EARLY IDENTIFICATION OF DROPOUT-PRONE STUDENTS
AND EARLY INTERVENTION STRATEGIES TO
IMPROVE STUDENT RETENTION AT
A PRIVATE UNIVERSITY

DISSERTATION

Presented to the Graduate Council of the
North Texas State University in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

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Bray, Carolyn Scott, *Early Identification of Dropout-Prone Students and Early Intervention Strategies to Improve Student Retention at a Private University*, Doctor of Philosophy (Higher Education Administration), September, 1985, 210 pp., 21 tables, bibliography, 47 titles.

The problem of this study was first year student retention at a private university. The purpose of the study was to identify high risk students (dropout prone) by use of the Stratil Counseling Inventory - College Form (SCI-C) in order to initiate early intervention counseling and advising. Intrusive counseling was started within the first six weeks of the 1984 fall semester to facilitate the students' transition to college. The population of the study was first-time full-time freshmen students in attendance at Freshmen Orientation the week prior to the beginning of the 1984 academic year.

The SCI-C instrument consisted of six scales designed to elicit attrition-related information about the first-time, freshmen students. The scales identified students who were in need of assistance, and they provided a profile of their problem areas. This information, available within ten days after the beginning of classes enabled Student Development personnel to select the students out of the freshman class who needed help and to refer them to university resources for assistance.
The conclusions drawn from the analysis of the SCI-C data were: (1) students who needed assistance to integrate into the academic and social environment of the university were identified by the SCI-C; (2) students at Hardin-Simmons University value adult/student relationship outside of the classroom; (3) attitudes of caring service creates a "staying environment;" (4) although the SCI-C indicates students' interests in support services, not all students who request assistance, avail themselves of the opportunities provided for them; (5) a relationship seems to exist between the intervention strategies provided particular freshmen and their successful performance in the classroom (GPA of 1.60 or greater) and their persistence at the university for their second year; (6) the SCI-C provides attrition-related counseling information about students rather than predicting college academic success; and (7) the SCI-C is a valid instrument to use to facilitate student retention at Hardin-Simmons University.
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CHAPTER I

INTRODUCTION

Until recently, researchers and school personnel were more concerned with student attrition (why students leave their respective schools) than with student retention (how to retain students who are already enrolled in school). If students dropped out of school, there were always more students to take their places. Since the end of World War II there have been large numbers of potential students for the postsecondary schools. However, according to the 1981 census report, there were an estimated 1.9 percent fewer 18-year-old students in 1981 than in 1980, and there were 3.4 percent fewer than in 1979 (11). The United States is no longer dominated by young people (4). By the year 1990, 22 percent of the U.S. population is projected to be ages 15 to 29 and by the year 2000, the projected figure is 21 percent. The largest group by the year 2000 is predicted to be 30 to 44 year olds (23 percent), and ages 45 to 64 will comprise 22 percent of the U.S. population (4).

The decreasing birth rate is only one factor involved in declining enrollment at private postsecondary institutions. The increased cost of education in the 1980's will force many students who prefer the private college
campus to attend state supported universities if they are unable to obtain adequate financial aid.

Another factor that is confronting four-year institutions is the decline of full-time students. Many students now attend school on a part-time basis and work part-time to pay for college and personal expenses. In 1978 the National Center for Education Statistics (NCES) projected "a 45 percent increase for part-time students and a 1 percent decrease for full-time students by 1986" (4, p. 13). According to the NCES report, 48 percent of all college students will probably be part-time students by 1986.

School administrators of the 1980's are concerned about the retention of their students for the duration of their degree objectives, and how to recruit students who will persist in one university until they graduate or complete their academic goals (2, 4). Astin (2) has stated that it is more cost effective to spend money on student retention than student attrition. Cost effectiveness is important to retention and recruitment since the same amount of time and money is invested in recruiting students who leave as well as students who persist until graduation.

Several theories were developed during the 1970s (Kamens, 1971; Spady, 1970; Tinto, 1975; Astin, 1975; Cope and Hannah, 1975; Pascarella and Terenzini, 1977) in an attempt to understand attrition. Studies based on these
theories should be able to identify areas in the university setting that are important factors to student retention.

