>
</tr>
<tr>
<td></td>
<td>N 46</td>
<td>24</td>
</tr>
<tr>
<td>AASQ C Permanence</td>
<td>Corr. -0.095</td>
<td>Corr. -0.103</td>
</tr>
<tr>
<td></td>
<td>Sig. 0.531</td>
<td>Sig. 0.633</td>
</tr>
<tr>
<td></td>
<td>N 46</td>
<td>24</td>
</tr>
<tr>
<td>AASQ D Pervasiveness</td>
<td>Corr. 0.109</td>
<td>Corr. -0.164</td>
</tr>
<tr>
<td></td>
<td>Sig. 0.471</td>
<td>Sig. 0.445</td>
</tr>
<tr>
<td></td>
<td>N 46</td>
<td>24</td>
</tr>
<tr>
<td>AASQ Composite</td>
<td>Corr. 0.096</td>
<td>Corr. -0.053</td>
</tr>
<tr>
<td></td>
<td>Sig. 0.524</td>
<td>Sig. 0.807</td>
</tr>
<tr>
<td></td>
<td>N 46</td>
<td>24</td>
</tr>
</tbody>
</table>

- Pearson Correlation

*Correlation is significant at the 0.05 level (2-tailed).
Table 15 is a representation of correlations between AASQ scores and high school GPA. Of significance, high school GPA demonstrated a small, negative relationship ($r=-0.277, p=0.037$) with the stable versus unstable, or permanence dimension. As high school GPA increased, students attributed more unstable causes to negative events. Refer back to Table 1 and the definition of explanatory style for an example.

Table 15. Correlation of AASQ Scores with High School GPA of the Cohort Group

<table>
<thead>
<tr>
<th>AASQ Score</th>
<th>High School GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>AASQ Personalization (B)</td>
<td>Corr. 0.085</td>
</tr>
<tr>
<td></td>
<td>Sig. 0.530</td>
</tr>
<tr>
<td></td>
<td>N 57</td>
</tr>
<tr>
<td>AASQ Permanence (C)</td>
<td>Corr. -0.277*</td>
</tr>
<tr>
<td></td>
<td>Sig. 0.037</td>
</tr>
<tr>
<td></td>
<td>N 57</td>
</tr>
<tr>
<td>AASQ Pervasiveness (D)</td>
<td>Corr. -0.164</td>
</tr>
<tr>
<td></td>
<td>Sig. 0.222</td>
</tr>
<tr>
<td></td>
<td>N 57</td>
</tr>
<tr>
<td>AASQ Composite</td>
<td>Corr. -0.220</td>
</tr>
<tr>
<td></td>
<td>Sig. 0.101</td>
</tr>
<tr>
<td></td>
<td>N 57</td>
</tr>
</tbody>
</table>

- Pearson Correlation
*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).

Summarized in Table 16 are Pearson correlations between the three scores of the explanatory style dimensions and the composite score of the AASQ, and the four variables included within the Summary of Academic Motivation on the CSI. No significant correlations were found between explanatory style scores and these CSI summary scales. However, a small relationship that approached the 0.05 significance
level \((r=0.241, \ p=0.070)\) was evidenced between dropout proneness and the stable versus unstable (permanence) dimension of explanatory style.

Table 16. Correlations between AASQ Scores and the CSI Summary of Academic Motivation for the Cohort Group

<table>
<thead>
<tr>
<th></th>
<th>College Student Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dropout Proneness</td>
</tr>
<tr>
<td>AASQ Personalization (B)</td>
<td>Corr.</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>AASQ Permanence (C)</td>
<td>Corr.</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>AASQ Pervasiveness (D)</td>
<td>Corr.</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>AASQ Composite</td>
<td>Corr.</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
</tbody>
</table>

- Pearson Correlation
*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).

Data tabulated in Table 17 represents the Pearson correlations for AASQ scores and the measures of academic motivation on the CSI. When comparing these scores, a low, negative correlation was significant for the internal versus external (personalization) dimension and study habits \((r=-0.352, \ p=0.007)\). The study habits measure evaluates a student’s time and effort put toward studying. A negative correlation between study...
habits and personalization indicates that when a student puts more effort into studying, they attribute causes of bad academic events to external sources. On the other hand, students are more likely to blame themselves for negative academic situations when they exert less effort in academics. While no other significant correlations were found at the $p<0.05$ level, intellectual interests demonstrated a weak, negative correlation ($r=-0.225$) with a significance level of $p=0.093$ for the personalization dimension.

Table 17 further summarizes the relationships between AASQ scores and CSI measures of general coping. Sociability showed significant positive relationships at the $p<0.05$ level between the pervasiveness dimension of explanatory style ($r=0.300$) and the AASQ composite score ($r=0.291$). Sociability is a measure of a student’s desire for social entertainment and friendships. Ranking higher in sociability means a student wants to spend a great deal of time with other people. The positive correlations between the AASQ scores and this scale indicates that as students had a greater desire to be sociable, they also explained academic setbacks more globally and overall more pessimistically. Conversely, a student with less motivation to interact with other people had a more optimistic explanatory style for bad academic situations.

After examining the correlations between AASQ scores and receptivity to support services measured by the CSI shown in Table 17, one significant relationship emerged. Personalization was found to be positively correlated to openness to financial guidance ($r=0.352$, $p=0.007$). As this group of students turned causes for negative educational situations inward, they also tended to indicate more receptiveness to receiving guidance concerning financial resources for college. This could also be explained the opposite
way. As students attributed causes of bad academic events to more external sources, they also demonstrated lower receptivity to financial support services.

### Table 17. Correlations between AASQ Scores and the CSI Motivational Assessment Measures for the Cohort Group

<table>
<thead>
<tr>
<th>N=57</th>
<th>AASQ (B) Personalization</th>
<th>AASQ (C) Permanence</th>
<th>AASQ (D) Pervasiveness</th>
<th>AASQ Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Habits</td>
<td>-0.352**</td>
<td>0.007</td>
<td>-0.073</td>
<td>0.588</td>
</tr>
<tr>
<td>Intellectual Interests</td>
<td>-0.225</td>
<td>0.093</td>
<td>0.011</td>
<td>0.937</td>
</tr>
<tr>
<td>Verbal Confidence</td>
<td>-0.189</td>
<td>0.159</td>
<td>-0.182</td>
<td>0.175</td>
</tr>
<tr>
<td>Math and Science Confidence</td>
<td>-0.137</td>
<td>0.310</td>
<td>0.132</td>
<td>0.328</td>
</tr>
<tr>
<td>Desire to Finish College</td>
<td>-0.036</td>
<td>0.792</td>
<td>-0.206</td>
<td>0.123</td>
</tr>
<tr>
<td>Attitude Toward Educators</td>
<td>0.002</td>
<td>0.991</td>
<td>0.055</td>
<td>0.684</td>
</tr>
<tr>
<td>Sociability</td>
<td>0.074</td>
<td>0.586</td>
<td>0.128</td>
<td>0.343</td>
</tr>
<tr>
<td>Family Emotional Support</td>
<td>-0.075</td>
<td>0.579</td>
<td>0.032</td>
<td>0.813</td>
</tr>
<tr>
<td>Opinion Tolerance</td>
<td>0.061</td>
<td>0.652</td>
<td>-0.035</td>
<td>0.794</td>
</tr>
<tr>
<td>Career Closure</td>
<td>-0.130</td>
<td>0.335</td>
<td>-0.120</td>
<td>0.374</td>
</tr>
<tr>
<td>Sense of Financial Security</td>
<td>-0.060</td>
<td>0.656</td>
<td>0.050</td>
<td>0.712</td>
</tr>
<tr>
<td>Academic Assistance</td>
<td>-0.079</td>
<td>0.561</td>
<td>0.020</td>
<td>0.882</td>
</tr>
<tr>
<td>Personal Counseling</td>
<td>0.131</td>
<td>0.331</td>
<td>-0.045</td>
<td>0.741</td>
</tr>
<tr>
<td>Social Enrichment</td>
<td>0.067</td>
<td>0.618</td>
<td>0.028</td>
<td>0.838</td>
</tr>
<tr>
<td>Career Counseling</td>
<td>0.125</td>
<td>0.356</td>
<td>-0.149</td>
<td>0.268</td>
</tr>
<tr>
<td>Financial Guidance</td>
<td>0.352**</td>
<td>0.007</td>
<td>-0.024</td>
<td>0.862</td>
</tr>
</tbody>
</table>

- Pearson Correlation

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

Correlations between AASQ scores and cumulative college GPA for the fall 2004, spring 2005, and fall 2005 semesters are depicted in Table 18. No significant relationships existed at the $p<0.05$ level. However, the first semester GPA showed a negative correlation ($r=-0.235$) with a significance value of $p=0.078$ between the AASQ composite score. It should be noted that the cohort size decreases as students are no longer enrolled in the College of Agriculture.
Table 18. Correlations between AASQ Scores and Cumulative College GPA

<table>
<thead>
<tr>
<th></th>
<th>Fall 2004 Cumulative GPA</th>
<th>Spring 2005 Cumulative GPA</th>
<th>Fall 2005 Cumulative GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>AASQ Personalization (B)</td>
<td>Corr. -0.018</td>
<td>0.051</td>
<td>0.085</td>
</tr>
<tr>
<td></td>
<td>Sig. 0.897</td>
<td>0.722</td>
<td>0.606</td>
</tr>
<tr>
<td></td>
<td>N 57</td>
<td>52</td>
<td>39</td>
</tr>
<tr>
<td>AASQ Permanence (C)</td>
<td>Corr. -0.192</td>
<td>-0.187</td>
<td>-0.007</td>
</tr>
<tr>
<td></td>
<td>Sig. 0.153</td>
<td>0.183</td>
<td>0.965</td>
</tr>
<tr>
<td></td>
<td>N 57</td>
<td>52</td>
<td>39</td>
</tr>
<tr>
<td>AASQ Pervasiveness (D)</td>
<td>Corr. -0.190</td>
<td>-0.123</td>
<td>-0.063</td>
</tr>
<tr>
<td></td>
<td>Sig. 0.158</td>
<td>0.385</td>
<td>0.701</td>
</tr>
<tr>
<td></td>
<td>N 57</td>
<td>52</td>
<td>39</td>
</tr>
<tr>
<td>AASQ Composite</td>
<td>Corr. -0.235</td>
<td>-0.163</td>
<td>0.008</td>
</tr>
<tr>
<td></td>
<td>Sig. 0.078</td>
<td>0.249</td>
<td>0.960</td>
</tr>
<tr>
<td></td>
<td>N 57</td>
<td>52</td>
<td>39</td>
</tr>
</tbody>
</table>

- Pearson Correlation

*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).

Predicting Attrition

For the cohort beginning college in the fall of 2004, 91.2 percent were retained within the College of Agriculture through the spring semester of 2005. Just over 68 percent (68.4 percent) met this study’s definition of retention and were still enrolled in the College of Agriculture by the following fall semester of 2005. See Table 19.

Table 19. Cohort Retention Rates

<table>
<thead>
<tr>
<th>Cohort Retention</th>
<th>Retained Through Spring 2005</th>
<th>52</th>
<th>91.2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retained Through Fall 2005</td>
<td>39</td>
<td></td>
<td>68.4%</td>
</tr>
</tbody>
</table>
Each of the fifteen category one independent variables was correlated with the dependent variable retained to fall 2005. The variables were then ranked according to the strength of correlation as presented in Table 20. Only spring 2005 cumulative GPA was significantly correlated with the cohort retention rate ($r=0.311$, $p=0.025$). The correlation was low.

