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A Further Exploration of College Student Attrition: The Predicative Validity of the College Adjustment Scales

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A Further Exploration of College Student Attrition:
The Predictive Validity of the College Adjustment Scales

A Thesis
Presented to
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Western Kentucky University
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In Partial Fulfillment
of the Requirements of the Degree
Master of Arts

by
Christopher George Mattis
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A FURTHER EXPLORATION OF COLLEGE STUDENT ATTRITION:

THE PREDICTIVE VALIDITY OF THE COLLEGE ADJUSTMENT SCALES

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I would like to express my indebtedness to my sister, Sarah, and my brother, Noah. Although they may not realize it, they always have and always will help me find the way.

I never would have completed this thesis and earned my Master's degree if it had not been for my parents, George and Patricia Mattis. They have helped me along my path in countless ways. Most importantly, they have always given me unlimited support and love. When I changed majors several times in college (before finally deciding on Psychology), they never doubted me or questioned my decisions.

I could never express in words the love that I have for all of them.
# TABLE OF CONTENTS

## CHAPTER 1:
- Introduction ............................................................................................................. 1
- Rates of Student Attrition ..................................................................................... 3
- Traditional Explanatory Variables in Attrition Literature ..................................... 4
- The College Student Inventory .............................................................................. 11
- Adjustment/Personal Problems and College Attrition ......................................... 17
- The College Adjustment Scales ............................................................................ 22
- Hypotheses ............................................................................................................. 29

## CHAPTER 2:
- Method ..................................................................................................................... 30

## CHAPTER 3:
- Results ...................................................................................................................... 33

## CHAPTER 4:
- Discussion .............................................................................................................. 41

## References ........................................................................................................... 47

## Appendix A: Description of CAS Scales ................................................................. 53

## Appendix B: Description of CSI Scales ................................................................. 57

## Appendix C: Specific Instructions for Administration of the CAS ......................... 63

## Appendix D: Examiner Instructions for Group Administration of the CSI ............. 65
A FURTHER EXPLORATION OF COLLEGE STUDENT ATTRITION:
THE PREDICTIVE VALIDITY OF THE COLLEGE ADJUSTMENT SCALES

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Abstract
Since little research has addressed the question, the present study sought to
determine if potential psychological problems, as measured by the College Adjustment
Scales, predict college attrition. For Hypothesis One, 423 subjects were used to assess the
predictability of the nine College Adjustment Scales. Using logistic regression, Substance
Abuse problems was the only scale found to significantly predict attrition, \( p < .033 \).
Hypothesis Two examined the incremental predictive validity of the College Adjustment
Scales when supplemented with the College Student Inventory, a nineteen-scale
instrument designed to predict college attrition. Although the College Student Inventory
significantly predicted attrition, \( R = -.09, p < .05 \), the College Adjustment Scales could not
significantly incrementally predict student departure. It was concluded that the lack of
representativeness of the samples was the reason for the inability of the College
Adjustment Scales to predict attrition. In both samples, subjects were substantially
different from the larger samples from which they were derived in that they were more
female, had higher ACT scores, and had higher high school GPAs.
CHAPTER 1

Introduction

Regardless of the steps that organizations take in retaining committed, hard-working, and satisfied employees, turnover is inevitable. In fact, Cascio (1982) cites average turnover rates across all companies as high as 22% per year. The costs associated with replacing these departing employees can be substantial. In 1982, Cascio reported that the replacement costs for several jobs (i.e., claims investigator, field examiner, sales person, sales manager) were considerable. For example, the average replacement cost for a claims investigator was $12,950 in 1982. Due to the ever-increasing rise in costs and inflation, it is reasonable to assume that today these expenses are considerably greater than in 1982.

Cascio (1982) developed a basic model of turnover, in which he attributes turnover expenses to three general categories: separation costs, replacement costs, and training. When applying Cascio's theory of turnover, Ulschak and SnowAntle (1992) found that in an organization with 30% turnover, 1,200 employees, and an average turnover cost of $10,000 per employee, total turnover costs could easily surpass $3 million per year. In summary, it is clear that when an employee departs an organization, both time investments and costs can become extreme.

One type of organization in which turnover expenses are particularly damaging is the college or university. In American colleges and universities, most of the revenue
comes from student tuition. In fact, private institutions are highly dependent on student fees, since they do not receive funding from the state. Today, tuition can range from $4,000 or $5,000 per year for in-state students at four-year public universities to more than $20,000 per year for students at private universities.

When attrition rates are high, not only are dropouts losing their marketability in the workforce but institutions of higher education are losing large amounts of revenue as well. Giddan and Weiss (1990) noted that "...someone is paying the direct or indirect bill for attrition with tax revenues, insurance premiums, tuition and subsidies, or productivity losses to colleges" (p. 100). In addition, retaining students is important because of the costs associated with recruiting new students. Colleges and universities often spend large sums of money on recruiting and marketing (Bray, 1985).

Just as employees leave companies for a variety of reasons, students leave college as a result of many factors. In fact, Bean (1980) states that students leave college for many of the same reasons that employees leave work. For example, the rewards that the two groups receive (or fail to receive) may be the cause for their departure. Employees may quit because they do not receive the rewards they expect (e.g., pay); likewise, college students may quit because they also feel as though their rewards (e.g., grades, friendships, etc.) are inadequate.

Early identification of those students who are at risk of departing is important because once they are identified, colleges and universities can concentrate their efforts on helping these students persist. Therefore, instruments have been developed and specifically designed to predict attrition. One of the more commonly used questionnaires
is called the College Student Inventory (CSI), developed by Michael Stratil (Noel-Levitz National Center for Student Retention, 1993a). A major purpose of the CSI is to predict attrition from 19 scales designed to measure common variables or constructs found in the attrition literature. However, as will be discussed later, the little evidence that exists on the CSI suggests a limited relationship between the CSI scales and attrition. In addition, the CSI barely addresses the relationship between departure and psychological adjustment problems among college students. Yet, research suggests that psychological adjustment is indeed related to persistence in college (Tinto, 1993; Anton & Reed, 1991).

Therefore, the purpose of this thesis is to further explore the prediction of college attrition. Specifically, I will examine the predictive validity when supplementing the CSI with the College Adjustment Scales (CAS), a well developed instrument of college student psychological adjustment. The following literature review is divided into several sections. First, I discuss the problem of college student attrition. Second, a brief presentation of constructs and variables commonly explored in the attrition literature is provided, which then leads into a discussion of the CSI. Finally, I discuss literature that examines common psychological adjustment problems among college students, which leads into a discussion of the CAS.

Rates of Student Attrition

The rate of student departure from the institution of their first choice has remained relatively steady for most of this century. Summerskill (1962) reviewed several student attrition articles that were published between 1913 and 1962. He found that 50 percent of students never earn their bachelor’s degree, and determined that this value has
remained relatively the same between 1920 and 1962.

Furthermore, Tinto (1993) examined several samples provided by the American College Testing Program (ACT) and found very little change in rate of degree completion between 1983 and 1992. The reported average for this nine year period was 52% (Tinto, 1993); that is, 48% of entering students had not completed a degree at the institution in which they first enrolled. In addition, Tinto presents the rates of degree completion as a function of institutional selectivity. The data presented by Tinto indicate that, for institutions with less selective requirements, 60% of students do not complete their degree.

In the present paper, the focus is on attrition by the beginning of the third semester. The majority of students who leave college do so during their first year (Tinto, 1993). "First-year leaving represents a very sizable part of all institutional leaving, . . . Little wonder then that institutional concern with attrition centers on the first year" (Tinto, 1993, p. 14).

In summary, these data reveal that college student attrition rates are substantial among institutions of higher education within the United States. In addition, evidence indicates that attrition rates have remained relatively consistent for the past 75 years.

**Traditional Explanatory Variables in Attrition Literature**

As indicated in the previous section, college student attrition has been examined throughout this century. Over the years, hundreds of variables have been studied as potential predictors of attrition. Several researchers (Tinto, 1975; Spady, 1970; Bean, 1980) have further advanced our knowledge of attrition by developing theoretical models
to explain the high rates of student dropout. These models have proposed that there are three general factors that interact to influence persistence. These are as follows: students' background and individual characteristics, academic/commitment factors, and social/interpersonal variables. The focus of the next section is upon research addressing these three areas.

**Individual Difference/Demographic Variables**

Like much of the applied research in the social sciences, attrition researchers have long been interested in the role of individual differences. For example, they sought the answers to such questions as do blacks leave college more frequently than whites?; do women stay in the institution of their first choice longer than men?; and will those individuals of higher socioeconomic status (SES) remain longer in school and more likely receive a degree than their lower SES counterparts?

Using data obtained from the 1980 High School and Beyond studies, which were national studies designed to examine the educational activities of high schools seniors graduating in 1980, Tinto (1993) examined differences in socioeconomic status, ethnicity, and student ability. Although these data were gathered sixteen years ago, Tinto argues that “... we will make the not unreasonable assumption that, as regards completion and departure, these students' college experiences...are not atypical of most recent college-going cohorts” (p. 13). Upon examining student ability, he found that the percentage of students with the lowest ability who were departing college (66.1%), was more than double the percentage of students with high ability who were leaving (31.0%). In addition, low SES students were much more likely to depart than high SES students.
(57.9% and 33.5%, respectively), and the percentage of whites leaving (39.3%) was lower than both blacks (60.4%) and Hispanics (53.4%). However, Tinto points out that although these data are quite revealing, the variables clearly influence each other. For example, on average, black SES is lower than white SES. As a result, blacks may not be afforded the opportunities to attend “better” high-schools - - which may, in turn, result in lower ability scores.

Several researchers (Cope & Hannah, 1975; Spady, 1970; Astin, 1975; Tinto, 1993) have found relationships between gender and attrition. Often, men are more likely to persist and earn a degree than are women. However, when they actually depart, women are more likely to leave voluntarily; men are more frequently forced to leave as a result of poor academic performance.