This study attempted to identify dropout prone students by use of the *Stratil Counseling Inventory-College Form (SCI-C)* for the purpose of early intervention counseling and advising (17, 18). According to Kemerer, Baldridge and Green (8), and Dan Green (6), counseling is one of the most successful methods of reducing student dropouts. The importance of academic advising is cited by Crockett (13), and the importance of early identification and referral for assistance is emphasized by Rabianski-Corriuolo and Stratil (15, 18).

**Statement of the Problem**

The problem addressed in the study was first year student retention at a private university.

**Purposes of the Study**

The purposes of the study were as follows:

1. To identify high risk freshmen students (dropout prone, and/or maladjusted) at the beginning of the fall semester by using the *Stratil Counseling Inventory - College Form (SCI-C)*. Intervention strategies with the high risk students were utilized during the semester in an effort to improve first year student retention.

2. To identify support services that could facilitate retention by assisting students to achieve their
educational goals. Support services included counseling services, academic support services, employment services, and administrative services.

3. To refer students in need of special assistance to the appropriate support service personnel to facilitate remediation of problem areas as identified by the SCI-C.

4. To determine if using any one or combinations of the six scales of the SCI-C (Attitudinal Predictor of Grade Point Average-GPA, Dropout Proneness Scale, Transfer Proneness Scale, Psychological Coping Scale, Motivational Scale, and Responsiveness Scale) with Scholastic Aptitude Test (SAT) scores or American College Testing Program (ACT) scores and high school rank provided greater predictability of college academic success than use of high school rank and SAT or ACT test scores alone.

5. To compare the percent retention rate of freshmen students for 1984-85 academic year with the retention rates of freshmen students from 1980-84 at Hardin-Simmons University, Abilene, Texas

Hypotheses

To carry out the purposes of this study the following hypotheses were tested.

1. The Attitudinal Predictor of GPA from the SCI-C will provide additional predictability of college academic success to the current measures (SAT or ACT test scores
and high school rank) used to predict college academic success.

2. The Dropout Proneness Scale of the SCI-C will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success.

3. The Transfer Proneness Scale of the SCI-C will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success.

4. The Psychological Coping Scale of the SCI-C will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success.

5. The Motivation Scale of the SCI-C will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success.

6. The Responsiveness Scale of the SCI-C will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success.
7. Combinations of the six scales of the SCI-C will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success.

8. The student retention rate of first-time, full-time freshmen who plan to return to Hardin-Simmons for their second year and with whom intervention strategies have been utilized will show an increase over the retention rates of first-time, full-time students returning to Hardin-Simmons for the years 1980-84.

Definition of Terms

The terms used in this study are defined as follows:

College academic success for freshmen students is defined as a grade point average of 1.60 or above for 12-32 semester hours of academic course work.

Persistence-retention refers to the student who is continuously enrolled in the university and is pursuing a degree (9).

Attrition is defined as the failure of a student to graduate from the institution the student enrolled in initially. Attrition may be due to transfer to another college, voluntary withdrawal, disciplinary or academic dismissal, or other reason that results in the decline of student enrollment from year to year (14, 19). Attrition can also be defined in terms of the reduction of a student's
full-time enrollment to half-time enrollment.

Stopouts are students who for various reasons must leave the institution for a period of time, but return to the same university to complete their studies (9).

Dropouts leave the institution and do not return to complete their studies (2, 9).

Intervention Strategy is the term used to refer to specific programs, services, policies, or activities that are implemented for the purpose of facilitating the retention of students (13).

High-risk students (dropout prone) are students who have low academic performance in high school, poor study habits, low educational aspirations, and whose parents have had relatively little education (9, 17).

Full-time student is an undergraduate registered for at least 12 credit hours.

GPA is the students' grade point average.

SAT is the Scholastic Aptitude Test used as a college entrance examination.

ACT is a college entrance exam published by the American College Testing Program.