Table 20. Correlations to Retention through Fall of 2005 of the Cohort Group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>Retained To Fall 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2005 Cumulative GPA</td>
<td>0.311*</td>
<td>0.025</td>
<td>0.311</td>
</tr>
<tr>
<td>Plans To Work</td>
<td>0.205</td>
<td>0.125</td>
<td></td>
</tr>
<tr>
<td>HS Size</td>
<td>-0.133</td>
<td>0.325</td>
<td></td>
</tr>
<tr>
<td>High School Agriculture Class</td>
<td>-0.121</td>
<td>0.371</td>
<td></td>
</tr>
<tr>
<td>Ethnic Origin</td>
<td>0.113</td>
<td>0.404</td>
<td></td>
</tr>
<tr>
<td>Degree Sought</td>
<td>0.108</td>
<td>0.425</td>
<td></td>
</tr>
<tr>
<td>High School GPA</td>
<td>0.104</td>
<td>0.442</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0.097</td>
<td>0.472</td>
<td></td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (2-tailed).
Table 20-continued. Correlations to Retention through Fall of 2005 of the Cohort Group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>Retained To Fall 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2004 Cumulative GPA</td>
<td>0.097</td>
<td>0.471</td>
<td>57</td>
</tr>
<tr>
<td>FFA Membership</td>
<td>-0.092</td>
<td>0.497</td>
<td>57</td>
</tr>
<tr>
<td>Decision to Enroll</td>
<td>-0.091</td>
<td>0.502</td>
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</tr>
<tr>
<td>4-H Membership</td>
<td>-0.073</td>
<td>0.587</td>
<td>57</td>
</tr>
<tr>
<td>Mother's Education</td>
<td>-0.044</td>
<td>0.747</td>
<td>57</td>
</tr>
<tr>
<td>ACT Composite Score</td>
<td>-0.036</td>
<td>0.811</td>
<td>46</td>
</tr>
<tr>
<td>Father's Education</td>
<td>0.025</td>
<td>0.851</td>
<td>57</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (2-tailed).

The variables of interest included in this analysis were based on research found in the literature on overall student retention and specifically in relationship to persistence of agriculture students. In addition, the decision to include variables thought to have important influences on student retention was based on screening for multicollinearity. The strength of correlations and tolerance values were used as criteria for including or eliminating variables. Variables with tolerance levels less than 0.500 were eliminated. The linear combination of spring 2005 cumulative GPA, expected range of hours per week a student planned to work, high school agriculture class enrollment, and degree sought was found to be significantly related to student retention, $F(4,47)=2.760$, $p=0.038$. This model explained about 19 percent ($r^2=0.190$) of the cohort’s retention.
rate. By itself, spring 2005 cumulative GPA was able to explain 9 percent of the variance in the dependent variable, retained to fall 2005, the largest amount by a wide margin. Degree sought was able to explain the next largest amount of variance (5 percent), followed by the range of hours the student planned to work per week (3.5 percent), and enrollment in a high school agriculture class (2 percent).

Spring 2005 GPA, hours planned to work per week, and degree sought were all positively correlated with retention. In other words, students that were retained had higher GPAs, planned to work more hours per week, and intended to seek a higher level of degree attainment. Enrollment in an agriculture class was negatively correlated for this cohort indicating that those students who were in a high school agriculture class were more likely to not be enrolled in the College of Agriculture for a second fall semester.

The second model examined the ability of the explanatory style scores to predict attrition for this cohort. This linear combination of independent variables could only explain about 4 percent \( (r^2 = 0.040) \) of attrition and this explanation was not significantly better than random chance \( (F(3, 53) = 0.745, p = 0.530) \).

Category three variables included the four stanine measures and the 16 percentile rankings of the College Student Inventory. A bivariate Pearson’s correlation matrix between the category three variables and the variable retained to fall 2005 was constructed. The independent variables were then ranked according to the strength of their Pearson correlation coefficients. The correlations between the CSI measures and retained to fall 2005 were relatively weak to negligible, ranging from \( r = -0.202 \) for opinion tolerance to \( r = 0.138 \) for dropout proneness. None of the correlations were
significant \( p<0.05 \). Independent sample t-tests were conducted to compare the means of the retained versus not retained groups and no significant differences emerged at a \( p<0.05 \) alpha level.

The positive correlation for dropout proneness was unexpected. This scale measures a “student’s overall inclination to drop out of school before finishing a degree” (U.S.A. Group Noel-Levitz, 2001, p.11). Taken at face value, the positive correlation indicated that for this cohort, as dropout proneness increased, students were more likely to be retained. However, dropout proneness refers to leaving the university altogether. The definition of retention used in this study was enrollment in the College of Agriculture. Therefore, students who simply switched majors were included within the group of students not retained. A review of the enrollment history for that group revealed that eight students in this cohort switched their majors from the College of Agriculture to another college at MSU over the course of this study.

Based on the extremely weak correlations with retained to fall 2005, seven variables were not included in the original entered multiple regression. No linear combinations of the remaining variables were able to predict retention better than chance. The closest combination to being statistically significant at the \( p<0.05 \) level included the measures of opinion tolerance, family emotional support, dropout proneness, and intellectual interests \( r^2=0.145; F(4,52)=2.205, p=0.081 \). Many of these CSI measures were significantly correlated with each other implicating overlap in unique contributions to variance in retention (tolerance).
Potential of the Academic Attributional Style Questionnaire

The fifth objective of this study was to determine the potential for using the AASQ to identify students at-risk for attrition. To accomplish this, four questions were posed:

1. The literature has identified grades as a predictor and risk factor for attrition. For this cohort, first year cumulative GPA was the only independent variable statistically correlated with retention. Did the scores from the AASQ predict variance in first year GPA any better than chance?

2. The literature and the CSI have identified the following variables as important risk factors for attrition: high school grades, desire to finish college, sense of financial security, intellectual interests, parental education, degree aspirations, family emotional support, study habits, receptivity to social enhancement, and receptivity to academic assistance. Were the scores from the AASQ significantly correlated with any of these measures?

3. Were the mean scores on the AASQ for retained students significantly different than those for the non-retained students?

4. Did the scores from the AASQ explain variance in attrition rate any better than chance?

The AASQ scores were only able to account for 3.6 percent of the variance in spring 2005 GPA and that was no better than chance ($r^2 = 0.036; F(3,48) = 0.597, p=0.620$). High school GPA demonstrated a low, negative correlation with the stable
versus unstable dimension of the AASQ \((r=-0.277, p=0.037)\). As high school GPA increased, explanations for bad academic events tended to be more unstable, or less permanent. Study habits also showed a negative, but slightly stronger correlation with the personalization dimension \((r=-0.352, p=0.007)\). This measure focuses on the amount of effort the student is willing to put forth to reach academic success (USA Group Noel-Levitz, 2001). The negative correlation implies that a student who puts more effort into his/her education tends to explain adverse academic situations with more external attributions. Though not statistically different, the mean scores for retained students in this cohort were more internal, less permanent, more pervasive, and slightly more pessimistic. Finally, as noted in the previous section, the AASQ scores were unable to predict variance in retention rates any better than chance.
CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

The purpose of this study was to determine the relationship of explanatory style to academic performance, SAT or ACT composite scores, College Student Inventory (CSI) data, and retention or attrition of Montana State University College of Agriculture students.

The specific objectives of this study were to:

(1) Develop a preliminary description of College of Agriculture freshmen at Montana State University based on College Student Inventory data and demographic variables identified in the literature as important to College of Agriculture students’ persistence;

(2) Identify the explanatory style of freshmen in the College of Agriculture at Montana State University;

(3) Determine the nature and extent of the relationship between explanatory style and high school grade point average (GPA), cumulative college GPA, ACT or SAT composite scores, and College Student Inventory (CSI) data;

(4) Test the predictive capability of measured independent variables to anticipate first to second year attrition of freshmen in the College of Agriculture at Montana State University; and

(5) Ascertain the potential for using the Academic Attributional Style Questionnaire (AASQ) to identify College of Agriculture students most
susceptible to attrition during their freshmen year at Montana State University (MSU).

This section will discuss conclusions, implications, recommendations, and recommendations for further study that have been drawn after conducting this research study.

Conclusions

The data analyzed for this study allowed the researcher to make the subsequent inferences concerning this cohort of first-time, full time freshmen MSU College of Agriculture students, attrition of agriculture students, explanatory style and the College Student Inventory:

1. The purpose of objective one was to develop a description of freshmen entering the College of Agriculture in the fall of 2004. For the cohort, some notable background characteristic descriptions include:
   a. The cohort breakdown by gender showed there were more females than males. The group of first-time, full-time freshmen entering the College of Agriculture at the same time had an equal number of females and males.
   b. The ethnic origin of the cohort was overwhelmingly white/Caucasian.
   c. Mothers tended to be more highly educated than fathers.
   d. A majority of students had some education in agriculture before enrolling in the College of Agriculture at MSU.
e. A majority of students were involved in FFA and a higher percentage were involved in 4-H. A fair number of students were involved in both organizations.

f. Most of the students in this cohort graduated from high schools with less than 400 students.

g. The high school GPA for this group of students was relatively high with almost half (49.12 percent) over a 3.5.

h. Over half of the students intended to seek a graduate degree.

2. The College Student Inventory provided the following significant descriptions of the cohort:

a. More students in the cohort ranked at average or low for dropout proneness, predicted academic difficulty and educational stress. More students also ranked average to high in receptivity to institutional help. Compared to the national norm, this group is generally less worried about their education, less susceptible to attrition, and less likely to experience academic challenges in college. Additionally, the cohort group is relatively more amenable to intervention and assistance in areas such as career counseling, personal counseling, social enrichment, academic assistance, and financial guidance.

b. The average rankings of the cohort for the primary groups within the CSI Motivational Assessment fell between the 50th and 60th percentile compared to the national norms.
c. A greater number of students ranked medium high or high for intellectual interests, attitude toward educators, family emotional support, and career closure. Compared to the national norm, this cohort is interested in academic pursuits, favorably views teachers and educational staff, and overall feels comfortable with the level of communication, respect and support shown by their families. This group is also relatively committed to their academic path and has more clearly defined career aspirations and goals. For desire to finish college a similar result was shown and a comparable conclusion can be made. This group values a college education and expressed a strong interest in persisting to graduation.

d. The measures of verbal confidence and confidence in math and science provided a stark contrast. When it comes to self-esteem related to reading, writing, and public speaking more students ranked in the low and medium low percentiles, indicating that this group is somewhat uncomfortable with verbally-related course work. Conversely, a much larger number of students ranked in the high and medium high percentiles for math and science confidence.

e. Compared to national rankings, the cohort group was less open to personal or career counseling, but was more receptive to learning about ways to interact with other students and become involved in social activities. Also, a greater number of students in the cohort ranked in the medium
high and high percentiles for financial guidance, indicating a strong interest in receiving assistance on financial matters.

3. The explanatory style for the vast majority of this cohort was neither optimistic nor pessimistic. Overall, explanations for bad academic events were slightly more internal, mid-range to more unstable, and mid-range to more specific.

4. When analyzing the relationships between explanatory style, the College Student Inventory, academic performance and background characteristics, three correlations were not significant at the $p<0.05$ level, but with a larger cohort size might demonstrate a statistically significant relationship:
   a. Dropout proneness and the stable versus unstable (permanence) dimension of explanatory style evidenced a weak, positive correlation ($r=0.241$, $p=0.070$).
   b. A weak, negative, relationship ($r=-0.225$, $p=0.093$) between intellectual interests and the personalization (internal versus external) dimension of explanatory style was demonstrated.
   c. Similarly, the correlation between AASQ composite score and first semester college GPA was negative and weak ($r=-0.235$, $p=0.078$).

5. The only independent variable significantly correlated with retention was second semester cumulative GPA.

6. For the background characteristics, performance, and college experience predictive model, the inclusion of cumulative GPA, high school agriculture
class enrollment, plans to work and degree aspirations conformed to the literature. However, the negative correlation between high school agriculture class enrollment and agriculture student retention among this cohort group was contrary to what the literature has suggested (Abbasi, 1989; Dyer, Breja, & Andreason, 1999; Dyer, Breja, & Wittler, 2000; Dyer, Lacey, & Osborne, 1996).

7. Explanatory style by itself demonstrated no significant capability for accurately identifying students who dropped out. This result agreed with Welter (2002), but was contrary to the results described by Schulman (1995) concerning drop-outs from West Point. It was also contrary to the major life insurance sales study conducted by Seligman and Schulman (1986).

8. The CSI measures also failed to produce a significant model for attrition.

9. The AASQ appeared to have little value for predicting whether students in this cohort would continue enrollment in the College of Agriculture for a second fall semester. For this cohort, the AASQ would not have accurately flagged those students most at-risk for attrition.

10. Interestingly, a positive correlation existed between retention of the cohort group in the College of Agriculture and the dropout proneness score of the CSI. Students with higher dropout proneness scores were more likely to be retained. However, as previously mentioned, dropout proneness refers to leaving the university altogether while this study defined retention as enrollment within the College of Agriculture and did not consider a student as
retained if he/she switched to a major outside the college but still at MSU.