Academic/Commitment Factors

Hackman and Dysinger (1970) determined that there were three “types” of attrition based on differing levels of student ability and differing levels of commitment. Individuals with high ability and low commitment were inclined to transfer. Students with low ability and high commitment would typically remain in school until they were forced to leave because of low academic performance. Finally, students with both low ability and low commitment tended to totally withdraw from higher education. Tinto (1993) notes that, “other things being equal, individuals who are committed to graduating from a specific institution are more likely to graduate from that institution than are persons whose commitments have no specific institutional referent (Terenzini, Lorang, & Pascarella, 1981)” (p. 43).
The attrition literature plainly shows that academic performance in high school and ability are strong predictors of college academic success (e.g., Irvine, 1966; Morrisey, 1971; Joel, 1978; Sexton, 1965; Summerskill, 1962; Tinto, 1975; Tinto, 1993). However, the relationship between high school academic success and college persistence appears to be indirect (Nelson, 1972); that is, when a student succeeds academically in high school, it is likely that their perception of their abilities will be increased, which will raise their expectation of college success. Expectations of success then lead to institutional commitment, followed by persistence. In addition, factors such as the academic requirements and demands of the high school attended and whether it is a public or private school should be considered.

In the Hackman and Dysinger (1970) study mentioned above, it was shown that the level of commitment or motivation of the students has a strong influence on attrition. "Individual commitments, whether expressed as motivation, drive, or effort, also prove to be centrally related to departure from institutions of higher education" (Tinto, 1993, p. 41). As students become less devoted to setting goals and striving to work towards those goals, there will be a decline in the "drive" to persist in school. Pace (1980) found that the desire to remain in school and commitment to personal goals are more closely related to academic outcomes in college than are demographic "individual difference" variables of students. Several researchers (Marks, 1967; Hackman & Dysinger, 1970) have found that when personal motivation and commitment are lacking, students will often depart, even if they are academically successful.

Some studies (Terenzini, Lorang, & Pascarella, 1981; Pascarella & Terenzini,
1980; Tinto, 1993) indicate that we must not focus only upon the level of students' commitment for personal success; their level of commitment toward the particular institution they attend is also important. The higher the devotion to their college, the more likely they are to persevere.

**Social/Interpersonal Variables**

The final group of traditional variables that have been commonly examined in the attrition literature are those involving a social component; that is, researchers are typically interested in how social and interpersonal variables are related to the rate of institutional departure.

The factors that have been examined thus far (i.e., demographics and academic/commitment factors) are generally a "part" of the individual; more specifically, they bring these characteristics with them upon entry into the institution. In contrast, social factors are influential after entering college. One of the most comprehensive theoretical models for explaining college student attrition was developed by Tinto (1975, 1993). In his model, he identifies the social components as "interactional" aspects of student persistence. In other words, the interactions that students have with social groups, other students, and college professors often play a very important role in the decision to drop-out:

Less than 25 percent of all institutional departures, nationally, take the form of academic dismissals. Most departures are voluntary in the sense that they occur without any formal compulsion on the part of the institution. Rather than mirroring academic difficulties, they reflect the character of the individual's social and intellectual experiences within the institution. Specifically, they mirror the degree to which those experiences serve to integrate individuals into the social and intellectual life of the institution. Generally, the more satisfying those
experiences are felt to be, the more likely are individuals to persist until degree completion. Conversely, the less integrative they are, the more likely are individuals to withdraw voluntarily prior to degree completion. (Tinto, 1993, pp. 49-50)

Tinto (1975, 1993) uses the terms “adjustment,” “incongruence,” and “isolation” to describe the interactional components of attrition. Adjustment refers to the ways that students adapt to the new challenges of college life. The majority of college freshmen are leaving home for the first time. They must learn how to adjust to the large number of social influences and experiences. In fact, life at college can be quite traumatic for these individuals:

...the adjustment to college may be particularly stressful, for it combines both intellectual and social forms of adjustment. Lest we forget, most new students are teenagers who have had precious little chance to live on their own and attend to the many challenging issues of adult life. (Tinto, 1993, p. 47)

Tinto (1993) indicates that a person’s ability to adequately adjust to college is linked to potential psychological problems: “Some students seem to adjust more rapidly to changing situations and are better able to handle the stress those changes entail (Lazarus, 1980; Thompson & Fretz, 1991). They tend to be...emotionally stable...” (p. 47).

Incongruence refers to the conflict between a student’s views, beliefs, and interests, and those of the other members of the institution (Tinto, 1993). Tinto says that incongruence can occur in two ways: first, the general academic demands of the institution do not match the individual’s abilities and interests; second, a mismatch may occur between the student’s beliefs and social values and those of other individuals at the school.
Few college settings are so homogenous that virtually no disagreement occurs on campus as to the appropriate character of intellectual and social behavior. But when that perception leads the person to perceive him/herself as being substantially at odds with the dominant culture of the institution . . . then withdrawal may follow. (Tinto, 1993, p. 53)

Finally, isolation results when there is insufficient contact between the student and other members of the institution (Tinto, 1993). Although incongruence and isolation appear to be strongly related, Tinto argues that students may not find themselves at odds with the culture of the institution (incongruence), but they may still feel isolated (isolation). Tinto (1993) notes that social contact is essential to college persistence:

\[ \text{... research demonstrates that the degree and quality of personal interaction with other members of the institution are critical elements in the process of student persistence. By contrast, the absence of sufficient contact with other members of the institution proves to be the single most important predictor of eventual departure even after taking account of the independent effects of background, personality, and academic performance (Pascarella & Terenzini, 1979). To paraphrase the extensive work of Pascarella and Terenzini and their colleagues, voluntary withdrawal is much more a reflection of what occurs on campus after entry than it is of what has taken place before entry. And of that which occurs after entry, the absence of contact with others proves to matter most. (p. 56, italics added)} \]

Isolation occurs between both students and their peers, and between students and their professors. In fact, inadequate social contact with professors can have a large impact on the decision to drop-out (Pascarella & Terenzini, 1979; Pascarella & Terenzini, 1980; Terenzini & Wright, 1987; Stage, 1989; Tinto, 1993). Encounters between students and professors outside the classroom may be more important than those within the classroom (Tinto, 1993). Students seem to be more easily integrated into both the social and academic fabric of the institution when they can approach teachers on a friendly,
individual, and informal basis.

Certainly, college attrition researchers have examined predictors and causes of attrition other than those listed above. However, the categories presented (i.e., demographics, academic/commitment variables, and social/interpersonal variables) are perhaps the most commonly studied. Now that a brief introduction of the attrition literature has been presented, I turn to an instrument that is designed to measure many of these "traditional" attrition constructs.

The College Student Inventory

One of the primary purposes of the CSI is to predict which students are at risk of dropping out. The CSI contains 19 scales designed to measure many of the "traditional variables" just discussed. These 19 scales are grouped into five separate sections: academic motivation, social motivation, general coping, receptivity to support services, and supplementary scales. A detailed description of the 19 scales is provided in Appendix B, however, a brief description follows (taken from: Noel-Levitz National Center for Student Retention, 1993a):

Section I - Academic Motivation

1. study habits - measures students' willingness to make the sacrifices needed to achieve academic success.
2. intellectual interests - measures how much the student enjoys the actual learning process.
3. academic confidence - measures the student's perception of their ability to perform well in school, especially in testing situations.
4. desire to finish college - measures the degree to which the student values a college education, the satisfactions of college life and the long-term benefits of graduation.
5. attitude toward educators - measures the student's attitudes toward teachers and administrators in general, as acquired through their pre-college experiences.
Section 2 - Social Motivation

6. self-reliance - measures the student's capacity to make their own decisions and to carry through with them.
7. sociability - measures the student's general inclination to join in social activities.
8. leadership - measure of the student's feelings of social acceptance, especially as a leader.

Section 3 - General Coping

9. ease of transition - measures the student's basic feeling of security amid the changes that often accompany the start of a college career.
10. family emotional support - measures the students' satisfaction with the quality of communication, understanding and respect that they have experienced in their family.
11. openness - measures the student's tendency to be open to new ideas and to the sensitive and sometimes threatening aspects of the world.
12. career planning - measures the degree of maturity that the student has shown in attempting to decide on a career path.
13. sense of financial security - measures the extent to which the student feels secure about his/her financial situation, especially as it relates the their current and future college enrollment.

Section 4 - Receptivity to Support Services

14. 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 mathematical skills.
15. personal counseling - measures the student's felt need for help with personal problems.
16. social enrichment - measures the student's desire to meet other students and to participate in group activities.
17. career counseling - measures the student's desire for help in selecting a major or career.

Section 5 - Supplementary Scales

18. initial impression - measures the student's initial predisposition toward their college on a variety of dimensions.
19. internal validity - measures the student's carefulness in completing the inventory.
For most of the items on the CSI, students respond on a seven point scale ranging from 1, not at all true, to 7, completely true. An example of an item using this scale is, "I like to go to large, lively parties." A smaller number of items are rated on a scale ranging from 1, very dissatisfied, to 7, very satisfied. An example of an item measured with this scale is, "The kinds of academic courses and majors available."

**Reliability and Validity Evidence of the CSI**

The Noel-Levitz National Center for Student Retention (1993b) reports that the reliability of the CSI is high: "...the CSI's 19 major independent scales have an average homogeneity coefficient (coefficient alpha) of .80 despite an average length of only 8.5 items" (p. 166). The authors also report that the test-retest reliability coefficient is .80.