The Stratil Counseling Inventory-College Form (SCI-C) is a method to collect attrition related counseling information about incoming freshmen. It provides an analysis of dropout/transfer proneness, describes the "general nature of their problems, and facilitates the establishment of initial
contact" (17, p. 1). The SCI-C also indicates the students range of interest for receiving various services.

Intervention Code (DMR) is a "three digit number that summarizes the three findings of greatest concern to a college counselor trying to reduce dropout" (18, p.10). Each digit has a range of 1 to 5. Five is very high (top 20 percent) and one is very low (lowest 20 percent). The code summarizes three findings in the following order--Dropout Proneness (D), Maladjustment (M), and Responsiveness (R) (18).

Dropout Proneness Scale is a 41-item scale derived from Astin's (2, 17, 18) research that identified predictors of dropout. The dropout scale consists of the following factors (18, p. 15).

1. Explicit anticipation of dropping out
2. Low academic expectations
3. Poor study habits
4. Concentration difficulties
5. Susceptibility to test distress
6. Weak educational values
7. Low parental education
8. Academic problems in high school
9. Campus social isolation
10. Lack of campus-related employment

Maladjustment Scale consists of measures to determine how effectively a student is coping with emotional and social adjustment, and measures that indicate the student's preferred mode of coping (17).

Responsiveness Scale expresses a student's willingness to receive a wide range of support services--such as personal counseling, academic advising, career counseling, reading, writing, and math labs, tutoring and different
types of discussion groups (17).

Low risk students are students who have good academic performance in high school, good study habits, high expectations of academic success and appear to be adjusted emotionally and socially.

Academic Coping Scale includes standard scores for predictors of GPA, dropout proneness, and transfer proneness. It also includes miscellaneous observations concerning size of high school, perceived academic standards of high school and of the current college, and student's highest academic goal (17).

Psychological Coping Status consists of 5 standard scores for the following scales (17, 18):

1. Emotional Adjustment discussed in terms of concordance. Stratil defines concordance as "the tendency to maintain a balanced and positive outlook toward life in general" (18, p. 16).
2. Self-esteem refers to one's sense of competence and feelings of adequacy.
3. Social Adjustment refers to the student's quality of social relations.
4. Primary Coping Style is a measure of constriction and concordance exaggeration.
   a. Constriction Scale assesses the degree a student "tends to dislike and avoid threatening situations" that reduce one's self-esteem or sense of
security (17, p. 3). "This includes controversy, interpersonal conflicts, informational complexity, the unknown, alien attitudes, intimate self-disclosure, and indications of unconscious, egocentric, or primitive sources of motivation" (17, p. 3). According to Stratil (17, p. 3), there is some evidence that indicates that unconstricted individuals tend to be more responsive to direct counseling than those people who are constricted. Constricted students tend to respond more to an indirect approach.

b. The Concordance Exaggeration Scale "assesses tendencies to deny emotional problems to oneself or others" (17, p. 3). The Concordance Exaggeration Scale is modeled after instruments like the Maslow-Crowne Social Desirability Scale (17). Recent studies have provided evidence indicating "that high scores on the Marlow-Crowne Desirability Scale reflect defensiveness and emotional constriction" (17, p. 3). The Concordance Exaggeration Scale, however, focuses exclusively on denial of emotional problems. "Results on the Concordance Exaggeration Scale can be used to assess the validity of true concordance" (general concordance) scales (17, p. 3).

The Motivational Profile provides information about a student's "specific motivational tendencies" (17, p. 3).
The Motivational Profile consists of the following 12 scales (17, p. 3; 18, p.p. 19-22).