Further caution is warranted in interpreting this score, as indicated by U.S.A. Group Noel-Levitz (2001):

While predictiveness should increase when dropout is studied over time, there are still many mediating factors in predicting this behavior with a high degree of accuracy. For this reason, students with high scores on dropout proneness should be considered as having a pattern of intellectual and motivational traits that is loosely associated with dropping out, but which may or may not lead to actual dropout in any given case. (p.11)

Implications

The results of this study suggest the following implications:

1. Participating in a high school agriculture curriculum has been shown to be important for choosing an agriculture major and graduating with an agriculture degree (Dyer, Breja, & Andreason, 1999; Dyer, Lacey, & Osborne, 1996). A further review of the literature reveals that a high school agriculture class experience is important to retention of agriculture students (Abbasi, 1989; Dyer, Breja, & Wittler, 2000). Additionally, Dyer, Breja, and Andreason (1999) found that a student’s high school agriculture instructor was the most influential person on that student’s decision to choose an agriculture major. The results of this study imply similar connections to enrollment, but differing implications for retention. A large number of students with secondary agricultural education backgrounds are enrolling in the College of Agriculture, suggesting that recruiting students from high school agriculture programs would be advantageous for curricula within the College of
Agriculture at MSU. However, the negative correlation between high school agriculture class participation and retention implies that those students are not staying within the College of Agriculture.

2. Tinto (1975, 1993), among others, argues that involvement in the social and academic environments of college is a vital component of a student’s withdrawal decision. Dyer, Breja, and Wittler (2000) implicated 4-H and FFA involvement in successful completion of an agriculture degree. Ball, Garton, and Dyer (2001) demonstrated that those students involved in FFA and 4-H had better college grades and higher retention rates than those not involved in these student organizations. (See also Dyer, Lacey, & Osborne 1996.) Furthermore, the College of Agriculture at MSU has numerous student organizations, including a collegiate 4-H Club and a collegiate FFA Chapter (Montana State University, 2006, College of Agriculture). This cohort did not demonstrate the same relationship between involvement in 4-H and FFA and retention; however, the results indicated that a majority of students were involved in either 4-H or FFA. Wildman & Torres (2001) found that 4-H and FFA involvement influenced a student’s choice of an agriculture major. This study does suggest involvement may be a factor in choosing an agriculture major.

3. The sizeable number of students (82.5 percent) that intend to work while in college suggests that financial concerns are of importance to these students. The mean percentile ranking for this cohort’s sense of financial security was
49.5 which supports this conclusion. Students were fairly open to financial
guidance with a mean percentile ranking of 61.5. The College of Agriculture
is known for providing a large number of scholarship dollars per capita
(Montana State University, College of Agriculture: Students, 2005). For the
fall 2006, spring 2007 academic year, the College of Agriculture awarded
$245,000 incorporated into 151 scholarships, more than any other college at
MSU (R. Gough, personal communication, April 11, 2006). These results
indicate a connection may exist between available funding sources and
College of Agriculture enrollment.

4. Both the CSI and the AASQ provide various dimensions and perspectives of
an individual student. The aim of these measures is to assist the individual in
achieving success in college. Aggregating and comparing these measures on a
college-wide basis is useful, but as a primary aim of tools such as the CSI,
helping individual students realize their college goals should not be
overlooked. The same is true for the AASQ and explanatory style. While the
results of this study lend little support to the value of explanatory style for
predicting attrition of College of Agriculture students, the review of the
literature and the correlations that did exist for this cohort signify potential
value of the AASQ as an advising tool for individual students.

5. While a large volume of research has been conducted concerning retention
and attrition of college students, very little has been done examining this topic
specifically in relationship to college of agriculture students. None has been
conducted at Montana State University within the College of Agriculture. Even though the results of this study are statistically only applicable to this particular cohort, they provide a foundation and a starting point for future retention research in the College of Agriculture at MSU and within other post-secondary agriculture academic institutions.

**Recommendations**

Based on the review of the literature, and collection and evaluation of the data, the researcher makes the following recommendations:

1. The researcher recommends that open and accessible lines of communication must be established and actively maintained between advisors, faculty, administrators, and student affairs personnel. The execution and results of this study, and the extensive volumes of retention literature, clearly show that retention of college students must be a university-wide, teamwork effort.

   Retention is an institutional performance indicator. It’s a measure of how much student growth and learning takes place. It’s a measure of how valued and respected students feel on your campus. It’s a measure of how effectively your campus delivers what students expect, need and want. In other words, retention is a measure of your overall “product.” And that makes retention everyone’s business. (Levitz & Noel, 2000, p. 1)

2. The results of this study should be used to begin development of a comprehensive strategic retention plan for the College of Agriculture that incorporates both academic and student affairs perspectives. The basic plan outline should consist of a mission statement, values defined according to the
College of Agriculture and MSU, specific objectives, and ways and means for accomplishing those objectives. The researcher recommends the establishment of a retention task force comprised of all affected stakeholders, including faculty, staff, administration, student affairs personnel, alumni, students, and agriculture industry representatives. A thorough needs assessment should first be conducted using the results of this study as a starting point. Elements of the needs assessment should include discovery of reasons students choose a major within the MSU College of Agriculture as well as identification of why students choose to leave. Strengths and weaknesses of the College of Agriculture should be identified and documented. Retention should be considered from an institutional standpoint in addition to an individual student’s point of view, incorporating strategies directed at first to second year retention and persistence to graduation. Targeted retention goals for gender, ethnic background, Montana county, state and country of origin should be established. A user-friendly, low-maintenance method for tracking students throughout their college experience at MSU and within the College of Agriculture should be created as a tool for coordinating the strategic plan. Other factors for consideration include: use of the College Student Inventory; faculty and staff involvement and collaboration; academic advising programs and methods; establishing partnerships and retention work groups with other colleges at MSU; filling the gaps between recruiting expectations and retention; scholarships and financial
assistance; agricultural literacy; student research opportunities; and student
and faculty involvement in clubs and organizations.

3. Pascarella and Terenzini (1980) identified student-faculty relationships as an
important factor in student persistence. Tinto’s (1975, 1993) model placed
faculty/staff interactions in the academic system of institutional experiences as
one of two means of academic integration; integration, or lack thereof, being
the pivotal step toward a departure decision. Astin (1993) implicates
relationships with faculty as one of four critical areas of measuring student
satisfaction and includes degree of faculty interest in students and
student/administration relationships in rating a student’s perception of the
college environment. Miller and Noel-Levitz (2005) implicate receptivity to
academic assistance as a risk factor for attrition. The College Student
Inventory provides recommendations for individual students and relies on
advising and student/staff interactions for implementation. For a number of
reasons, student advising within the College of Agriculture at MSU, especially
with incoming freshmen, is handled differently across the departments. The
literature, experiences of college faculty, staff, and students and the
applicability of this study strongly implicate the importance of good advising.
The researcher recommends that the College of Agriculture initiate and
facilitate ongoing training for academic advisors to help achieve consistency
and establish ‘best practices’. It is further recommended by the researcher
that new students have the opportunity to build relationships with faculty as
soon as possible after starting their college careers, whether through early advising sessions, research opportunities, student organizations, or innovative teaching methods. Exploration and evaluation of different advising models used at MSU and other land-grant colleges of agriculture would be beneficial in developing a proactive, effective advising program for the College of Agriculture at MSU.

4. The review of the literature and the results of this study strongly suggest that 4-H and FFA involvement is important to colleges of agriculture, especially in terms of enrollment. Montana State University hosts three statewide events attended by large numbers of high achieving, high school aged 4-H and FFA members: Ag Days, State FFA Convention, and State 4-H Congress. Additionally, many current College of Agriculture students help plan and direct these activities. Tremendous potential exists for recruiting new students to the College of Agriculture at MSU through these events. The researcher recommends that the College of Agriculture develop partnerships and work closely with the coordinators of these events to take advantage of these opportunities.

Recommendations for Further Study

More research is needed concerning retention and attrition of college students in agriculture curricula. The relevancy and efficacy of explanatory style in post-secondary
education settings must also be explored further. The researcher puts forth the following recommendations for further study:

1. The findings of this study would be more generalizable by repeating this study over the course of more than one year, using a larger cohort size, incorporating other academic colleges at MSU, and including other land grant institutions. An effort should be made to have every freshman enrolling in the College of Agriculture take the AASQ. Escalation of the study in these directions may help develop a more accurate portrayal of agriculture students on one hand, and secondly, more precisely identify the relationships between explanatory style, College Student Inventory measures, and retention among beginning college students. Additionally, a broader sample will increase the applicability of a prediction model.

2. This study defined retention by considering enrollment status within the College of Agriculture after one year. This definition was chosen because the literature showed the greatest number of students leaving during the first year and because the College Student Inventory is most applicable to students just starting their college education. In addition to first-year retention, redefining retention as actual persistence rates to graduation would have practical significance and would be advantageous to the College of Agriculture. Further study should incorporate this definition to improve the efficacy of a strategic retention plan and provide an indication of how the MSU College of
Agriculture is contributing to the agriculture industry’s supply of qualified graduates.

3. Further study is also needed concerning the definition of attrition. For example, distinguishing between students who drop-out and those who stop-out and then return has implications for implementation of a retention plan within the College of Agriculture. Distinguishing between voluntary and involuntary withdrawal should also be part of further research.

4. Many other predictive variables and attrition risk factors have been identified in the literature and by College of Agriculture personnel. Agriculture experience and student involvement in clubs, research, and other student activities are some examples. More comprehensive explorations incorporating current and new variables would be constructive. Regarding involvement in this context, it would be interesting to investigate if high school involvement in organizations such as 4-H and FFA is related to levels of student involvement in college. MSU faculty, staff and administrators have commented that College of Agriculture students demonstrate a high level of involvement. Describing and documenting this integration could prove valuable to a strategic retention plan as well as recruitment of new students who will persist through attainment of an agriculture degree.

5. The negative correlation between enrollment in a high school agriculture class and first to second year retention was contrary to the available literature and is a concern for the College of Agriculture as well as secondary and post-
secondary agricultural education programs. While students with such an agriculture background and whom graduate with other than an agriculture degree may still contribute to the agriculture industry labor pool, further study is needed to determine why these students choose to leave the College of Agriculture in the first place.

6. Groups and researchers, such as Noel-Levitz, publisher of the CSI, have developed different predictive models for student retention or attrition. How these models might apply to agriculture students at Montana State University could help clarify the factors involved with retaining these students. Using one of these models as a starting point may prove advantageous for developing a more powerful, predictive model specific to MSU and/or the MSU College of Agriculture. Further incorporation into a strategic plan for enrollment management may enhance the effectiveness of such a plan and improve retention rates for the College of Agriculture.

7. The College of Agriculture and Montana State University have a number of initiatives working to encourage Native American enrollment and persistence. Montana has seven tribal colleges and a Native American population of 6.2 percent (U.S. Census Bureau, 2006). The percentage of Native Americans in the College of Agriculture cohort was only 3.5 percent. This difference implies that continued focus and study are warranted concerning Native Americans in post-secondary education.
8. The agriculture industry has traditionally been male-dominated. Yet, more females than males were represented in the study cohort and female versus male enrollment in the COA has been roughly equal. The MSU Dean of Students commented that women tended to be retained at a higher rate than men and more women than men have college degrees (C. Stryker, personal communication, April 3, 2006). Additionally, an income discrepancy between genders is obvious throughout the United States workforce (U.S. Department of Labor, 2005). Further research on gender differences within colleges of agriculture and the agriculture industry is needed.

9. Due to the limitations of using an accessible sample and the availability of technology, the AASQ was administered online and via paper copy. Further study should address this factor and assess different options for including the largest possible number of incoming freshman agriculture students.

Over the last ten years, undergraduate enrollment in the College of Agriculture reached a peak in the fall of 1998 with 814 students. Since then, enrollment has gradually declined and in the fall of 2005, only five more undergraduate students were enrolled in the college than in 1995. Other than highs in 1997, 1998, and 1999, enrollment has remained steady around 700 students (within 20 above and below). Additionally, for the past three years, the College of Agriculture has been the smallest college on campus. Comparatively, over the last ten years the undergraduate enrollment at MSU has steadily increased (Montana State University, 2005, Quick Facts).
Annually, for the next five years, the agriculture industry will have 2,700 open positions due to a lack of qualified graduates in agriculture and allied fields (CSREES, 2005).