To provide evidence for the construct validity of the CSI, the Noel-Levitz National Center for Student Retention (1993b) performed an analysis of covariance. Using high school GPA as the covariate, persisters' and dropouts' scores were compared on each of the nineteen scales. A significant difference existed between the two groups on nine of the scales, \( p < .001 \). Dropouts had higher scores on the dropout proneness scale; lower scores on desire to finish college, family emotional support, financial security, receptivity to social enrichment, receptivity to career counseling; a poor initial impression; and a strong desire to transfer (Noel-Levitz National Center for Student Retention, 1993b).

Two major studies were conducted to show support for the criterion-related validity of the CSI. The first, in 1987, included 3048 students from various schools. Though it is not one of the CSI's 19 basic scales, the dropout-proneness scale was
empirically derived from data collected in the first major validation effort. It is designed to measure "the student's overall inclination to drop out of school before finishing a degree" (Noel-Levitz National Center for Student Retention, 1993a, p. 11). Using multiple regression, the researchers determined which scales were most predictive of attrition. Eight of the 19 CSI scales (they did not identify which ones) were predictive of attrition, $R = .301, p < .001$; the dropout-proneness scale was derived from this analysis. However, the authors concluded that, "the final equation will not be very accurate in predicting who will drop out during the first semester of college" (The Noel-Levitz National Center for Student Retention, 1993b, p. 170), presumably because of the low Multiple R.

The second major predictive validation effort began in 1988. As opposed to the first study, which examined the pilot version of the CSI, the second study scrutinized the criterion-related validity of the current CSI version. The questionnaire was administered to 4,915 students from 46 colleges and universities. Two criteria were used in assessing the CSI's usefulness in predicting attrition: first-year college GPA and enrollment status at the beginning of the second year.

When comparing the 19 CSI scales to first-year college GPA, The Noel-Levitz National Center for Student Retention (1993b) found a correlation of .61 (although they did not report the statistic, I assume it is a multiple R with 19 predictors). "This indicates that the CSI is highly predictive of student success, when that success is defined in terms of first-year college GPA" (Noel-Levitz National Center for Student Retention, 1993b, p. 172).
Next, a series of discriminant analyses were used for predicting enrollment status, which was dichotomized as either enrolled or not enrolled. In the first analysis, all 19 scales were included; 71.96% of the cases were correctly classified. However, the researchers reported a high false positive rate, which means that students who actually drop-out after one year are more likely to be predicted as persisting. As a result, a second discriminant analysis was conducted on just the dropout-proneness scale. Results showed that 58.84% of students were correctly classified in terms of enrollment status. Although the overall predictability decreased, the authors reported a much lower false positive rate. In addition, the authors compared the usefulness of the dropout-proneness scale to high school GPA (a commonly examined predictor of attrition). When using high school GPA alone, discriminant analysis revealed that 51.96% of students could be correctly classified. As a result, the authors reported that "[t]his seems to indicate that using the Dropout-Proneness scores of the CSI enables colleges to do a somewhat better job of predicting enrollment status after one year, than when using high school GPA alone" (Noel-Levitz National Center for Student Retention, 1993b, p. 173).

In addition to enrollment status, first-year college GPA was used as a criterion for discriminant analysis (the authors did not indicate how GPA was coded); 71.2% of students could be correctly classified as to their GPA. Five CSI scales were found to significantly predict GPA: dropout-proneness, family emotional support, desire to finish college, study habits, and receptivity to academic assistance. Results also showed that only 54% of students were correctly classified when predicting college GPA from high school GPA. Therefore, these five scales appear to do a fairly adequate job in predicting
first-year college GPA, over and above high school GPA.

As an aside, the Noel-Levitz National Center for Student Retention (1993b) states that,

A strong caution needs to be exercised in evaluating the predictive validity against the criteria of enrollment status. . . . Because the CSI is designed to measure eventual dropout, over a four- or five-year period, rather than after only one year, we could reasonably expect predictive validity to be very low when using this as a criterion. (p. 172)

From what the research has shown us, this statement is puzzling. Data have clearly shown that the majority of departures occur during the first year of college (e.g., Tinto, 1993). It seems that the reason for studying attrition is to prevent attrition from happening; that is, we conduct studies, develop instruments, and generate theories for determining why students leave, thereby determining ways in which to help them stay. Therefore, if a major purpose of the CSI is in determining which students may be at risk of dropping out, and since the majority of students leave after the first year of college, shouldn't we expect the predictive validity of the instrument to be high when using second-year enrollment status as a criterion?

Logistic regression was also used by the researchers in assessing the CSI's predictive validity. Enrollment status after one year was used as the criterion. Results showed that "[t]his analysis indicated that the use of all the scale scores could not significantly predict enrollment status" (Noel-Levitz National Center for Student Retention, 1993b, p. 179). This result is puzzling since logistic regression is not only perhaps the best technique to use when predicting a dichotomous criterion (Norusis, 1992; Press & Wilson, 1978), but it is commonly used in predicting turnover (e.g., Weisberg &

In summary, the Noel-Levitz National Center for Student Retention (1993b) says, "[a]lthough the CSI as a whole does not predict enrollment status as well as it does first-year college GPA, it is still a more efficient predictor of enrollment status than is high school GPA alone" (p. 181). Clearly, the models and theories of student attrition should be as accurate as possible. Although GPA is often used as an indirect measure of attrition, which the CSI seems to predict fairly well, our ultimate goal is to accurately predict actual departure. Here, the CSI appears to be somewhat lacking.

Now that an introduction of commonly studied attrition variables has been presented, along with a discussion of the development and validity evidence of the CSI, I next focus on literature examining psychological adjustment problems among college students. This information will then lead into a discussion of an instrument designed to measure psychological problems among college students: the College Adjustment Scales.

Adjustment/Personal Problems and College Attrition

Although there is an abundance of studies that have explored how the traditional variables impact student attrition, relatively few researchers have attempted to determine the relationship between psychological problems and departure. When exploring the psychological problems among college students, it is important to note that few, if any, studies have used attrition as the criterion variable. Rather, researchers appear to be interested in how a variety of variables predict, or are related to, adjustment. It has been adjustment itself that has been the criterion variable of interest. For example, determining whether social problems lead to self-esteem problems (a common adjustment
variable) is much more common than discovering whether self-esteem problems lead to attrition.

**Psychological Separation**

With these thoughts in mind, the first commonly studied adjustment variable among college students is called psychological separation. Some believe that the strength of psychological attachment that infants and adolescents have with their parents strongly influences the psychological functioning and personal problems that those individuals encounter later in life (Wortman, Loftus, & Marshall, 1992). Apparently, adolescents are better able to cope with the psychological stressors encountered in adulthood when they can successfully detach themselves from the sometimes overpowering attachment bonds they have toward their parents (Wortman, Loftus, & Marshall, 1992). This is not to say that they become isolated from or apathetic toward their parents; rather, they are able to successfully conceptualize their own self-identities as being separate from their parents. Sullivan and Sullivan (1980) note that the issues surrounding psychological separation are particularly relevant during the freshman year of college, the time when many young adults move away from home for the first time. Hoffman (1984) developed the Psychological Separation Inventory (PSI) to measure psychological separation between individuals and their parents. Although researchers have found different results due to various research hypotheses and paradigms, one result is clear across many studies: psychological separation, as measured by the PSI, is related to college adjustment (Hoffman, 1984; Lopez, Campbell, & Watkins, 1986; Rice, FitzGerald, Whaley, & Gibbs, 1995; Lapsley, Rice, Shadid, 1989); consequently, poorly adjusted individuals appear to have adverse
attachment relationships with their parents.

**Depression**

In addition to understanding the effects of psychological separation, researchers are interested in determining the role that depression plays in the life of a college student (e.g., Quintana & Kerr, 1993; Priester & Clum, 1993; Vredenburg, O'Brien, & Krames, 1988; Beck & Young, 1978; Oliver & Burkham, 1979; Sherer, 1985; Rich & Scovel, 1987; Feix, 1984). Actually, Quintana and Kerr (1993) sought to determine whether a link existed between psychological separation and depression. They found that “students’ participation in relationships characterized by separation anxiety,. . . was associated with psychological complaints, especially depression” (p. 353).

Unfortunately, depression is quite prevalent among college students. Beck and Young (1978) and Seligman (1973) indicate that depression is the most common psychological problem among college students. “Oliver and Burkham (1979) reported that depression touches one in six college students at any point in time” (Feix, 1984, p. 22). In addition, Quintana and Kerr (1993) found that female students were significantly more depressed than males.

Sherer (1985) surveyed a sample of college students at Mississippi State University. The results were rather startling: 11.4% were depressed at the time of the survey and 22.1% indicated that, at some time, they felt that they needed treatment for their depression. In addition, 32.9% of subjects had reported suicidal ideation, with 9.4% stating that they had contemplated a specific way of committing suicide. Another disturbing finding showed that approximately half of the subjects used alcohol and drugs in
coping with their depression.

Priester and Clum (1993) explored how a student’s problem-solving ability affected the extent to which a stressor (in this case, a poor exam grade) resulted in depression and feelings of hopelessness. Multiple regression analyses showed that students’ confidence in their ability to solve problems interacted with their test grade (the stressor) for predicting depression and hopelessness; thus, the belief in one’s ability to solve problems moderates the effect that stress will have on subsequent depression.

Feix (1984) sought to determine the relationship between depression and attrition. His thesis is particularly relevant to the present paper because he attempted to determine how a psychological problem (i.e., depression) relates to college attrition.