Stakeholders in the agriculture industry and agricultural education at all levels should carefully consider the results and implications of this study. It is especially important when stagnant enrollments exist for the smallest college at MSU and the industry has a critical need for qualified graduates.
REFERENCE LIST


Basham, V., & Lunenburg, F.C. (2001, August). *Usefulness of the College Student Inventory as a needs assessment tool in community colleges.* Paper presented at the annual meeting of the National Council of Professors of Educational Administration, Houston, TX.


APPENDICES
APPENDIX A

ACADEMIC ATTRIBUTIONAL STYLE QUESTIONNAIRE
Interpretation of Academic Events

Please try to imagine yourself in the situations that follow. If such a situation were to happen to you, what would you feel would have caused it? While events have many causes, we want you to pick only one—the major cause if this event happened to you.

Please write this cause in the blank provided after each event. Then we want you to answer three questions about the cause you provided. First, is the cause of this event something about you or something about other people or circumstances? Second, is the cause of this event something that will persist across time or something that will never again be present? Third, is the cause of this event something that affects all situations in your life or something that only affects just this type of event?

To summarize, we want you to:

1. Read each situation and vividly imagine it happening to you.
2. Decide what you feel would be the one major cause of the situation if it happened to you.
3. Write the cause in the blank provided.
4. Answer three questions about the cause.
1. **You cannot get all the reading done that your instructor assigns.**

   A. Write down the one major cause:
   
   B. Is the cause of this due to something about you or something about other people or circumstances? (circle one number)

<table>
<thead>
<tr>
<th>totally due to others</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>totally due to me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   C. In the future, will this cause again be present? (circle one number)

   | never present | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
   | always present|   |   |   |   |   |   |   |

   D. Is this cause something that affects just this type of situation, or does it also influence other areas of your life? (circle one number)

   | just this situation | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
   | all situations      |   |   |   |   |   |   |   |

2. **You fail a final examination.**

   A. Write down the one major cause:
   
   B. Is the cause of this due to something about you or something about other people or circumstances? (circle one number)

<table>
<thead>
<tr>
<th>totally due to others</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   C. In the future, will this cause again be present? (circle one number)

   | never present | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
   | always present|   |   |   |   |   |   |   |

   D. Is this cause something that affects just this type of situation, or does it also influence other areas of your life? (circle one number)

   | just this situation | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
   | all situations      |   |   |   |   |   |   |   |
3. **You show up for a class and find to your surprise that there is a quiz.**

   A. Write down the one major cause:

   B. Is the cause of this due to something about you or something about other people or circumstances? (circle one number)

   totally due to others 1 2 3 4 5 6 7 totally due to me

   C. In the future, will this cause again be present? (circle one number)

   never present 1 2 3 4 5 6 7 always present

   D. Is this cause something that affects just this type of situation, or does it also influence other areas of your life? (circle one number)

   just this situation 1 2 3 4 5 6 7 all situations

4. **You are on academic probation.**

   A. Write down the one major cause:

   B. Is the cause of this due to something about you or something about other people or circumstances? (circle one number)

   totally due to others 1 2 3 4 5 6 7 totally due to me

   C. In the future, will this cause again be present? (circle one number)

   never present 1 2 3 4 5 6 7 always present

   D. Is this cause something that affects just this type of situation, or does it also influence other areas of your life? (circle one number)

   just this situation 1 2 3 4 5 6 7 all situations
5. **You do not have high enough grades to switch to your desired major.**

A. Write down the one major cause:

B. Is the cause of this due to something about you or something about other people or circumstances? (circle one number)

<table>
<thead>
<tr>
<th>totally due to others</th>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>totally due to me</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

C. In the future, will this cause again be present? (circle one number)

<table>
<thead>
<tr>
<th>never present</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>always present</td>
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</tr>
</tbody>
</table>

D. Is this cause something that affects just this type of situation, or does it also influence other areas of your life? (circle one number)

<table>
<thead>
<tr>
<th>just this situation</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>all situations</td>
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</tr>
</tbody>
</table>

6. **You cannot solve a single problem in a set of twenty assigned as homework.**

A. Write down the one major cause:

B. Is the cause of this due to something about you or something about other people or circumstances? (circle one number)

<table>
<thead>
<tr>
<th>totally due to others</th>
<th>1</th>
<th>2</th>
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<th>4</th>
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<tr>
<td>totally due to me</td>
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</tbody>
</table>

C. In the future, will this cause again be present? (circle one number)

<table>
<thead>
<tr>
<th>never present</th>
<th>1</th>
<th>2</th>
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<tr>
<td>always present</td>
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</tr>
</tbody>
</table>

D. Is this cause something that affects just this type of situation, or does it also influence other areas of your life? (circle one number)

<table>
<thead>
<tr>
<th>just this situation</th>
<th>1</th>
<th>2</th>
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<th>5</th>
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<tr>
<td>all situations</td>
<td></td>
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</tr>
</tbody>
</table>
7. You are dropped from the university because your grades are too low.

A. Write down the one major cause:

B. Is the cause of this due to something about you or something about other people or circumstances? (circle one number)

<table>
<thead>
<tr>
<th>totally due to others</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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</table>

C. In the future, will this cause again be present? (circle one number)

<table>
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<tr>
<th>never present</th>
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<th>7</th>
<th>always present</th>
</tr>
</thead>
</table>

D. Is this cause something that affects just this type of situation, or does it also influence other areas of your life? (circle one number)

<table>
<thead>
<tr>
<th>just this situation</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>all situations</th>
</tr>
</thead>
</table>

8. You cannot get started writing a paper.

A. Write down the one major cause:

B. Is the cause of this due to something about you or something about other people or circumstances? (circle one number)

<table>
<thead>
<tr>
<th>totally due to others</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>totally due to me</th>
</tr>
</thead>
</table>

C. In the future, will this cause again be present? (circle one number)

<table>
<thead>
<tr>
<th>never present</th>
<th>1</th>
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</tr>
</thead>
</table>

D. Is this cause something that affects just this type of situation, or does it also influence other areas of your life? (circle one number)

<table>
<thead>
<tr>
<th>just this situation</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<th>6</th>
<th>7</th>
<th>all situations</th>
</tr>
</thead>
</table>
9. **You cannot find a book in the library.**

A. Write down the one major cause:

B. Is the cause of this due to something about you or something about other people or circumstances? (circle one number)

<table>
<thead>
<tr>
<th>totally due to others</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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</tr>
</thead>
<tbody>
<tr>
<td>totally due to me</td>
<td></td>
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</tr>
</tbody>
</table>

C. In the future, will this cause again be present? (circle one number)

<table>
<thead>
<tr>
<th>never present</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<th>always present</th>
</tr>
</thead>
</table>

D. Is this cause something that affects just this type of situation, or does it also influence other areas of your life? (circle one number)

<table>
<thead>
<tr>
<th>just this situation</th>
<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>all situations</th>
</tr>
</thead>
</table>

10. **The required textbook for a course is unavailable in the school bookstore.**

A. Write down the one major cause:

B. Is the cause of this due to something about you or something about other people or circumstances? (circle one number)

<table>
<thead>
<tr>
<th>totally due to others</th>
<th>1</th>
<th>2</th>
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</table>

C. In the future, will this cause again be present? (circle one number)

<table>
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</table>

D. Is this cause something that affects just this type of situation, or does it also influence other areas of your life? (circle one number)

<table>
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<tr>
<th>just this situation</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>all situations</th>
</tr>
</thead>
</table>
11. You get a D in a course required for your major.

A. Write down the one major cause:

B. Is the cause of this due to something about you or something about other people or circumstances? (circle one number)

<table>
<thead>
<tr>
<th>totally due to others</th>
<th>totally due to me</th>
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<tbody>
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<td>7</td>
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</table>

C. In the future, will this cause again be present? (circle one number)

<table>
<thead>
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<tbody>
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</table>

D. Is this cause something that affects just this type of situation, or does it also influence other areas of your life? (circle one number)

<table>
<thead>
<tr>
<th>just this situation</th>
<th>all situations</th>
</tr>
</thead>
<tbody>
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<td>7</td>
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</tbody>
</table>

12. You cannot understand the point a lecturer makes.

A. Write down the one major cause:

B. Is the cause of this due to something about you or something about other people or circumstances? (circle one number)

<table>
<thead>
<tr>
<th>totally due to others</th>
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<tbody>
<tr>
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</tbody>
</table>

C. In the future, will this cause again be present? (circle one number)

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</tbody>
</table>

D. Is this cause something that affects just this type of situation, or does it also influence other areas of your life? (circle one number)

<table>
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</tbody>
</table>
APPENDIX B

DEMOGRAPHIC COVER SHEET
Interpretation of Academic Events

You are being asked to participate in a study of student retention within MSU's College of Agriculture. The results may help us obtain a better understanding of retention issues for students. Participating or not participating in this study will not affect your grade or your status as a student at Montana State University-Bozeman. By completing this survey, you are consenting to the use of your results for retention purposes.

BEFORE WE START, PLEASE TELL US A LITTLE ABOUT YOURSELF.

What is your student ID number? ______________________________

1. My Gender is (circle one): Male Female

2. What is your major? _______________________________________

3. What was your high school Grade Point Average? _____________

4. How many students attended your high school (grades 9-12)? ______

5. Did you participate in any of the following (circle all that apply)?
   
   4-H FFA

6. Did you take an agriculture class in high school (circle one)? Yes No

7. How much money do you see yourself making upon graduation?
   Please circle the closest amount.
   
   $26,000/yr $28,000/yr $30,000/yr $32,000/yr $34,000/yr $36,000/yr >$36,000/yr

8. Do you want your results (circle one)? YES NO
APPENDIX C

RESULTS FORM
Thank you for taking the Academic Attributional Style Questionnaire and participating in this study! Here are your results.

“The automatic, natural, habitual way you explain events is called your **explanatory style**.”

Your composite Explanatory Style score is: **«Average_Score»**

This is the calculated mean of the composite scores from the three dimensions of explanatory style. Your scores for these dimensions are below.

**Personalization: Internal vs. External**

**«Internal_External_Avg_B»**

**Permanence: Stable vs. Unstable**

**«Stable_Unstable_C»**

**Pervasiveness: Global vs. Specific**

**«Global_Specific_D»**

If you have a lower score (less than 3.5), your explanations tend to be more optimistic. You explain bad events, or setbacks, that happen to you by turning the cause outward, making it less personal and more external. Your attributions are less likely to remain (less permanent) and affect other aspects of your life (less pervasive).

On the other hand, if you have a higher score (greater than 5.0), you explain events more pessimistically. Your explanations tend to be more personal/internal, permanent/stable, and pervasive/global.

For example, if you explained the event “You cannot understand the points a lecturer makes” by saying “He/she is vague in his/her instructions”, a person with an optimistic explanatory style might have rated the explanation a ‘1’ for personalization (more external), a ‘2’ for permanence (less stable), and a ‘2’ for pervasiveness (more specific). If you explained why you couldn’t understand a lecturer by saying, “I am stupid”, your scores would have been on the high end of the scale. This person would have a more pessimistic explanatory style and might have rated the explanation a ‘7’ for personalization (very internal), a ‘6’ for permanence (stable), and a ‘7’ for pervasiveness (it will affect everything I do).
The good news is that you can learn to think more optimistically! Some great resources to help you develop a more optimistic explanatory style:


The Positive Psychology Center:
http://www.positivepsychology.org/
The official site for the book *Authentic Happiness*:
http://www.authentichappiness.org/

APPENDIX D

COLLEGE STUDENT INVENTORY – FORM B
Getting the most out of your college experience

College Student Inventory™
FORM B

Michael L. Stratil, Ph.D.

Part of the Retention Management System™ from Noel-Levitz
OVERVIEW

Our minds have an immense capacity for knowledge. But each of us learns in a different way. We focus attention on somewhat different dimensions of the world, we have somewhat different understandings of the world, and we strive for quite different kinds of personal growth. We can only achieve our full potential when these forces of individuality are meshed smoothly with the learning process.

Your institution wishes to help you discover and engage the full richness of your individuality. It would like to see you discover the learning path that best suits your unique personality. Completing the COLLEGE STUDENT INVENTORY™ is the first step in a carefully designed program to achieve that end. The Inventory is a communication channel between you and your institution. It records your thoughts and feelings on many issues related to college. The results will be used in two ways.

First, you will receive a computerized interpretation of your data. Your advisor will discuss these results with you and help you get in contact with any follow-up activities that fit your interests and needs.

Second, the general results for your class as a whole will be used to plan a campus-wide program of support services. Staff members will determine how much need exists for certain types of services and how these services can be best provided.

Completing the Inventory and participating in the follow-up activities are entirely voluntary. But I strongly urge you to take advantage of these opportunities. They are likely to have a very beneficial effect on your entire educational experience.

The Inventory has three sections, each with its own set of instructions. So you can benefit fully from the results, please complete each part as accurately and honestly as you can. It is especially important that you answer every question. If you change an answer, be sure to fully erase your initial response.

Best wishes for a deep and rewarding experience at college.

Michael L. Stratil

Go now to Part A and read the instructions.
PART A

Instructions. Please be advised that by completing and returning this answer sheet, you give consent to its release to Noel-Levitz for the purpose of scoring, processing, and preparation of reports for yourself, your advisor, and your college or university.

Use a No. 2 (medium) black lead pencil in answering all parts of this questionnaire. Do not use ink or ball point pen.

1. On the front of the answer sheet, find the area for your name. It looks like this:

<table>
<thead>
<tr>
<th>LAST NAME</th>
<th>FIRST NAME</th>
<th>MI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Print your last name in the 12 spaces provided. If your last name is too long, abbreviate it. Do not go past the line that divides the last and first name. Do the same for your first name (which goes in the next 7 spaces) and your middle initial (which goes in the last column).

2. Now darken completely the circles that represent the letters in each part of your name. Be sure to completely fill each of the appropriate circles. Erase any stray marks or errors.

3. Move down to the area marked “GROUP #.” The examiner has written this number on the board (or will read it to you). Print the number in the spaces provided. Be sure to include any 0’s that are in the number.

4. Print your age in the next section.

5. In the section labeled “SEX,” darken completely one of the circles (either “M” or “F”).

6. In the last section, print your social security number. This number will enable your counseling staff to avoid misidentifications in cases where more than one person has the same name. If you do not know your social security number or do not wish to provide it, enter 123456789.

7. Now darken completely the appropriate circles under GROUP #, AGE, and SOCIAL SECURITY NUMBER. Again, be sure to completely fill each appropriate circle and to erase all stray marks and errors.

GO TO PART B
PART B

Instructions. The main body of the questionnaire contains 100 questions. The questions in the present section offer various options, which are represented on the answer sheet as numbered circles. Thus, question #1 appears as follows on the answer sheet:

<table>
<thead>
<tr>
<th>Question #</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

Notice that the answer sheet always provides seven circles, even though some questions offer fewer than seven options. Ignore the extra circles.

You are to answer each question by deciding which option is most appropriate to you. Then use your pencil to darken completely the circle that corresponds to the option you have chosen.

If you have difficulty in answering any of the questions in this section, see the examiner. Begin with the first question and continue to the end of the section.

1. While enrolled in classes, the amount of time I expect to spend working at a job is approximately:
   1) 0 (I have no plans to work)
   2) 1 to 10 hours per week
   3) 11 to 20 hours per week
   4) 21 to 30 hours per week
   5) 31 to 40 hours per week
   6) over 40 hours per week

   Note: This question only applies to time frames during which you are actually attending classes. It does not apply to summer employment, school breaks, or other such periods. If your work schedule varies, take a rough average across weeks.

2. The average of all my grades during my senior year in high school was approximately:
   1) A
   2) halfway between A and B
   3) B
   4) halfway between B and C
   5) C
   6) halfway between C and D
   7) D

   Note: This question only applies to time frames during which you are actually attending classes. It does not apply to summer employment, school breaks, or other such periods. If your work schedule varies, take a rough average across weeks.

3. The following question is about your general academic knowledge. This consists of the ideas and facts you have learned through the core courses designed to prepare you for college (e.g., English, mathematics, science, and social studies).

   Compared to the average high school graduating senior in this country, I consider my general academic knowledge to be in the:
   1) highest 20%
   2) next to the highest 20%
   3) middle 20%
   4) next to the lowest 20%
   5) lowest 20%

   Note: If your school did not use letter grades, do your best to translate your grades into the above system. If you completed a G.E.D., try to estimate the grades you think you would have earned for your last ten G.E.D. courses if you had been taking them as regular high school courses. It is recognized that making this estimate will be difficult; just try to give your best estimate.
4. I would describe my racial origin as:
   1) Black/African-American
   2) American Indian or Alaskan Native
   3) Asian or Pacific Islander
   4) White/Caucasian
   5) Hispanic or Latino
   6) Other
   7) I prefer not to respond

In relation to the general population of our society, I consider my academic ability to be:
   1) considerably below average
   2) slightly below average
   3) average
   4) slightly above average
   5) considerably above average (in the top 20%)
   6) extremely high (in the top 5%)

5. What is the highest level of education completed by your mother?
   1) 8 years or less of elementary school
   2) some high school but no diploma
   3) a high school diploma or equivalent
   4) 1 to 3 years of college (including study at a technical, community, or junior college)
   5) a 4-year undergraduate college degree (bachelor's degree)
   6) a master's degree
   7) a doctoral degree

6. What is the highest level of education completed by your father?
   1) 8 years or less of elementary school
   2) some high school but no diploma
   3) a high school diploma or equivalent
   4) 1 to 3 years of college (including study at a technical, community, or junior college)
   5) a 4-year undergraduate college degree (bachelor's degree)
   6) a master's degree
   7) a doctoral degree

7. The highest degree that I plan to pursue is:
   1) none
   2) a 1-year certificate
   3) a 2-year college degree (associate)
   4) a 4-year college degree (bachelor's)
   5) a master's degree
   6) a doctoral degree (medicine (M.D.), dentistry (D.D.S.), law (J.D.), philosophy (Ph.D), or other similar degrees)

8. Academic ability is the general capacity to understand and remember complex ideas through formal education. It involves learning through such media as books, lectures, written assignments, and computer programs.

9. Which of the following most accurately describes the timing of your decision to apply for admission to your college or university?
   1. My decision was made a few days before classes began
   2. My decision was made a few weeks before classes began
   3. My decision was made many months before classes began

CHECK TO MAKE SURE THAT YOU HAVE ANSWERED EVERY QUESTION IN THIS SECTION (QUESTIONS 1 TO 9).

THEN GO TO PART C.
PART C

Instructions: The present section measures a variety of attitudes related to college. Students usually find it quite interesting.

As you answer the questions, keep in mind that attitudes are hard to measure. Different individuals often interpret the meaning of a question differently, and a fleeting thought or feeling may influence how one responds.

For these reasons, a good questionnaire should contain a number of similar items about every topic covered. Each item reduces the chances of error. So please be patient with the questions. Also, don't try to recall your previous responses—just answer each question as openly and naturally as you can.

Answer each question by selecting one number from the following rating scale:

Thus, if you agree completely with a statement, you should answer with a "7." Agreement that is fairly strong but not total is indicated by selecting a "5," while agreement that is fairly weak is indicated by "3." Total disagreement is indicated by selecting "1." Use any number between 1 and 7.

Keep in mind that there are no "right" or "wrong" answers. Simply give the answer that best fits you. In answering the questions on study habits and teachers, you should draw primarily on your pre-college experiences.

Read each question carefully, but do not spend a lot of time on any one question. As before, darken the appropriate circle on the answer sheet. Give only one response for each question.

10. I have found a potential career that strongly attracts me.
11. Most of my teachers have been very caring and dedicated.
12. Books have never gotten me very excited.
13. I have financial problems that are very distracting and troublesome.

The next question has a special purpose, which is to confirm that you are putting your answers in the correct position on the answer sheet. There will be others like it throughout the inventory.

When you encounter questions of this type, simply enter the number indicated. For example, select the #2 option for question 14. Please be especially careful with all of these questions.

14. Enter a "2" for this question.
15. I get along well with people whose opinions differ openly with mine.
16. I dread the thought of going to school for several more years, and there is a part of me that would like to give the whole thing up.
17. I would like to receive some instruction in the most effective ways to take college exams.
18. I take very careful notes during class, and I review them thoroughly before a test.
19. I would like to talk with a counselor about my general attitude toward school.
20. Most of the teachers I had in school were too bossy and inflexible.
<table>
<thead>
<tr>
<th>21. When I was a child, my parents usually understood me, respected my judgment, and treated me in ways that helped me grow.</th>
<th>38. I am deeply committed to my educational goals, and I'm fully prepared to make the effort and sacrifices that will be needed to attain them.</th>
</tr>
</thead>
<tbody>
<tr>
<td>22. I would like to talk to someone about getting a part-time job during the regular school year.</td>
<td>39. I would like to talk with a counselor about eliminating an unwanted habit (e.g., involving food, drugs, cigarettes, or alcohol).</td>
</tr>
<tr>
<td>23. I pick up new vocabulary words quickly, and I find it easy to use them in my speech and writing.</td>
<td>40. My studying is very irregular and unpredictable.</td>
</tr>
<tr>
<td>24. I would like to attend an informal gathering where I can meet some new friends.</td>
<td>41. I can feel close to someone who thinks quite differently than I do on major social issues.</td>
</tr>
<tr>
<td>25. Of all the things I could do at this point in my life, going to college is definitely the most satisfying.</td>
<td>42. I would like to receive some individual help in improving my writing skills.</td>
</tr>
<tr>
<td>26. When someone's opinions strongly disagree with my own, I tend to develop unfriendly feelings and to avoid close contact with the person.</td>
<td>43. I would like to find out more about student government and the various student activities on campus.</td>
</tr>
<tr>
<td>27. I plan to transfer to another school sometime before completing a degree at this college or university.</td>
<td>44. I would like some help selecting an educational plan that will prepare me to get a good job.</td>
</tr>
<tr>
<td>28. I would like to receive some help in improving my study habits.</td>
<td>45. My family had a one-sided way of looking at me when I was a child, and they didn’t understand my feelings very well.</td>
</tr>
<tr>
<td>29. I would like to talk with someone about the qualifications needed for certain occupations.</td>
<td>46. I would like to talk with a counselor about some difficulties in my dating or social life.</td>
</tr>
<tr>
<td>30. I have great difficulty concentrating on schoolwork, and I often get behind.</td>
<td>47. I would like to talk with someone about getting a loan to help me through school.</td>
</tr>
<tr>
<td>31. I get a great deal of personal satisfaction from reading.</td>
<td>48. I greatly enjoy getting together with a crowd of people and having a lively time.</td>
</tr>
<tr>
<td>32. The teachers I had in school respected me as a person and treated me fairly.</td>
<td>49. I have difficulty organizing my ideas in a paper, and I tend to make a lot of punctuation and grammar mistakes.</td>
</tr>
<tr>
<td>33. I have little interest in going out dancing and partying.</td>
<td>50. I'm very good at understanding the relationship between a scientific principle and a corresponding formula (such as momentum = mass X velocity).</td>
</tr>
<tr>
<td>34. My thinking goes around in circles when I try to choose a primary, long-term occupation.</td>
<td>51. I am very strongly dedicated to finishing college—no matter what obstacles get in my way.</td>
</tr>
<tr>
<td>35. Enter a “5” for this question.</td>
<td>52. I don’t enjoy reading serious books and articles, and I only do it when I have to.</td>
</tr>
<tr>
<td>36. I have the financial resources that I need to finish college.</td>
<td></td>
</tr>
</tbody>
</table>
53. I have made a firm decision to enter a certain occupation and have begun planning my life around that decision.

54. In my opinion, many teachers are more concerned about themselves than they are about their students.

55. I would like to talk with someone about the salaries and future outlook for various occupations.

56. Enter a “4” for this question.

57. I am very good at figuring out the deeper meaning of a short story or novel.

58. I would like to receive some individual help in improving my math skills.

59. I don’t have any financial problems that will hinder my schoolwork.

60. I have a very strong desire to continue my education, and I am quite determined to finish a degree.

61. I would like to talk with a counselor about some family problems.

62. I study very hard for all my courses, even those I don’t like.

63. I find it easy to be friends with people whose political ideas differ sharply from my own.

64. I have a hard time understanding and solving complex math problems.

65. My parents and I communicated very well when I was young, and we had a good understanding of each other’s point of view.