Feix took an indirect approach to studying attrition. Rather than directly assessing whether students had persisted or dropped out, he measured college GPA. GPA is often used in attrition studies because of the consistent relationship between GPA and attrition. His measures of depression included the Depression scale of the Minnesota Multiphasic Personality Inventory, and the Beck Depression Inventory. Using college GPA, the students were divided into two groups: those in good academic standing and those on academic probation. T-tests were used to test the differences in depression scores on GPA (good academic standing vs. academic probation). Feix (1984) concluded that “there is no relationship between depression as measured by the MMPI-D and the BDI and college performance as indicated by cumulative GPA” (p. 35). Therefore, he concluded that there was no relationship between depression and attrition. His conclusions seem rather hasty since he did not, in fact, measure actual attrition.
Psychological separation and depression in college students are perhaps two of the more common psychological variables that have been examined. However, researchers have studied various other constructs, including self-esteem (Morrison & Morrison, 1978; Aspinwall & Taylor, 1992; Mooney, Sherman, & LoPresto, 1991; Geist & Borecki, 1982) and locus of control (Mooney, Sherman, & LoPresto, 1991; Geist & Borecki, 1982).

**Locus of Control**

The results of a study performed by Mooney, Sherman, and LoPresto (1991) showed a positive, linear relationship between academic locus-of-control (the perceptions an individual has regarding their ability to determine their academic fate) and college adjustment, as measured by the Student Adaptation to College Questionnaire. The subjects in this study (all women) who had a stronger sense of determining their own academic fate were better adjusted to college. The researchers also found that self-esteem was significantly related to college adjustment, \( r = .60 \).

**Self-esteem**

Aspinwall and Taylor (1992) examined the relationship between a wide range of personality characteristics and college adjustment. Using a longitudinal design combined with structural equation modeling, they sought to determine if optimism, self-esteem, locus of control, and desire for personal control in everyday situations were directly related to college adjustment. Their purpose was in determining if these personality characteristics had a direct influence on adjustment, or if they were mediated by the effects of stress coping strategies, social support, and/or levels of motivation. They found that optimism was the only variable that had a direct influence on adjustment to college.
In summary, psychological adjustment has a wide range of influences on the life of a college student. The variables just discussed (i.e., psychological separation, depression, self-esteem, and locus of control) are examples of how potential psychological problems affect students’ academic and personal lives. In the next section, I discuss the CAS, an instrument designed to measure a wide range of psychological issues that are often encountered by college students. Although the CAS is not specifically designed to predict attrition, it is a major premise of this thesis that the nine scales of the CAS will, in fact, significantly predict college departure - - that is, the present paper will directly examine the relationship between adjustment constructs and retention. With that in mind, I now examine the development and validation of the College Adjustment Scales.

**The College Adjustment Scales**

The CAS is designed to measure psychological problems among college students. Specifically, "the CAS was developed to address the need for a screening and evaluation instrument specifically designed to assess the experience and expression of adjustment problems in college students throughout the college years. Emphasis was placed on designing an instrument that would provide the professional responsible for problem assessment and intervention with the information most valuable for rapidly assisting the student" (Anton & Reed, 1991, p. 13).

The instrument contains nine scales, a detailed description of which can be found in Appendix A. However, a summary of the scales is as follows (taken from: Anton & Reed, 1991):
1. anxiety - a measure of clinical anxiety, focusing on common affective, cognitive, and physiological symptoms (e.g., "I seem to be worried constantly about something").
2. depression - a measure of clinical depression, focusing on common affective, cognitive, and physiological symptoms (e.g., "I've lost interest in the things I've always enjoyed").
3. suicidal ideation - a measure of the extent of recent ideation reflecting suicide, including thoughts of suicide, hopelessness, and resignation (e.g., "No one would miss me if I were to die").
4. substance abuse - a measure of the extent of disruption in interpersonal, social, academic, and vocational functioning as a result of substance use and abuse (e.g., "I've missed classes or work because I partied the night before").
5. self-esteem problems - a measure of global self-esteem which taps negative self-evaluations and dissatisfaction with personal achievement (e.g., "I'm afraid to ask for what I need").
6. interpersonal problems - a measure of the extent of problems in relating to others in the campus environment (e.g., "I seem to disagree with others more than I agree with them").
7. family problems - a measure of the difficulties experienced in relationships with family members (e.g., "My family doesn't understand me").
8. academic problems - a measure of the extent of problems related to academic performance (e.g., "I have difficulty concentrating while studying").
9. career problems - a measure of the extent of problems related to career choice (e.g., "I need to know myself better in order to choose a career").

Development of the CAS

In developing the nine scales, Anton and Reed (1991) relied upon a survey that was "conducted to sample the assessment needs of counseling center professionals" (p. 13). The survey contained a list of 70 psychological assessment areas. "Participants were asked to select the 10 areas from the list that would best meet their needs for initial screening and assessment of college student clients" (Anton & Reed, 1991, p. 13). The surveys were sent to counseling centers located in Florida, Illinois, Louisiana, Maryland, Missouri, New York, and Tennessee. After examining the survey results, the authors arrived at the nine scales.
Development of specific items for each of the nine content areas was based on several steps: (a) a list of items were developed that were designed to encompass a wide range of behaviors associated with the scales, (b) an original list of 307 items was reduced to 181 after carefully checking for redundancy and overlap, and (c) fourteen of the 181 items were rewritten after they were reviewed by a panel of psychologists checking for bias and offensiveness. Three criteria determined final item elimination: first, each scale should contain the same number of items; second, the scales should have high internal consistency, but still provide a thorough sampling of the content area; and third, "when items within a scale yield similar statistical properties, the item that provides the broadest domain coverage for the entire scale should be retained and/or the item with a significant relationship to gender, ethnic group, or social desirability should be eliminated" (Anton & Reed, 1991, p. 14). As a result, 108 total items were retained, with 12 items per scale.

The internal consistency reliabilities are (Anton & Reed, 1991, p. 14):

- Anxiety: .89
- Depression: .84
- Suicidal Ideation: .86
- Substance Abuse: .83
- Self-esteem Problems: .86
- Interpersonal Problems: .80
- Family Problems: .84
- Academic Problems: .87
- Career Problems: .92

**Validity Evidence of the CAS**

Evidence for the validity of the CAS has been accumulated in five studies (Anton & Reed, 1991). In study one, Anton and Reed compared individuals who had reported
that they were currently receiving counseling services to those individuals who were not. Subjects in both groups were members of the sample on which the CAS was standardized. Although the means were not reported, the authors state that a difference was found on the nine scales, through the use of a one-way MANOVA and Wilks' criterion, $r_{\text{canon.}} = .11$, $F(9,1304) = 1.91, p < .05$. In addition, discriminant analysis revealed that higher scores on anxiety and suicidal ideation were characteristic of the group that was receiving counseling services.

In studies two through five, the primary interest was the convergent and discriminant validity of the CAS (Anton & Reed, 1991). Studies two through four focused on the following CAS scales: anxiety, depression, suicidal ideation, self-esteem problems, interpersonal problems, academic problems, substance abuse, and family problems. Subjects for these validation studies were obtained from a large number of universities located in many different states (e.g., California, Colorado, Indiana, Kansas, Michigan, Missouri, New York, North Dakota, Ohio, Oklahoma, Texas, Florida, Illinois, Indiana, Kansas, Maine, New York, Pennsylvania, South Carolina, Virginia, and Wisconsin). These students were either interested in counseling services or had recently begun counseling.

To show evidence for the convergent and discriminant validity of the CAS, the nine CAS scales were correlated against several well-developed instruments designed to measure psychological/adjustment constructs. These instruments included the State Trait Anxiety Inventory (STAI), the Beck Depression Inventory (BDI), the Beck Hopelessness Scale (BHS), the NEO Personality Inventory (NEO-PI), the Inventory of
Interpersonal Problems (IIP), the Michigan Alcoholism Screening Test (MAST), a version of the Drug Abuse Screening Test (DAST), the global self-esteem scale of the Multidimensional Self-Esteem Inventory (MSEI), and the Family Adaptability and Cohesion Evaluation Scales III (FACES-III). Student GPA was also obtained from transcripts. The results of studies two through four showed strong evidence for the convergent and discriminant validity of the CAS. Many of the correlations between the CAS scales and the various instruments were expected (for a detailed description of the correlations found, see Anton & Reed, 1991); therefore, the CAS performs well when measuring these common psychological constructs.

The final validity effort was different from the previous three because the subjects had requested career counseling, whereas subjects in studies two, three, and four had requested personal counseling. As a result, the focus of study five was the CAS career problems and academic problems scales. Thirty-one subjects from a large Southeastern state university participated. They were given the CAS, the Career Decision Scale (CDS), and the Self-expression Inventory (SEI). "The SEI provides a measure of how well an individual can set and pursue career goals (Robbins & Patton, 1985)" (as cited in Anton & Reed, 1991, p. 20). In addition, cumulative GPA was obtained from transcripts. As in studies two, three, and four, the CAS scales in this study correlated in the expected direction with the previously developed instruments (Anton & Reed, 1991). For a detailed description of the correlations in these studies, refer to Anton and Reed, 1991.

Since GPA is a commonly used criterion in attrition research, it is important to elaborate on the results when the CAS scales were correlated with college GPA. In
validity study two, the nine scales correlated with GPA as follows: anxiety, r = -.18, depression, r = -.32, suicidal ideation, r = -.32, substance abuse, r = -.11, self-esteem problems, r = -.20, interpersonal problems, r = -.29, family problems, r = -.22, academic problems, r = -.53, and career problems, r = -.23. Validity study five showed the following correlations: anxiety, r = -.54, depression, r = -.36, suicidal ideation, r = -.30, substance abuse, r = .05, self-esteem problems, r = -.25, interpersonal problems, r = -.14, family problems, r = -.32, academic problems, r = -.56, and career problems, r = -.41. Although Anton and Reed (1991) considered only correlations at or above .40 as statistically significant, it is important to note that, with the exception of substance abuse in validity study five, r = .05, all relationships were negative; that is, greater psychological problems, as measured by the CAS, corresponded with lower college GPA. Not only are these results expected but they also provide a reason to believe a relationship exists between psychological adjustment and student attrition.