66. Most teachers have a superior attitude that I find very annoying.

67. I would like to meet an older student who can show me around and give me some advice.

68. I would like to talk to someone about getting a scholarship.

69. Learning new vocabulary words is a slow and difficult process for me.

70. I would like some help selecting an occupation that is well suited to my interests and abilities.

71. It is hard for me to “let go” and just have fun with a group of people.

72. My understanding of the physical sciences is very weak.

73. I wish that society did not put so much pressure on people to go to college, as I’d really rather be doing other things at this point in my life.

74. I have no desire to transfer to another school before finishing a degree at this college or university.

75. Over the years, books have widened my horizons and stimulated my imagination.

76. Enter a “7” for this question.

77. I am very confused about what occupation to go into.

78. I have developed a solid system of self-discipline, which helps me keep up with my schoolwork.

79. I am in a bad financial position, and the pressure to earn extra money will probably hinder my studies.

80. I am capable of writing a very clear and well-organized paper.

81. I feel uneasy and distrustful toward people whose way of thinking is quite dissimilar to my own.

82. I would like to receive tutoring in one or more of my courses.

83. When I try to study, I usually get bored and quit after a few minutes.

84. I would like to talk with a counselor about some emotional tensions that are bothering me.

85. I can think of many things I would rather do than go to college.
86. I have a very good understanding of the basic ideas related to atoms, molecules, the periodic table, and chemical reactions.

87. When I was a child, the other members of my family often said hurtful things that stirred up unpleasant feelings.

88. I liked my teachers, and I feel they did a good job.

89. Because they irritate me, I tend to stay away from people whose ideas are quite different from my own.

90. In English classes, I've had difficulty analyzing an author's style and theme.

91. I would like to find out more about the fraternities and sororities at my college.

92. I would like to talk to a placement officer about the opportunities available for summer employment.

93. I have a very good grasp of the scientific ideas I've studied in school.

94. I often wonder if a college education is really worth all the time, money, and effort that I'm being asked to spend on it.

95. Enter a "6" for this question.

96. I feel very adventurous and fun-loving when I'm at a large party.

97. I would like to talk with a counselor about some feelings of discouragement or unhappy thoughts that keep bothering me.

98. I would like to talk with someone about the advantages and disadvantages of various occupations.

99. I would like to receive some training to improve my reading skills.

100. I authorize my institution to share results from this inventory with my advisor and appropriate student service offices which will help me select courses and make other educational decisions:

   1. YES

   2. NO (If you select this option, your reports will be kept confidential; you will be able to obtain your student report from the coordinator.)

NOTE that the following is not a rating question. Select option 1 if you agree with the statement; select option 2 if you do not.
APPENDIX E

DESCRIPTION OF COLLEGE STUDENT INVENTORY MEASURES
IV. Description of Features in the RMS Reports

The College Student Inventory is the foundation of the Noel-Levitz Retention Management System. The RMS advisor will receive two reports from the Program Coordinator approximately two to three weeks after the students have been surveyed.

The first report is the RMS Advisor/Counselor Report, which has been designed to convey all of the inventory's information as concisely as possible. The second is the RMS Student Report, the first page of which is nearly identical to the RMS Advisor/Counselor Report. The remaining two or three pages of the RMS Student Report offer a series of explanations of the student's results.

The following discussion, based on work by the test author, Dr. Michael Stratil, gives a detailed explanation of the RMS Advisor/Counselor Report.

Identifying Information (upper right-hand corner)

This section gives the student's name, educational level, sex, age, and identification number. The date of the report and the name of your institution are also given. If the student has requested that his/her report not be available to the advisor, the message:

\[\text{Restricted to Program Coordinator}\]

will appear. If, by mistake, you receive a report with this marking, you should return it promptly to the RMS Coordinator.

Instructions (near the top, stretching across the page)

This section contains a brief set of instructions to aid you in discussing the report with the student. Suggestions for follow-up measures and a statement of the restrictions on the report will also appear. This section is printed on every report as a reminder of the basic conditions under which the information has been made available.

Summary of Academic Motivation (top of left column)

This section presents the results from four summary scales, discussed on the next page. All scores in this section are expressed in terms of stanines, which are normalized standard scores with a mean of five and a...
The RMS Advisor's Guide - Form B

standard deviation of 1.96. The distribution of students falling into the different categories is:

<table>
<thead>
<tr>
<th>Score</th>
<th>Distribution</th>
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<tbody>
<tr>
<td>9</td>
<td>4%</td>
</tr>
<tr>
<td>8</td>
<td>7%</td>
</tr>
<tr>
<td>7</td>
<td>12%</td>
</tr>
<tr>
<td>6</td>
<td>17%</td>
</tr>
<tr>
<td>5</td>
<td>20%</td>
</tr>
<tr>
<td>4</td>
<td>17%</td>
</tr>
<tr>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>2</td>
<td>7%</td>
</tr>
<tr>
<td>1</td>
<td>4%</td>
</tr>
</tbody>
</table>

The larger the stanine, the larger the corresponding raw score. A stanine of nine thus indicates that the student's raw score was in the top four percent of the normative sample, a stanine of eight indicates that the student's raw score was in the next seven percent (and the top 13 percent of the sample), and so forth.

1. The Dropout Proneness Scale

This scale measures the student's overall inclination to drop out of school before finishing a degree. The scale was developed empirically by comparing students who stayed in school after their first term with those who did not.

One should be careful not to attribute greater predictive power to the dropout scale than it actually possesses. Existing research suggests that many students who score high on the dropout proneness scale do not, in fact, drop out during their first term. While predictiveness should increase when dropout is studied over time, there are still many mediating factors in predicting this behavior with a high degree of accuracy. For this reason, students with high scores on the dropout proneness should be considered as having a pattern of intellectual and motivational traits that is loosely associated with dropping out, but which may or may not lead to actual dropout in any given case.

2. The Predicted Academic Difficulty Scale

This scale was developed by correlating CSI questions with first-term college grade point average (GPA). It is thus designed to predict who is most likely to have low grades in college. The caution that applies to the dropout scale also applies to this scale. The scale will identify some, but
not all, of the students who will encounter academic difficulty during their college careers. Predictors of academic difficulty include such factors as study habits, verbal confidence, math and science confidence, desire to finish college, attitude toward educators, and high school GPA.

3. The Educational Stress Scale

The Educational Stress scale measures the student's general feelings of distress in the context of college. It was developed from a factor analysis of all of the CSI-B's scales, and it represents the first (largest) factor. One part of the scale focuses on emotional aspects of academic life. Thus, students scoring high on this scale tend to feel dissatisfied with teachers in general based on their earlier school experiences. They also tend to have a lower than average desire to finish college. Finally, their study habits tend to be lower than average, suggesting difficulties in focusing and self-discipline.

The Educational Stress scale also measures two broader aspects of distress. First, high scorers tend to have a lower than average sense of family emotional support. Second, high scorers are more interested in receiving personal counseling than most students. Based on these considerations, this scale should be considered the CSI-B's primary indicator of the student's need for personal counseling. But one should keep in mind that the CSI-B's main purpose is not to assess mental health. For this reason there are very important facets of mental health that this scale does not measure. Rather, it is merely one piece of information that can be used in making referrals for personal counseling.

4. The Receptivity to Institutional Help Scale

This scale indicates how responsive the student is likely to be to intervention. The higher the score, the more receptive the student is. This scale is based on how strongly the student expressed the desire for help in a wide variety of areas, such as career counseling, personal counseling, social enrichment, academic assistance, and financial guidance.

Overall, the summary scales have been keyed in a way that simplifies their joint interpretation. Thus, high scores on the dropout proneness, academic difficulty, and educational stress scales all indicate high need. High scores on receptivity indicate a strong desire for help. The general pattern, then, is for high scores to imply the advisability of intervention. In addition to giving referrals to students who score high on these scales, you may want to make a special effort to befriend them so they will feel comfortable coming to you for advice at critical times during their first year in college.
The summary scales involve sensitive global information, which a student may not be able to understand or accept in a constructive fashion. Thus, a student with a high score on dropout proneness might misinterpret this score to mean that they should give up because they stand little chance of succeeding at college. In fact, the opposite conclusion might be called for: that the student can succeed if motivational barriers are overcome. Because of their susceptibility to misinterpretation, it is recommended that the summary scores not be discussed with students. The fact that they are not printed on the student’s version of the report is another reason for not mentioning them, as a student may be troubled to learn that some information has been omitted from his/her report. If a student claims the RMS Advisor/Counselor Report, which will occur very rarely, you may want to have a special conference with that student to explain the summary scores.

Specific Recommendations (bottom of left column)

Selecting support services is a difficult task, especially for first-year students. Beginning students have complex needs, which they do not understand very well. In addition, they may have many motivational barriers to admitting their needs, even to themselves. The present section helps students make these decisions by presenting a set of recommendations that (a) clarify their needs, (b) relate their needs to specific forms of assistance, and (c) present the issue of assistance as a set of clear alternatives that can be readily evaluated and compared.

1. Means of Arriving at Recommendations

To use the recommendations effectively, one needs to understand how they are formulated. The scoring program for the CSI-B contains a pool of 25 potential action statements which are listed in the following section. Each action relates to a particular form of student assistance (e.g., help with reading skills). A priority score, ranging from 1.0 to 0.0, is computed for each potential action based on a comprehensive analysis of the student’s needs and desires. A 10.0 indicates a very high priority recommendation.

Needs are inferred from the student’s background data (e.g., high school grades, perceptions of knowledge and ability) and motivational assessment (e.g., study habits, attitude toward educators). The priority score for a given action will increase in direct proportion to the measured need for that action.

These initial, need-based priority scores are then adjusted in two ways. The first adjustment takes into account the student’s general interest in
the broader category to which the action belongs. For instance, the priority scores of all potential actions related to academic support are increased if the student's general receptivity to academic support is high. The second adjustment takes into account the student's desire for specific assistance in question. If a student expresses a strong desire for help with reading skills, for example, then his/her priority score for this potential action is adjusted upward.

After these computations have been made, the potential actions having the highest priority scores are printed in the form of short, direct recommendations (e.g., "Get help in selecting an academic program"). Recommendations are printed in order of priority scores, with the strongest recommendations at the top. Priority scores appear alongside the recommendations. The RMS Advisor/Counselor Report ranks the seven strongest recommendations, while the RMS Student Report, prints the 10 strongest recommendations in order of importance to the student. Most priority scores that appear on reports fall in the top end of the distribution, from 6.0 to 10.0. Approximately 70 percent of priority scores are below seven, but even a priority score of five is worth consideration, since it exceeds 40 percent of all the priority scores in a normal distribution. Only rarely will an advisor see a priority score of 10.0, since a student must have both the highest possible need and the highest possible desire in order to earn a priority of 10.0.

2. Pool of Potential Action Statements
The following list contains the 25 potential action statements that form the pool from which recommendations are made in the RMS Advisor/Counselor Report.

a) Get help with study habits.
b) Get help with exam skills.
c) Get help with writing skills.
d) Get help with basic math skills.
e) Get help with reading skills.
f) Get tutoring in selected areas.
g) Discuss unhappy feelings with counselor.
h) Discuss an unwanted habit with counselor.
i) Discuss attitude toward school with counselor.
j) Discuss emotional tensions with counselor.
k) Discuss family problems with counselor.
l) Discuss dating and social life with counselor.
m) Discuss the qualifications for occupations.
n) Discuss job market for college graduates.
o) Get help in selecting an occupation.
p) Get help in selecting an academic program.
q) Discuss advantages/disadvantages of occupations.
r) Get help in finding a part-time job.
s) Get help in obtaining a loan.
t) Get help in obtaining a scholarship.
u) Get help in finding a summer job.
v) Get help in meeting new friends.
w) Get information about student activities.
x) Get advice and tour from experienced student.
y) Get information about fraternities/sororities.