Anton and Reed (1991) concluded that

The findings from the above studies provide evidence supporting the validity of the CAS. The results of Study 1 suggest that the CAS is a sensitive measure of adjustment problems in college students, especially in light of the heterogeneous nature of the counseling recipient group. The pattern of correlations found in Studies 2, 3, 4, and 5 also supports the convergent and discriminant validity of the CAS. The replication of the pattern of correlations between the CAS and the NEO-PI across three independent samples, of which two samples were nationally recruited, attests to the stability of these relationships. (p. 20)

Earlier in this literature review, I discussed the importance of social and interpersonal factors on the decision to leave college. Tinto (1993) says that adjustment, incongruence, and isolation have a large impact on the student’s decision to persist. In
fact, Tinto argues that social variables often play a larger role in the decision to depart than do academic and interpersonal variables. Therefore, we should ensure that instruments designed to predict attrition adequately measure and address these social/interpersonal variables. It is a major argument in this thesis that the CSI does not adequately measure the wide range of influences that impact a college student’s social experiences. Only five or six of the CSI’s nineteen scales appear to address social factors: self-reliance, sociability, and social enrichment; ease of transition, attitude toward educators, and leadership seem to indirectly measure social influences.

Previously, I indicated that the CSI does not appear to be sufficient for predicting college attrition. An argument can be made that the CSI does not adequately address the influences that impact upon the social and interpersonal realm of college, as identified in Tinto’s model (1975, 1993). In contrast, the psychological variables measured in the CAS are clearly connected with the quality of an individual’s social experiences while at college. In fact, the relationship between the CAS scales and social variables is likely reciprocal; that is, depression, anxiety, substance abuse, suicidal ideation, etc. clearly influence the student’s willingness and desire to maintain adequate social contact. In like manner, poor social relationship can lead to depression, anxiety, suicidal ideation, and substance abuse.

Although the CSI appears to measure the demographic and academic/commitment factors of Tinto’s model, the social variables seem to be inadequately addressed, particularly since social variables are often identified as being the most important predictors of attrition (Tinto, 1993; Pascarella & Terenzini, 1979). The addition of the
CAS to the CSI would appear to more adequately reflect all aspects of Tinto’s (1993) model: the academic, the demographic, and perhaps most importantly, the social. With these factors in mind, the hypotheses of the study are described below.

**Hypotheses**

Three aspects lead to the hypotheses of this paper. First, the results from the Noel-Levitz National Center for Student Retention (1993b) validation efforts showed that the CSI is somewhat lacking in predicting student attrition. Also, the CSI does not adequately address the issue of college psychological adjustment. Second, results from Anton and Reed’s (1991) validation studies provide evidence that psychological adjustment is related to college student turnover - - that is, the CSI does not appear to be totally adequate for predicting departure, and the CAS seems to aid in the predictability of college attrition. Third, very little research has attempted to examine the relationship between college psychological adjustment and attrition. Clearly, more research needs to be conducted. For these reasons, the hypotheses to be tested are as follows:

**H1:** The nine scales of the CAS will significantly predict college attrition.

**H2:** The nine scales of the CAS will significantly predict college attrition over and above the dropout proneness scale of the CSI.
CHAPTER 2

Method

Subjects

For Hypothesis One, the subjects included 423 first-time full-time freshmen who started at Western Kentucky University (WKU) in the fall of 1995, and who completed the CAS. For Hypothesis Two, the subjects were 284 first-time full-time freshmen who also started at Western Kentucky University (WKU) in the fall of 1995, and who completed both the CAS and the CSI. In mid-August, 1995, a large number of incoming first-time full-time freshmen took part in “Master Plan” at WKU. Master Plan is a week-long optional orientation session, coordinated by the Residence Life office, in which incoming students learn more about the university and the opportunities and experiences they will encounter while attending WKU. The Plan is conducted before the start of the Fall semester. While at Master Plan, students took the CAS. There were 423 students who completed the CAS.

During the first week of classes (late-August, 1995) almost 80% (1798) of the first-time full-time freshmen were administered the CSI. There were 284 students who completed both the CAS and the CSI.

Procedure

As mentioned, the CAS was administered to incoming first-year full-time freshmen during WKUs Master Plan. Therefore, not all 2,298 first-time full-time
freshman took the inventory; data are available only for those students who chose both to attend Master Plan and complete the inventory.

Time was set aside during Master Plan during which students were administered the CAS. A detailed description of the instructions read to students, which is taken from Anton and Reed (1991), is provided in Appendix C.

While the CAS was given before classes started, the CSI was administered during the first week of the 1995 Fall semester. All incoming first-time full-time freshmen for the 1995-1996 school year were requested to take the CSI. In order to inform students of testing time, location, and date, a memo was sent to every professor who had first-time full-time freshmen in their class. The memo asked the professors to inform students where and when they could take the CSI. Since all freshmen professors were informed, most students heard the announcement several times.

The CSI was administered in large, group administrations. Instructions were taken from the “Examiner Instructions for Group Administration of the College Student Inventory,” by Michael Stratil (1988), which can be found in Appendix D.

Information was obtained from the Registrar’s office regarding enrollment status at the start of the Fall, 1996 semester. The Registrar’s office provided data indicating whether or not a student had returned to WKU in the fall of 1996. Students who re-registered and who had paid their fees by the fee payment deadline were classified as “retained.”

**Statistical Analysis**

A statistical technique that is perhaps most appropriate and most commonly used
in predicting a dichotomous dependent variable is logistic regression (e.g., Weisberg & Kirschenbaum, 1993; Huselid & Day, 1991; Kirschenbaum & Weisberg, 1990).

Therefore, logistic regression was used for predicting attrition. Although discriminant analysis is often used in predicting categorical variables (such as turnover status), logistic regression is more appropriate when the dependent variable is dichotomous (Norusis, 1992; Press & Wilson, 1978). In addition, logistic regression requires fewer assumptions than discriminant analysis, and even when the assumptions are satisfied for using discriminant analysis, logistic regression still performs very well (Norusis, 1992; Press & Wilson, 1978).

Enrollment status at the beginning of Fall semester, 1996, was the criterion variable. The CSI and the CAS scores were the predictors. For hypothesis one, which proposes that the CAS will predict attrition, the nine CAS scales were entered into the equation in three ways: all nine scales were entered as a block, the nine scales were entered using forward stepwise procedure, and only the self-esteem problems scale was entered.

To address the incremental predictive validity of the CAS (hypothesis 2), the CSI dropout-proneness scale was first forced into the logistic regression analysis. Once the CSI dropout-proneness scale was entered, the CAS scales were entered into the model in three ways: all nine scales were forced in as a block, the nine scales were entered using forward stepwise procedure, and only the substance abuse scale was entered.
CHAPTER 3

Results

Sampling Issues

In testing Hypothesis One, which examined the predictive value of the CAS, 423 students were used; however, retention data exist for 2298 total first-time full-time freshmen. Demographic data were examined to determine the representativeness of the sub-group that took the CAS. Table 1 compares demographic data for those students who took the CAS to the remaining cohort that did not take the CAS.

Table 1 shows that there are differences in race representation, sex representation, high school GPA, and ACT score between the two groups. To determine if these differences are statistically significant, Pearson chi-square analyses and ANOVA were used. For sex, the Pearson chi-square test for independence was significant, $\chi^2(4, N = 2382) = 435.977, p < .05$. Males comprised 22.2% of those students who took the CAS ($N = 423$); in contrast, for the group of students who did not take the CAS ($N = 1959$), 49.1% were male. Clearly, the CAS group was disproportionally female.

Since over 20% of race data is missing, it would not be meaningful to compare race representation between the two samples.
Table 1

Demographics for students taking the CAS compared to students who did not take the CAS

<table>
<thead>
<tr>
<th>Demographics</th>
<th>CAS Students</th>
<th>Total cohort not taking CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>423</td>
<td>1959</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>94 (22.2%)</td>
<td>961 (49.1%)</td>
</tr>
<tr>
<td>Female</td>
<td>245 (57.9%)</td>
<td>996 (50.8%)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>295 (69.7%)</td>
<td>1720 (87.8%)</td>
</tr>
<tr>
<td>Black</td>
<td>38 (9%)</td>
<td>194 (9.9%)</td>
</tr>
<tr>
<td>Asian</td>
<td>1 (.2%)</td>
<td>14 (.7%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2 (.5%)</td>
<td>9 (.5%)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (.5%)</td>
<td>9 (.5%)</td>
</tr>
<tr>
<td>High School GPA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>335</td>
<td>1886</td>
</tr>
<tr>
<td>Mean</td>
<td>3.10</td>
<td>2.93</td>
</tr>
<tr>
<td>Standard Dev.</td>
<td>.58</td>
<td>.61</td>
</tr>
<tr>
<td>ACT Score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>338</td>
<td>1888</td>
</tr>
<tr>
<td>Mean</td>
<td>21.65</td>
<td>20.4</td>
</tr>
<tr>
<td>Standard Dev.</td>
<td>4.13</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Note: There are missing data on sex, race, and high school GPA for the two independent groups.

T-test showed that high school GPA is significantly different between these two groups, $t(2220) = 20.137$, $p < .05$. Students who took the CAS had a significantly higher average high school GPA than those students who did not take the CAS.

In addition, $t$-test revealed that ACT scores are significantly different between the two groups, $t(2225) = 27.76$, $p < .05$. Individuals who took the CAS had higher ACT scores than those individuals who did not take the CAS.

In summary, freshmen with CAS data have higher ACT scores, higher high school GPAs, and are more likely to be female than those freshmen who did not take the CAS.
This problem will be discussed in the next chapter.

The obtained CAS scale scores in this study were compared to CAS normative data to determine if there were particular psychological problem areas for these students. Anton and Reed (1991) state that T scores greater than 60 are “suggestive of difficulty and fall within the borderline range,” and T scores greater than 70 are “considered significant” (p. 5). Table 2 shows comparisons between CAS scale scores in this study and normative data.

Overall, the CAS scale scores reported in Table 2 do not reveal any particular overall problem areas except for self-esteem. In this study, the mean scale score for self-esteem problems was 27.4. CAS normative data show that this lies at the 80th percentile, with 35.5% of students having scores that lie within the “problem” range (above a T score of 60). In comparison, only 15.87% of the normative sample had T scores above 60 on self-esteem problems. Therefore, with the exception of self-esteem problems, when compared to a national sample, our CAS sample does not appear to have unusually high scores on the CAS.

The sample used in evaluating Hypothesis Two included all students who took both the CAS and the CSI. Although 1824, or 80% of the 1995 freshman cohort took the CSI, only 284 took both the CSI and the CAS. Differences are shown in sex representation, race representation, high school GPA, and ACT score between those individuals who took both the CAS and the CSI and those individuals who took the CSI but did not take the CAS. The demographics comparing these two subgroups are reported in Table 3.
Table 2

Normative data for CAS scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Average scale score of CAS sub-sample (n = 423)</th>
<th>S.D.</th>
<th>percentile (based on normative data) (n = 1146)</th>
<th>% of WKU students with T score greater than 60</th>
<th>% of normative sample with T score greater than 60</th>
<th>% of WKU students with T score greater than 70</th>
<th>% of normative sample with T score greater than 70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>20.16</td>
<td>6.5</td>
<td>50</td>
<td>12.5</td>
<td>15.87</td>
<td>1.4</td>
<td>2.28</td>
</tr>
<tr>
<td>Academic Problems</td>
<td>21.65</td>
<td>4.8</td>
<td>42</td>
<td>5.7</td>
<td>15.87</td>
<td>.2</td>
<td>2.28</td>
</tr>
<tr>
<td>Career Problems</td>
<td>18.6</td>
<td>7.1</td>
<td>58</td>
<td>11.6</td>
<td>15.87</td>
<td>1.7</td>
<td>2.28</td>
</tr>
<tr>
<td>Depression</td>
<td>17.6</td>
<td>3.8</td>
<td>58</td>
<td>8.0</td>
<td>15.87</td>
<td>0</td>
<td>2.28</td>
</tr>
<tr>
<td>Family Problems</td>
<td>19.73</td>
<td>4.6</td>
<td>62</td>
<td>12.8</td>
<td>15.87</td>
<td>.2</td>
<td>2.28</td>
</tr>
<tr>
<td>Interpersonal Problems</td>
<td>21.4</td>
<td>5.0</td>
<td>60</td>
<td>12.5</td>
<td>15.87</td>
<td>.9</td>
<td>2.28</td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>15.1</td>
<td>4.9</td>
<td>55</td>
<td>9.0</td>
<td>15.87</td>
<td>1.2</td>
<td>2.28</td>
</tr>
<tr>
<td>Self-Esteem Problems</td>
<td>27.4</td>
<td>3.1</td>
<td>80</td>
<td>35.5</td>
<td>15.87</td>
<td>.2</td>
<td>2.28</td>
</tr>
<tr>
<td>Suicidal Ideation</td>
<td>13.52</td>
<td>3.4</td>
<td>58</td>
<td>10.2</td>
<td>15.87</td>
<td>1.4</td>
<td>2.28</td>
</tr>
</tbody>
</table>

Chi-square analysis revealed that sex representation is significantly different between the two subgroups, $\chi^2 (4, N = 1823) = 39.64, p < .05$. For the group of students who took both the CAS and the CSI, 27.1% were male. For the group of students who took only the CSI, 47.3% were male.
Table 3
Demographic data comparing students who took both the CAS and the CSI to those students who took only the CSI

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Students who took the CAS and the CSI</th>
<th>Students who took the CSI, but not the CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>284</td>
<td>1539</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>77 (27.1%)</td>
<td>728 (47.3%)</td>
</tr>
<tr>
<td>Female</td>
<td>207 (72.9%)</td>
<td>811 (52.7%)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>252 (88.7%)</td>
<td>1366 (88.8%)</td>
</tr>
<tr>
<td>Black</td>
<td>27 (9.5%)</td>
<td>146 (9.5%)</td>
</tr>
<tr>
<td>Asian</td>
<td>1 (.4%)</td>
<td>7 (.5%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2 (.7%)</td>
<td>6 (.4%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (.4%)</td>
<td>5 (.3%)</td>
</tr>
<tr>
<td>High School GPA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>282</td>
<td>1496</td>
</tr>
<tr>
<td>Mean</td>
<td>3.15</td>
<td>3.00</td>
</tr>
<tr>
<td>Standard Dev.</td>
<td>.57</td>
<td>.60</td>
</tr>
<tr>
<td>ACT Score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>283</td>
<td>1496</td>
</tr>
<tr>
<td>Mean</td>
<td>21.9</td>
<td>20.7</td>
</tr>
<tr>
<td>Standard Dev.</td>
<td>4.2</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Note: There is missing data on sex, race, and high school GPA for these two independent groups.

Chi-square analyses did not show significant differences in race representation for the subgroups examined in Hypothesis Two, $\chi^2 (4, N = 1823) = 2.107, p < .91$. The percentages of whites and blacks were not different for students that took the CAS and the CSI when compared to those student who took only the CSI.

T-test showed significant differences in both high school GPA, $t (1777) = 13.4, p < .05$, and ACT score, $t (1778) = 21.4, p < .05$, between the subgroup that took the CAS and the CSI and the subgroup that took only the CSI. The subgroup on whom we
have CAS and the CSI data had a significantly higher average high school GPA and ACT score than the subgroup that took only the CSI.

In summary, upon examining the representativeness of the subgroup used in Hypothesis Two, individuals with both CAS and CSI data were found to have higher average GPAs, higher ACT scores, and have a higher percentage of females than the much larger group that took only the CSI.

Overall, the sample used in Hypothesis One (that subgroup that took the CAS) and the sample used in Hypothesis Two (that subgroup that took both the CAS and the CSI) do not appear to be representative of the larger samples from which they were drawn, and from the 1995 freshman cohort. In both Hypothesis One and Hypothesis Two, the sub-groups used in this study are more female and somewhat better academically prepared than the entire cohort. This problem will be discussed in the next chapter.

**Hypothesis One results - predictability of the CAS**

To examine the hypothesis that the CAS predicts attrition, logistic regression analysis was used. All of the students who took the CAS were included in this analysis (N = 423). First, all nine CAS scales were entered as a block into the regression analysis. This model did not significantly predict attrition (p > .05). Approximately seventy-three (73.16) percent of students were correctly classified using the nine CAS scales. This value provides only a modest increase in prediction accuracy derived solely from the retention base rate of 71.98%.

To further examine the predictive value of the CAS, the nine CAS scales were entered into the logistic regression analysis using forward stepwise (likelihood ratio test)
method. Substance Abuse was the only scale that was statistically significant for predicting attrition \((p < .05)\). Though slightly over seventy two percent \((72.57)\) of students were correctly classified as either persisters or dropouts when using Substance Abuse, this value represented only a trivial increase over the base rate. None of the other scales significantly improved the logistic regression model.

Since students collectively had the most deviant scores on the self-esteem scale \((35.5\% \text{ had T scores higher than 60, the value that Anton & Reed identified as "problematic"})\), the Self-Esteem Problems scale was entered into a logistic regression analysis. The scale did not significantly predict attrition \((p > .05)\).

**Hypothesis Two results - incremental predictability of the CAS**

Hypothesis Two states that the nine scales of the CAS will significantly predict attrition over and above the CSI. Although, as stated above, little predictive value for the CAS was found, the CAS may still have incremental predictive value if the CSI is a suppressor variable. Obviously, this analysis can be performed on only those individuals who took both instruments. As mentioned previously, 284 students took both the CAS and the CSI.

Noel-Levitz National Center for Student Retention (1993b) indicate that the dropout-proneness scale is the best CSI predictor of college attrition. Accordingly, the dropout-proneness stanine was used to represent the information in the CSI. The dropout-proneness stanine was entered first into the regression equation. This variable significantly predicted attrition, \(R = -.09, p < .05\).

Once the dropout-proneness scale was entered, the CAS was entered into the
regression analysis in three ways: all nine scales were entered simultaneously, the nine scales were entered using forward stepwise procedure, and just the substance abuse scale was entered, since it was the only scale that was found to be predictive of attrition. None of these analyses resulted in significant improvement in the logistic regression model. Thus the data indicate that the CAS does not incrementally predict attrition when combined with the CSI.
CHAPTER 4
Discussion

The purpose of this thesis was to examine how well the CAS predicts attrition during the first year of college. Prior literature suggests that potential psychological problems for college students will impact the student’s decision to stay in school. Since the College Adjustment Scales were designed to measure common adjustment problems for college students, it was hypothesized that the CAS would significantly predict attrition. For the most part, the hypotheses were not supported.

Hypothesis One

Hypothesis One stated that the nine CAS scales predict attrition. Three different logistic regression analyses were used to examine this question: first, all nine scales were entered simultaneously; second, the nine scales were entered into the equation using a forward stepwise predictor selection procedure; third, the Self-Esteem Problems scale was entered by itself, since the sample studied revealed more normatively deviant scores on this scale than any other CAS scale.

With the exception of Substance Abuse, which was found to significantly predict attrition when using forward stepwise analysis, none of the other CAS scales significantly predicted attrition. This outcome was rather surprising since Substance Abuse scores in the aggregate were not particularly high for students in the sample. In fact, only 9% had T scores greater than 60 on Substance Abuse.
A large percentage of students had T scores greater than 60 on Self-Esteem (35.5%), indicating that in this sample, self-esteem problems were more prevalent than in the CAS normative sample. Therefore, it was surprising to find that Self-Esteem Problems did not significantly predict attrition. In this sample, no link was found between self-esteem scale scores and student decisions to persist.