3. Priority of Recommendations

On the RMS Student Report, priority scores of greater than eight are most noteworthy. Since some students will have many recommendations that exceed this level, you may need to be especially careful to focus the student's attention on those recommendations that you believe are the most critical. If the student is concerned about having so many priority recommendations, explain that the high scores are partly due to his/her high level of receptivity. You may also want to explain that eight is a somewhat arbitrary number and that it does not represent a critical dividing point; it is merely a rough boundary line.

Special care should be taken in making final recommendations to students. The printed recommendations should only be considered preliminary, as they are generated by an analytical model that contains a definite margin of error. The model assumes that students are most likely to accept and act upon recommendations that are consistent with their existing motivational framework. Based on this premise, it gives relatively strong weight to the student's general receptivity in the area and to their expressed desire for the specific form of assistance under consideration. While the model appears sound as a general theoretical basis for formulating recommendations, it is not intended to be definitive. There
will be individuals who do not fit the model's assumptions.

For this reason, one should never accept recommendations uncritically. The recommendations should be weighed in terms of all the information you have about the student, including transcripts, placement scores, and the student's comments during your conference. After such consideration, you may well decide to place more emphasis on an intermediate recommendation (e.g., one with a priority score of 6.0) than on a strong one (e.g., one with a priority score of 9.0). Given the unique features in every individual case and the fact that printed recommendations are already a select subset from the larger pool of potential actions, such adjustments are quite appropriate.

Motivational Assessment (middle of left column)

The heart of the CSI-B consists of the 17 independent motivational scales in this section. The student's standing on each scale is indicated in two ways: as a percentile rank and on a bar graph. If you are interested in the exact score, you can refer directly to the percentile rank. But if you want a general and immediate sense of the student's motivational pattern, the bar graph will give you a general overview at a glance. Each category in the visual profile represents 20 percent of the normative distribution; a VERY HIGH thus corresponds to the top 20 percent. A percentile rank indicates the proportion of students in the normative sample who scored below that student. These scores are organized into four sections: academic motivation, general coping, receptivity to support services, and one supplementary scale.

1. Academic Motivation
   a) Study Habits. This scale measures the student's willingness to make the sacrifices needed to achieve academic success. It focuses on a student's effort, rather than interest in intellectual matters or the desire for a degree. It can therefore be used to make referrals to services that assist students in developing better study habits. A sample question in the scale is, "I study hard for all my courses, even those I don't like."

   b) Intellectual Interests. This scale measures how much the student enjoys the actual learning process, not the extent to which the student is striving to attain high grades or to complete a degree. It measures the degree to which the student enjoys reading and discussing serious ideas. Students with high scores are likely to enjoy classroom discussions and will feel comfortable with the high level of intellectual activity that often occurs in the college classroom. Students with low scores can be encour-
aged to broaden and deepen their intellectual interests. The following is a sample question: "Books have widened my horizons and stimulated my imagination."

c) Verbal Confidence. This scale measures the degree to which the student feels capable of doing well in courses that heavily emphasize reading, writing, and public speaking. It is not intended as a substitute for aptitude assessment, but rather as an indicator of self-esteem relative to this type of task. A comparison between the student’s standing on this scale and verbal aptitude or achievement test can be very revealing. Talented students who underestimate their abilities in the verbal area need to be strongly encouraged to recognize their potential. Students with low scores can be referred to services that will help them strengthen their verbal confidence. A sample question is, "I am capable of writing a very clear and well-organized paper."

d) Math and Science Confidence. This scale measures the degree to which the student feels capable of doing well in math and science courses. It is an indicator of self-esteem relative to this type of task and is not intended as a substitute for aptitude assessment. A comparison between the student’s standing on this scale and a math and science aptitude or achievement test can be very revealing. Some talented students underestimate their abilities, and they need to be strongly encouraged to recognize their talents. Students with low scores can be referred to services that will help them strengthen their confidence in math and science. A sample question is, "I’m very good at understanding the relationship between a scientific principle and a corresponding formula (such as momentum = mass X velocity)."

e) Desire to Finish College. This scale measures the degree to which the student values a college education, the satisfactions of college life and the long-term benefits of graduation. It identifies students who possess a keen interest in persisting, regardless of their prior level of achievement. With low-scoring students, an advisor can explore their beliefs and values related to college. In some cases, clues can be found to low scores in parental education levels, career closure scores, or in verbal confidence and math and science confidence. A sample question in this scale is, "I am very strongly dedicated to finishing college — no matter what obstacles get in my way."

f) Attitude Toward Educators. This scale measures the student’s attitudes toward teachers and administrators in general, as acquired through his/her pre-college experiences. Students with poor academic achievement often express a general hostility toward teachers and this
attitude often interferes with their work. A counselor may want to help a
low-scoring student clarify how certain isolated incidents in school may
have influenced his/her attitude toward all educators. Sometimes a low
score reflects a degree of self-sufficiency that borders on arrogance when
the student is a high achiever. Other times a low score may indicate that
the student has been treated poorly by one or more teachers as far back as
elementary school; perhaps the student was subjected to ridicule or
perhaps efforts were criticized or went unrecognized by a teacher. The
scale contains the following type of question: “Most of my teachers have
been very caring and dedicated.”

2. General Coping
a) Sociability. This scale measures the student’s general inclination to
join in social activities. The relationship between sociability and aca-
demic outcomes can be complex. High sociability, for instance, can be a
positive force for a person with strong study habits, but a negative force
for a person with poor study skills. An advisor may wish to explore the
implications of an extreme score, either high or low, with the student. A
sample question from this scale is, “I greatly enjoy getting together with
a crowd of people and having a lively time.”

b) Family Emotional Support. This scale measures students’ satisfac-
tion with the quality of communication, understanding, and respect that
they have experienced in their family. These are factors that can influence
their ability to adapt to the stresses of college life. An advisor can
offer encouragement and empathy to low-scoring students, or they can
refer these students for personal counseling. Low family support has
repeatedly emerged in the validity studies as a strong correlate of attri-
tion, particularly in academically successful students. Many RMS
advisors focus heavily on this scale for insights into a student’s diffi-
culties. A sample question is, “When I was a child, my parents usually
understood me, respected my judgment, and treated me in ways that
helped me grow.”

c) Opinion Tolerance. This scale measures the degree to which the
student feels that he or she can accept people without regard to their
political and social opinions. Most directly, it indicates whether a student
will be able to tolerate the diversity of social backgrounds to which he or
she is exposed at college. But the scale also provides a broader indication
of the student’s general sociopolitical flexibility as it relates to all
unfamiliar and threatening philosophical perspectives, including those
that arise in course content. Thus, it can identify students whose con-
stricted perspective may impede the learning of threatening ideas in such
areas as philosophy, comparative religion, world literature, world history, and the social sciences. An advisor or counselor may wish to discuss this potential problem with the student and encourage him or her to consider new ways of thinking about the basic issues of life without immediately accepting or rejecting them. A sample question is, "I find it easy to be friends with people whose political ideas differ sharply from my own."

d) Career Closure. This scale measures the degree to which the student has defined a career goal and developed a firm commitment to it. Because career aspirations are often the central foundation upon which academic motivation is based, students with low scores should be strongly encouraged to seek career counseling. In a more general way, the scale can be useful in assessing the student's progress in moving from the exploratory and adventurous attitudes of adolescence to the adoption of greater realism and responsibility typical of young adulthood. Lack of progress on this dimension may indicate the need for personal counseling. A sample question on this scale is, "I have made a firm decision to enter a certain occupation and have begun planning my life around that decision."

e) Sense of Financial Security. This scale measures the extent to which the student feels secure about his/her financial situation, especially as it relates to his/her current and future college enrollment. The scale is not intended to measure the objective level of financial resources that the student has, but rather, his/her feeling of being financially secure. Some students with quite modest means may feel more secure than do students with much greater means but higher expectations. With low-scoring students, an advisor can explore their financial needs and refer them to appropriate offices for assistance. A sample question on this scale is, "I have the financial resources that I need to finish college."

3. Receptivity to Support Services

a) Academic Assistance. This scale measures the student's desire to receive course-specific tutoring or individual help with study habits, reading skills, examination skills, writing skills, or mathematics skills. It can be taken into account in deciding whether to encourage the student to seek academic assistance. A sample question is, "I would like to receive some help in improving my study habits."

b) Personal Counseling. This scale measures the student's felt need for help with personal problems. It covers attitudes toward school, instructor problems, roommate problems, family problems, general tensions, problems relating to dating and friendships, and problems in controlling
an unwanted habit. The scale is a very useful aid in deciding whether to encourage the student to seek counseling for motivational problems indicated elsewhere in the CSI. A sample question is, “I would like to talk with a counselor about my general attitude toward school.”

c) Social Enrichment. This scale measures the student’s desire to meet other students and to participate in group activities. Students with high scores can be directed toward the type of social activities they desire. A sample question in this scale is, “I would like to attend an informal gathering where I could meet some new friends.”

d) Career Counseling. This scale measures the student’s desire for help in selecting a major or career. It can be used in conjunction with the Career Planning Scale. If the student has a low score on both scales, for example, an advisor can point out that he/she seems to be avoiding the issue of career choice. A sample question is, “I would like some help selecting an occupation that is well suited to my interests and abilities.”

e) Financial Guidance. This scale measures the student’s desire to discuss ways of increasing his or her financial resources for college. Even though the opportunities for scholarships are usually very limited at the point at which the student completes the inventory, loans and work-study positions may still be available. A referral to the placement office may also be very helpful. In some cases, it may be helpful for an advisor simply to emphasize with the student’s situation and provide encouragement regarding the prospects of working part-time while attending school. Depending on the circumstances, the advisor may wish to help the student recognize the advisability of cutting back on course load when he or she must work long hours at a job. A sample question on this scale is, “I would like to talk with someone about getting a loan to help me through school.”

4. Supplementary Scale

a) Internal Validity. This scale measures the student’s carefulness in completing the inventory. Each question asks the student to follow a simple instruction and is scored in terms of whether or not the student followed the instruction. The scale is very useful in identifying any students who might have responded randomly in order to finish quickly. A sample item from this category is, “Enter a ‘2’ for this question.” Fewer than 1 percent of students fall into the categories labeled “questionable” or “unsatisfactory.” However, because the task is considered quite easy, these students are likely to be distractible, oppositional, or
uncommitted to their education. Because these traits are related to dropout, a low validity score may prove to be an indicator of dropout proneness.

However, in some cases, a low validity score may indicate that a student has a severe language difficulty. But because the validity task is so easy, many students with serious deficits in English will not be identified through the scale. Schools enrolling large numbers of students with significant problems with English should consider using a standard reading test to screen all first-year students. If that approach is not feasible, advisors should at least remain alert to the possibility that a foreign student may not have had an adequate understanding of the CSI to complete it properly. The indicator of ethnic origin can sometimes be useful to identify these students. Other students can be identified during the student conference. Problems can then be handled on an individual basis.

The Notice Box (top of right column)

The statement in this box emphasizes the confidential nature of the report. It is important to respect the student’s right to claim the RMS Advisor/Counselor Report at any time. The intent is to avoid antagonizing a student who may feel uncomfortable with his/her results and may decide that he/she does not wish to have them filed in an academic office.

Student Background Information (remainder of right column)

To better understand students’ present motivational pattern, it is sometimes helpful to have an overview of their background. For this reason, the report provides a summary of information about the student’s high school academic, family background, initial college experience, and other indications.

1. High School Academics

This section presents information about the student’s high school education.

Senior-Year Grade Point Average. The student is asked to give the average of all their grades during his/her senior year in high school. The response is often quite accurate and it gives a reasonable indication of the student’s first-year academic performance.
2. Family Background

This section provides valuable information about the student's family background. Since the family often instills many key skills and attitudes, it usually has the single greatest influence on the way a student approaches college.

*Ethnic Origin.* This question can be a springboard for the advisor to identify broad bases of community support for all ethnic groups on campus, as well as ethnic support services.

*Mother's and Father's Education.* Information about the educational level of the student's parents is helpful in gaining insight into the student's social perspective, especially his/her feelings about education. Students raised by well-educated parents often have a greater than-average appreciation for the value of education and career success; but they may also feel burdened by pressures to meet high parental expectations. Less educated parents may strongly encourage achievement so that their child will have a better chance of success in life than they did, or they may discourage academic achievement out of fear that they will be outclassed by their child. These patterns illustrate the kinds of issues that a counselor may wish to explore with a student whose other scores indicate a need for special help.