The failure of the CAS to predict attrition is puzzling, since Tinto’s widely cited theory indicates that the ability to adjust (to college life) plays a significant role in the decision to stay in school. One explanation is that the CAS generally does not adequately target constructs that effect a student’s decision to persist. This explanation seems unlikely for two reasons. First, as discussed earlier in this thesis, Tinto’s theory of college student departure suggests that adjustment variables typically play a large role in a student’s decision to persist - - that is, a better adjusted individual becomes more socially integrated, and therefore, persists (Tinto, 1975; 1993). Clearly, based on the literature reviewed, the CAS measures constructs that have a direct link to a student’s ability to adjust (Mooney, Sherman, & LoPresto, 1991; Aspinwall & Taylor, 1992; Hoffman, 1984; Lopez, Campbell, & Watkins, 1986; Rice, FitzGerald, Whaley, & Gibbs, 1995; Lpasley, Rice, & Shadid, 1989). Second, it is unlikely that the instrument itself does a poor job of measuring adjustment problems since it was meticulously designed over several years of research, with significant construct validity evidence demonstrated in five different research studies (Anton & Reed, 1991). Thus it is reasonable to believe that adjustment impacts attrition and that the CAS measures important adjustment constructs.

Another possible explanation lies in the particular sample of freshmen who took
the CAS in the present investigation. This sample includes a somewhat select group of individuals who were likely unusually motivated to stay in school. As mentioned earlier, the CAS was administered during WKU’s Master Plan. Not all freshmen attended Master Plan; only those individuals who chose to attended the week long “orientation” program. Furthermore, taking the CAS during Master Plan was not mandatory; only those individuals who set aside time during the week’s activities completed the questionnaire. In summary, those students who took the CAS were derived from two somewhat select groups: 1) those individuals who chose to attend Master Plan, and 2) those Master Plan participants who chose to take the CAS. As discussed earlier, these individuals were disproportionately female, and had higher ACT and high school GPA scores than the larger groups from which they are derived. Therefore, in all likelihood, this select group of individuals was more motivated to stay in school than the cohort as a whole.

If those students who took the CAS were more motivated to persist, they would likely have lower attrition rates. Examination of the data revealed an attrition rate of 28% for the CAS group. This value contrasts with a rate of 38% for the group of freshmen who did not take the CAS. The chi-square test revealed that these percentages are significantly different, $\chi^2 (4, N = 2298) = 12.476, p < .05$. Since the lower attrition rate reduced criterion variance by 17% compared to the non CAS group, true relationships between CAS scales and attrition may have been somewhat obscured.

**Hypothesis Two**

The usefulness of the CAS to incrementally predict attrition when combined with the CSI was the focus of Hypothesis Two. As expected, the dropout-proneness scale did
significantly predict attrition. However, as in Hypothesis One, the CAS did not incrementally predict attrition.

Earlier, I reported that the small sample on whom we have CAS and CSI data is unrepresentative of the much larger sample with just CSI data. Students who had taken both the CAS and the CSI were different from those individuals with just CSI data in that they were more female, had higher high school GPA scores, and higher ACT scores. Higher ACT scores and higher high school GPAs would indicate this subgroup is more highly motivated to persist.

To further examine the possibility that the CAS failed to predict attrition due to sampling problems, we revisited the CSI data. The correlation coefficient measuring the relationship between retention and the dropout proneness stanine for the sample that has only CSI data was compared to the correlation coefficient measuring the association between retention and the dropout proneness stanine for the sub-sample on whom we have both CAS and CSI data. For the sample on which we have only CSI data, Kendall's tau b correlation was -.182, p < .05. For the group with both CAS and CSI data, Kendall's tau b correlation was -.111, p < .05. Clearly, there is a greater relationship between retention and the CSI for the non CAS group with more than twice as much retention variance explained by the CSI in this sample. Based on this analysis and the analyses that showed differences on high school GPA, ACT score, race, and sex, it is likely that sampling problems created a less than optimal circumstance for evaluating either the validity or the incremental validity of the CAS.

Regarding Hypothesis Two, a crucial question remains: although there clearly are
sampling problems, why did the CSI predict attrition while the CAS did not since both were evaluated on the same sample? When developing the CSI, the Noel-Levitz National Center for Student Retention specifically designed a questionnaire that would adequately predict a student’s decision to persist. In contrast, when developing the CAS, Anton and Reed (1991) chose to develop a questionnaire that “is an inventory for use by professionals who provide counseling services to college students” (p. 1). The CAS was not designed specifically to predict college attrition. In addition, other than the present study, no other studies have attempted to examine the usefulness of the CAS in predicting college attrition. A likely explanation is that the CSI is simply a more refined measure of constructs specifically related to attrition. After all, the CSI was developed primarily to predict attrition. The same cannot be said about the CAS.

Summary

In summary, the results of this study provide little support for the CAS as a predictor of attrition. First, unrepresentativeness of the samples used in examining both hypotheses produced substantial range restriction in both criterion and predictor measures. The subgroups used in studying the hypotheses were clearly different from the larger and more representative groups on whom no CAS scores were gathered. In studying Hypothesis One, subjects were found to be substantially different on sex representation, high school GPA, and ACT score. Likewise, in studying Hypothesis Two, subjects were different on sex representation, high school GPA, and ACT score. Second, obtained mean CAS scale scores indicate that the students sampled are fairly well adjusted. Only two scales had average scores higher than the 60th percentile. Tinto’s theory suggests that
poorly adjusted individuals will likely drop out after their first year of college. However, since these data show that individuals in the subsample are fairly well adjusted, that finding may explain why the CAS was not found to predict attrition. Third, the CAS was not specifically designed to predict attrition, whereas the CSI was. The CAS was designed to be used as a counseling assessment tool to measure potential psychological problems in college students. It was not developed for the purpose of predicting whether or not a college freshman will dropout.

One obvious improvement for future research would be to ensure more representative sampling of the target population.

The hypotheses were not supported in this thesis. These findings cast doubt on the usefulness of the CAS as a predictor of attrition. For this purpose, the CSI appears more useful. However, the limitations of this study make it unwise to conclude that potential psychological problems do not predict college attrition.
References


Laboratory for Research in Higher Education, University of California.


Appendix A

Description of CAS Scales
Description of CAS scales

**Anxiety:**
Scores on this scale reflect the extent to which the students is currently experiencing the physical and psychological correlates of anxiety. Students with high scores on this scale are likely to be experiencing muscle tension, increased vigilance and scanning of their environment, and signs of autonomic hyperactivity such as rapid and shallow respiration. These students may also have excessive concerns and worries about real or expected life events, which may be experienced as intrusive and unwanted thoughts.

**Depression:**
This scale measures the degree to which a students is experiencing the physical and psychological correlates of depression. Students with high scores on this scale are likely to be easily or chronically fatigued and to have lost interest or pleasure in normally enjoyable activities. Such students are often affected by feelings of sadness and hopelessness that they cannot seem to combat on their own. Social withdrawal or isolation from their friends and peers may also be present.

**Suicidal Ideation:**
Scores on this scale reflect the extent to which a student reports thinking about suicide or engaging in behaviors associated with suicide attempts. Students with high scores on this scale are likely to have had thoughts of suicide and may view suicide as a viable solution.

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to their problem. They may also have attempted suicide in the past. Scores in borderline or elevated ranges should always be interpreted as requiring a follow-up evaluation.

**Substance Abuse:**
Scores on this scale reflect the extent to which a students is experiencing difficulties in interpersonal, social, academic, and vocational functioning as a result of substance abuse. Students with high scores on this scale may be experiencing guilt or shame about their substance use or embarrassment about behaviors they engaged in while abusing drugs or alcohol. Discord in relationships with friends or loved ones resulting from the use of alcohol or drugs may also be present. Excessive absence from classes or work, with associated decline in performance, may also be present.

**Self-esteem Problems:**
This scale is a measure of general, or global, self-esteem. Students with high scores on this scale tend to be self-critical and dissatisfied with their perceived skills, abilities, or achievement in comparison their peers. They may see themselves as unassertive, excessively sensitive to criticism from others, or physically or sexually unattractive.

**Interpersonal Problems:**
This scale measures the degree to which the student has difficulty in relating to others. High scores on this scale may reflect excessive dependence on other and increased vulnerability to the vicissitudes of these relationships, and/or a distrustful, argumentative style of relating to others.
Family Problems:
This scale measure the extent of family problems which are frequently experienced by college students. Students with high scores on this scale may be experiencing difficulty achieving emotional separation from their families and learning to live more independently. High scores may also indicate worry or concern over problems occurring in a conflicted or tumultuous family.

Academic Problems:
Scores on this scale reflect the extent to which the student experiences difficulties in academic performance. Students with high scores on this scale are likely to suffer from poor study skills, inefficient use of time, and poor concentration ability. Test anxiety may also be a prominent problem for these students.

Career Problems:
This scale measures difficulties in setting career goals and in making decisions instrumental to career goal attainment. High scores on this scale suggest that the student is experiencing anxiety or worry in selecting an academic major or future career. Difficulty in selection may be related to a lack of information about choices, undifferentiated career interests, or an absence of clear career goals.
Appendix B

Description of CSI Scales
Description of CSI scales

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 effort, not 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 encouraged to broaden and deepen their intellectual interests. The following is a sample question: "Books have widened my horizons and stimulated my imagination."

   c. Academic Confidence. This scale measures the student's perception of their ability to perform well in school, especially in testing situations. It is not intended as a substitute for aptitude assessment, but rather as an indicator of academic self-esteem. A comparison between the student's standing on this scale and an aptitude measure 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. A sample question is, "My mind is able to grasp complicated ideas."

   d. 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, regardless of their prior level of achievement, possess a keen interest in persisting. 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 planning scores or academic confidence. A sample question in this scale is, "I am strongly dedicated to finishing college - no matter what obstacles get in my way."

e. **Attitude toward Educators.** This scale measures the student's attitudes toward teachers and administrators in general, as acquired through their 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 their 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 types of question: "Most of my teachers have been very caring and dedicated."

2. **Social Motivation**

a. **Self-Reliance.** The purpose of this scale is to measure the students' capacity to make their own decisions and to carry through with them. It also assesses the degree to which an individual is able to develop opinions independently of social pressure. Students with a low score on self-reliance can be encouraged to develop greater independence. When this approach seems inadequate, the student can be referred to counseling services if available. A sample question on the self-reliance scale is, "I often rely on my own ideas when making decisions and I'm prepared to make an unpopular decision if necessary."

b. **Sociability.** This scale measures the student's general inclination to join in social activities. The relationship between sociability and academic 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 with to explore the implications of an extreme score, either high or low, with the student. A sample question from this scale is: "I spend a lot of time with other people."

c. **Leadership.** This is a measure of the student's feelings of social acceptance, especially as a leader. This scale does not measure leadership ability or even potential; it simply reflects the student's feelings about how other perceive his/her leadership. Students with low scores can be encouraged to participate
in activities that will build up their leadership skills, whereas high scoring students can be encouraged to assume some leadership responsibilities in student organizations. A sample question is, "Over the years, I have frequently been selected as a spokesperson or group leader."

3. General Coping

a. **Ease of Transition.** This scale measures the student's basic feeling of security amid the changes that often accompany the start of a college career. Its main focus is on feelings of security in the campus social environment, as illustrated by this sample question: "I expect to make friends easily at college."

b. **Family Emotional Support.** This scale measures the students' satisfaction 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 attrition, particularly in academically successful students. Many RMS advisors focus heavily on this scale for insights into a student's difficulties. A sample question is, "While I was growing up, I felt that the rest of my family was firmly behind me."

c. **Openness.** This is a measure of the student's tendency to be open to new ideas and to the sensitive and sometimes threatening aspects of the world. Since freshmen are often exposed to strikingly new cultural events, political philosophies, customs and interpersonal relationships, narrow or defensive reactions can interfere with their education. After gently alerting low-scoring students to the new ideas they will be studying at college, one can encourage them to make a conscious effort to broaden their cultural and personal horizons. Some advisors use the scale in academic advising, initially steering low scorers away from philosophy, religion, psychology or other classes that may deal with sensitive, potentially threatening issues. The following is a sample question: "Our ideas about life are far from perfect and we can all benefit greatly from studying the beliefs and values of other societies."

d. **Career Planning.** This scale measures the degree of maturity that the students has shown in attempting to decide on a career path. It does not assume that maturity is reflected in an early career decision. Rather, it measures the mental activities that usually lead to effective decision-making. Low-scoring students can be referred to a career-planning center for a variety of services. A sample
question is: "I have spent a lot of time thinking about how to best prepare myself for a career."

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 their current and future college enrollment. The scale is not intended to measure the objective level of financial resources that the student has, only their 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."

4. **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 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 low score on both scales, for example, an
advisor can point out that he/she seem 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."

5. Supplementary Scales

a. Initial Impression. This scale measures the student's initial predisposition toward their college on a variety of dimensions. Keep in mind that the initial impression scale is not intended to measure the college's true characteristics, but rather the pre-judgments and preconceptions that the student has acquired from friends, family and the media. This mind-set can influence a student's success and inclination to stay in college. For this reason, the scale's usefulness is not affected by the fact that most entering first-year students have had little direct contact with the college itself. The questions on the scale describe general institutional characteristics, which are rated on level of satisfaction. One listed in the inventory, for example, is "The entertainment available at or near the institution."

b. Internal Validity. This scale measures the student's carefulness in completing the inventory. Each question asks the student to follow a simple instruction and it is scored in terms of whether or not the student followed the instruction. The scale is very useful in identifying and students who might have responded randomly in order to finish quickly. A sample item from this category is "Enter a '2' for this question."
Appendix C

Specific Instructions for Administration of the CAS
Specific Instructions for Administration of the CAS

Furnish the student with a CAS item booklet and answer sheet, and say:

This is the CAS item booklet. On the front page are directions for completing the CAS. First, complete the information requested at the top of the CAS answer sheet. Go ahead and do that now.

When the student is finished say:

Again, look at the directions on the item booklet. The booklet contains 108 statements. Read each statement carefully and decide whether or not it is an accurate statement about you. For each statement, circle the letter on the answer sheet that best represents your opinion.

If the statement is false or not at all true, circle the letter “F.” If the statement is slightly true, circle the letter “S.” If the statement is mainly true, circle the letter “M.” If the statement is very true, circle the letter “V.” Note that the items are numbered across the rows of the answer sheet. If you make a mistake or change your mind, make an “X” through the incorrect response and then circle the correct response. DO NOT ERASE! Please answer each item as openly and as honestly as possible. Be sure to answer every item. You can take as much time as necessary to complete the CAS. Do you have any questions?

Appendix D

Examiner Instructions for Group Administration of the College Student Inventory
Examiner Instructions for Group Administration of the College Student Inventory

The College Student Inventory (CSI) is basically self-administering in that all of the required instructions are contained within the test booklet. But several considerations suggest that you will need to take special measures when administering the CSI to groups. First, a concerted effort at establishing rapport is very helpful when any questionnaire is administered under group conditions. You will be asking students to reveal important information, and they need to feel they can trust you. Second, the joking and chatting that often accompany group situations require that you establish a serious tone at the outset of the session. Third, since some students do not heed written instructions very well, you will need to reinforce them with oral comments.

For these reasons, the following set of specific procedures is strongly recommended.

1. Select a room where all of the students will be able to sit comfortably while writing. The surface of the desks should be hard and smooth, so that students can write on them without creating indentations in the answer sheet. Avoid rooms where hallway noise will be distracting, or where all students will not be able to see and hear you clearly.

2. With groups larger than 50, arrange to have at least one assistant to help you distribute materials and answer questions.

3. Find your group number, which is printed on the cover letter that came with your

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Taken from: Stratil, M. L. (1988). Examiner instructions for group administration of the College Student Inventory. Iowa City, Iowa: Noel-Levitz Centers, Inc.
shipment of materials. Using either a chalkboard or large sheet of poster paper, write the following in large letters: "OUR GROUP # IS _____", with your number inserted in the blank.

4. After the students are seated and ready to begin, deliver a short speech that (a) introduces yourself, (b) explains your role in administering the CSI, and (c) briefly explains the reasons why your institution is administering the CSI.

Without repeating the content of the Overview (p. 2 of test booklet), try to make your speech blend well with the theme in that passage. Express you sincere desire that they fulfill their college goals, your confidence that all of them can do so, and your desire to help them in every way you can. Refer to the CSI as a "questionnaire" rather than as a "psychological" or "personality" test. Briefly describe how it will enable your institution to give them the best possible instruction and support. Emphasize that all follow-up activities will be entirely voluntary. Reassure them of the confidentiality of their responses, but do not dwell on this matter since excessive reassurance may be counterproductive. It is very important to encourage them to be open and honest. During follow-up interviews some students have explicitly indicated that this oral instruction is very helpful.

Indicate that the CSI has been carefully designed so that all categories of entering students can benefit from it. But explain that it is impossible to write questions that fit everyone exactly. Mention that students who have been out of school for a long period of time may encounter a few questions that will not correspond very well with their situation.
Emphasize the need for flexibility: they should try to understand the intent of such questions, and then answer in whatever way they think best describes their circumstances. Tell them that you will be happy to help them if they get stuck.

At the end of your talk, you should state clearly that any student who objects to completing the CSI should see you. Reassure them that deciding not to take the questionnaire is perfectly acceptable. But also reemphasize the value of the questionnaire and state that they should not avoid it just to save time. If any student then comes forward, he or she should be allowed to leave as unobtrusively as possible so as to minimize any social contagion effect. The purpose of this approach is to strike a balance between two equally important goals. On the one hand, sound professional practice requires that students not be pressured into completing a motivational questionnaire. But practical experience with students also suggests that some will take advantage of any excuse to avoid an effortful activity - even one designed to help them. So the above approach tries to encourage as many students as possible to complete the CSI without coercing them.

5. After asking them to wait for further instructions, distribute the answer sheets, test booklets, and presharpened No. 2 pencils.

6. Explain that a satisfactory mark is a relatively heavy one that fills all or virtually all of the chosen circle. (The scanner manufacturer recommends that a circle be marked over until the number or letter inside is not longer visible.) A satisfactory mark does not extend beyond the boundaries of the circle. 7. Inform the students that the computer will
automatically insert a standard response if they leave a question blank or make an unreadable mark. Jokingly point out that it is better for them to give their answer than to have the computer answer for them.

8. After drawing attention to your group number, ask the students to read the Overview, to complete Part A of the instructions, and then to stop. Instruct them to raise their hands if they have any questions, answer such questions by going to the student's desk and communicating personally.

9. After all students have finished Part A, ask them to look over their answer sheets to verify that their marks satisfy the criteria you discussed earlier. Then re-emphasize the importance of their completing every question.

10. When you judge that all students understand the above, instruct them to proceed on their own with Parts B through D.

11. If the coordinator at your school has decided that a modification is needed to Question 194, wait until the point where some of the students have almost finished. Then interrupt the group, ask them to turn to the last page, and explain how you want them to interpret this question. Although it might have been easier to place Question 194 at the beginning of the test booklet, it was placed at the end so that students would have an informed basis on which to answer it.

12. Examine the completed answer sheets as they are submitted. If you identify any containing omissions or unsatisfactory marks, ask its owner to make whatever corrections are needed. Be especially alert for large blocks of omissions, particularly the questions on
the last page of the test booklet.