3. College Experience

This section gives information about the timing of the students' decision to enroll in college, the academic degree they are seeking, and the number of hours per week they plan to work at a job.

*College Decision.* The student is asked to indicate when he or she made the decision to enroll at this institution. Research indicates that the closer to the time of actual enrollment that a student makes the decision, the greater the propensity for dropping out.

*Planned Work Hours.* The student is asked to indicate how many hours per week he or she plans to work at a job while enrolled at the college. Students who work more than 15 hours per week while enrolled as full-time students are generally at greater risk of dropping out and performing below their expectations.

*Degree Sought.* The student is asked to specify the highest degree he/she is planning to pursue. This question should not necessarily be taken at face value. Rather, it reveals something about the public stance that the student has adopted regarding personal goals. A weak student who
expresses an intention of getting an advanced degree may simply be trying to appease parental expectations. On the other hand, a talented student who indicates a low goal may have had their educational goals stunted. The student’s answer to this question is a valuable point of departure for further discussion.

4. Other Indications

This section has been designed to provide information about the student's desire to transfer, which should be handled with considerable sensitivity by the advisor. Whenever an indication to transfer is very strong, it is followed by an asterisk (*).

When the student’s results suggest a strong desire to transfer, the section gives an indication to that effect. The simple indication is printed when the student’s percentile score on transfer is 70 or above. This means that the student’s rating of the pro-trait question is matched by an identical rating on the con-trait question. This ambivalence suggests at least a moderate possibility of transfer. The asterisk is added if the student’s percentile on transfer is 86 or above, which occurs when the pro-trait rating clearly outweighs (by three points) the con-trait rating.
APPENDIX F

CSI COORDINATOR REPORT SAMPLE
Instructions

This is a report of Marian's results based on the College Student Inventory. Please give her a thorough explanation of her student copy. If you agree with the recommendations, gently encourage her to follow them. When possible, try to make the arrangements yourself as a way of reducing motivational barriers. But avoid attempting any psychological counseling if not professionally trained for such work. Above all, be sure to protect the confidentiality of the present report. Please see the RMS Advisor's Guide for more details.

Specific Recommendations for Marian

The strength of each recommendation is indicated by its priority score (0 = low, 10 = high):

- Get information about student activities 7.1
- Get help in finding a summer job 6.8
- Get advice and tour from experienced student 6.7
- Get information about fraternities/sororities 6.7
- Discuss roommate problems with counselor 6.5
- Get help in selecting an academic program 6.3
- Get help in obtaining a scholarship 6.3

Notice

To protect the student's privacy, she should be allowed to recover and remove this report at any time.

Student Background Information

High School Academics
- Senior Year GPA B+ Average

Family Background
- Racial Origin White/Caucasian
- Mother's Education Bachelor's
- Father's Education Bachelor's

College Experience
- Decision to Enroll Many months before
- Degree Sought Bachelor's
- Plans to Work 0 hrs/wk

Other Indications¹
- Desires to transfer

¹This information is not shown on the student's copy.
APPENDIX G

CSI STUDENT REPORT SAMPLE
Instructions

Marian, this is an interpretive report of your responses to the College Student Inventory. Its purpose is to help you identify your special interests and needs. The percentile ranks show how you compare to a larger sample of college students from across the country. Specifically, they indicate the percentage of students whose scores are equal to or less than yours. Since they are based on questionnaire information alone, they may give only a rough indication of your true attitudes. Your advisor or counselor will help you understand your scores and find the services you desire.

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<th>Motivational Assessment</th>
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<th>Very High</th>
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| Specific Recommendations                        |            |          |           |
| Get information about student activities        | 7.1         | ![](chart33) | ![](chart34) |
| Get help in finding a summer job                | 6.8         | ![](chart35) | ![](chart36) |
| Get advice and tour from experienced student    | 6.7         | ![](chart37) | ![](chart38) |
| Get information about fraternities/sororities   | 6.7         | ![](chart39) | ![](chart40) |
| Discuss roommate problems with counselor        | 6.5         | ![](chart41) | ![](chart42) |
| Get help in selecting an academic program       | 6.3         | ![](chart43) | ![](chart44) |
| Get help in obtaining a scholarship             | 6.3         | ![](chart45) | ![](chart46) |
| Get help with study habits                      | 6.2         | ![](chart47) | ![](chart48) |
| Get help in meeting new friends                 | 6.2         | ![](chart49) | ![](chart50) |
| Get help in finding a part-time job             | 5.8         | ![](chart51) | ![](chart52) |

| Student Background Information                   |            |          |           |
| High School Academics                            |            |          |           |
| Senior Year GPA                                  | B+ Average  | ![](chart53) | ![](chart54) |
| Family Background                                |            |          |           |
| Racial Origin                                    | White/Caucasian | ![](chart55) | ![](chart56) |
| Mother's Education                               | Some College | ![](chart57) | ![](chart58) |
| Father's Education                               | Bachelor's  | ![](chart59) | ![](chart60) |
| College Experience                               |            |          |           |
| Decision to Enroll                               | Many months before | ![](chart61) | ![](chart62) |
| Degree Sought                                    | Bachelor's  | ![](chart63) | ![](chart64) |
| Plans to Work                                    | 0 hrs/wk    | ![](chart65) | ![](chart66) |

Noel-Levitz
Written Interpretation

In the present section, you will receive a more detailed explanation of your results. The purpose of this information is to help you grow and get the most out of your college experience. In thinking about it, try to take a balanced approach. On the one hand, do not assume that each statement is perfectly accurate just because it is printed in a formal manner; some statements may not fit you very well. But on the other hand, do not dismiss a statement merely because it points to a problem.

You should thus keep an open mind. Examine each statement in light of the full range of knowledge that you have about yourself. When it seems accurate, give serious consideration to any suggestions that accompany it. If it is puzzling, you may want to discuss it with someone who can help you interpret it. When approached in this way, the information will be very helpful to you.

Academic Motivation

1. Study Habits measures the amount of time and effort that you put into your studies. Your score placed you in the 20th percentile. Weak study habits are the single greatest cause of academic problems in college, and you probably need to put more effort into this area. As soon as possible, develop a clear daily routine in which you set aside certain periods of time to study. Learn to focus your attention and to pace yourself effectively. Other useful techniques include thoughtful previewing, underlining, note-taking, and reviewing. Academic counselors can help you develop your study habits.

2. Intellectual Interests measures the degree to which you enjoy reading and discussing serious ideas. Your score placed you in the 57th percentile, which is similar to that of the average starting college student. Academic counselors can help you develop your study habits.

3. Verbal Confidence measures the degree to which you feel capable of doing well in courses that heavily emphasize reading, writing, and public speaking. Your score placed you in the 45th percentile. This suggests that you feel a mixture of moderate confidence together with some self-doubt about your abilities in this area. It is very important that you learn to maintain your confidence as you go through the inevitable ups and downs of college courses. Don't let your self-doubts lead you into discouragement. Keep in mind that one doesn't have to possess exceptional talent to succeed in verbally oriented courses. Hard work is a very powerful force. You are much more likely to succeed in courses of this type if you're determined to do your best from the first day of classes to the last, regardless of day-to-day outcomes.

4. Math and Science Confidence measures the degree to which you feel capable of doing well in math and science courses. Your score placed you in the 69th percentile. This suggests that you feel rather confident about your abilities in this area, with just a small amount of self-doubt. Use your confidence as a stimulus to solid achievement. But also prepare yourself for the inevitable bumps along the way. Every student needs to study hard even if he or she has enjoyed previous success in a particular area. If you do encounter some difficulties, think about your past successes and maintain your confidence. Don't let any self-doubts interfere with your work. You are much more likely to succeed in your math and science courses if you're determined to do your best from the first day of classes to the last, regardless of day-to-day outcomes.

5. Desire to Finish College measures the strength of your commitment to completing a degree. Your score placed you in the 15th percentile. This suggests that you have some rather strong doubts about the value of a college education. It is extremely important that you try to clarify your objectives as soon as possible. Often a clear decision about one's career goals strengthens one's commitment to college. A counselor can be very helpful in guiding you through this process.

6. Attitude Toward Educators measures the degree to which you see teachers and administrators as competent, reasonable, and caring. Your score placed you in the 62nd percentile. You have fairly positive perceptions of teachers in general, which will help you establish good relations with your college instructors.
General Coping

1. Sociability measures your desire for companionship and social entertainment. Your score placed you in the 80th percentile. High sociability has the advantage of motivating you to establish friendships and spend a lot of time with other people. But it can distract you from the main purpose of college, which is learning. Try to keep your social life within reasonable bounds.

2. Family Emotional Support measures the satisfaction you feel with the communication that occurs in your family. Your score placed you in the 59th percentile. This suggests that, while your family communication is fairly good, some areas dissatisfy you. If these feelings persist, consider discussing them with a personal counselor.

3. Opinion Tolerance measures the degree to which you feel you can accept people whose political and social opinions differ sharply from your own. Your score placed you in the 32nd percentile. This suggests that you recognize the importance of tolerance but feel somewhat uncomfortable and distant toward people whose ideas conflict with your own. It is natural to have these feelings. But they can be an obstacle to your education if they prevent you from giving open consideration to all of the new ideas you will encounter at college. They can also limit the range of new friendships you will form, which may prevent you from taking advantage of the wonderful opportunities that exist at college to broaden your understanding of other people’s perspectives. Developing more tolerance will help you to work more effectively with others and to search for reasonable compromises on many national, community, and personal issues. Remember that each point of view usually has some merits and some inaccuracies, so that no single system of beliefs and values has all the answers.

4. Career Closure measures the degree to which you have thought carefully about your career options and have made a firm decision to pursue a specific career. Your score placed you in the 76th percentile. This suggests that you have spent a lot of time trying to develop a career plan and that you are getting close to making a decision. It is not necessary that you make a final career choice immediately; but it is strongly recommended that you continue focusing on this issue so that you will end the year with a much more definite idea of your long-term goals. Having a more clearly defined career goal will strengthen your commitment to college and sustain your motivation during tough times. You will probably find it very useful to consult with a professional counselor in your institution’s career planning center. A counselor can discuss the pros and cons of specific careers with you in an open and objective way that gives you complete freedom to make your own decision. A counselor can also suggest a wider range of options than you may have considered at this point. Your advisor can help you set up the appointment, or you can go directly to the center.

5. Sense of Financial Security measures your satisfaction with the amount of money available to you while at college. Your score placed you in the 78th percentile. You appear to feel relatively satisfied with your financial situation.

Receptivity to Support Services

1. Receptivity to Academic Assistance measures your interest in receiving help with your academic skills. Your score placed you in the 27th percentile. This suggests that you are not especially interested in receiving such assistance. Given your grades in high school and your favorable attitudes toward school, you probably do not need these services.

2. Receptivity to Personal Counseling measures your interest in receiving counseling for personal matters. Your score placed you in the 73rd percentile. Since you have not indicated any areas of serious stress in your life, this type of help is probably not needed.

3. Receptivity to Social Enhancement measures the degree to which you would like some help getting involved in social activities on campus. Your score placed you in the 65th percentile. Your advisor can give you advice and direction concerning the areas of social activity that interest you.

4. Receptivity to Career Counseling measures your interest in receiving counseling for vocational matters. Your score placed you in the 31st percentile. Although your need for career planning is not especially pressing, you may still be able to benefit from this type of service.
Receptivity to Financial Guidance measures your desire to discuss ways of increasing your financial resources for college. Your score placed you in the 49th percentile. This suggests that you have a moderate degree of interest in obtaining such assistance. You are encouraged to follow up on this interest even if you think there is little that your institution can do. Often more resources are available than a student realizes. You may wish to begin by explaining your situation to your advisor or financial aid counselor, who can help you identify the staff members and programs on campus that can assist you with loans, scholarships, and job opportunities. If you are employed, they can also provide guidance in balancing your course load and workload to help you avoid the stresses that often cause academic difficulty.

Miscellaneous

Internal Validity measures your carefulness in responding to this inventory, as indicated by the special items that asked you to enter a predetermined response. Your score was excellent. This suggests that you followed the instructions very carefully.

Note: If at any time you prefer greater privacy regarding your CSI reports, you may ask your advisor to either (a) return his or her copy to the coordinator or (b) give it to you.