1) Acendancy (the tendency to assert one's influence over others)
2) Industriousness (the tendency to work hard and to seek high levels of achievement)
3) Adventurousness (the tendency to seek new and exciting forms of entertainment)
4) Gregariousness (the tendency to seek a large amount of companionship)
5) Intimateness (the tendency to disclose sensitive information about oneself)
6) Altruism (the tendency to offer help and to feel compassion for others)
7) Authenticity (the tendency to communicate honestly)
8) Approvingness (the tendency to hold favorable evaluations of others)
9) Amenability (the tendency to be cooperative and responsive to other people's ideas)
10) Conventionality (the tendency to hold attitudes that agree with the mainstream of society)
11) Prudence (the tendency to take many precautions against danger)
12) Orderliness (the tendency to keep objects clean and methodically organized)

Significance of the Study

A review of literature indicates that the majority of the early studies concerning student persistence in schools approached the problem from the standpoint of attrition—why students leave school. More recently, the term retention has been used to describe the problem. Retention emphasizes the responsibility of the institution for student persistence in school. Several significant reasons institutions are concerned with student retention are as follows.

1. The decline in birth rates has reduced the numbers of potential students in the 18-22 year age group (2).
New student enrollment and retention are important factors to the survival of small private colleges and universities.

2. Because of the decrease in numbers of 18-22 year old students, there is increased competition among colleges to recruit and retain students.

3. Increased tuition costs, qualification restrictions for financial aid, and more stringent admissions requirements at the private institutions exclude many potential students.

4. Retention is important because of the cost of recruiting new students. The colleges spend a large amount of time and money on recruiting and marketing (10).

5. Retention of students will help prevent "the revolving freshman door." According to Texas State Representative, Wilhelmina Delco (5), if an institution considers a student important enough to recruit, then the institution has an obligation to provide every possible means available to assist that student to achieve his/her academic and personal growth goals.

The college environment also is an important factor in retention studies. In the future, institutions will have to make concerted efforts to address student needs in all areas of student development, not just academics (3). For students to be satisfied in their college experience,
universities must provide for physical, mental, academic, social, and spiritual dimensions of the students (1). According to Maslow (12), the desire to learn and develop as a person can take place only after the basic physiological, safety, belonging, and social needs have been satisfied.

A private institution should know and understand the following variables in student retention:

1. The perceptions their students have about what is important to them in creating the "fit" or "match" between student and school (16);

2. The perceptions the faculty and staff have concerning their responsibility in student retention;

3. The commitment of the administrative team to fund and implement retention programs that meet the needs and expectations of students;

4. How students cope academically and psychologically in the college setting;

5. Retention programs are more economical than the cost of recruiting new students (2, 10);

6. The importance of early intervention to remediate problem areas before a regressive pattern is established.

According to Beal and Noel (3), it is time for researchers of attrition/retention studies to devise intervention strategies that will improve retention.
Terenzini and Pascarella (19) advocate further studies based on the diverse variables known to be associated with retention and their interactive relationships with student persistence in college. Terenzini and Pascarella's study of college persistence in 1977 was based on Tinto's theoretical institutional model (21).

This retention study was conducted to clarify important variables of retention and enable Hardin-Simmons University to develop effective retention strategies. The study was more concerned with proactive measures than reactive. Implementation of intervention strategies began before midterm of the student's first semester.

Limitations

This study was limited to full-time students enrolled for credit at Hardin-Simmons University in the 1984-85 freshman class. The number of freshmen involved in the study was limited to the students in attendance during freshman orientation. No attempt was made to generalize the study to all colleges and universities.

Basic Assumptions

1. It is assumed that the subjects responded honestly to the SCI-C instrument.

2. It is assumed that the SCI-C instrument accurately identified students as well adjusted, dropout prone, or maladjusted.
3. It is assumed that student referrals to faculty, staff and administration were utilized to benefit the development of each student. The quality of the outcome of the contact was not addressed in this study.

4. It is assumed that students utilized the recommended support services to facilitate their personal development and their achievement of academic goals.

5. It is assumed that there were students who dropped out of the university for reasons beyond the control of university personnel.

6. It is assumed that university personnel made substantial effort to assist the freshmen students achieve their educational goals.
CHAPTER BIBLIOGRAPHY


CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

The purpose of this study was to identify dropout prone students and students who might have difficulty adjusting to their new environment. As the high risk students were identified, early intervention strategies were initiated to facilitate the students' transition from home to campus. A theoretical framework that stresses the importance of providing assistance to students to help them become integrated into the academic and social milieu of the university as early as possible is discussed in this chapter. According to Kemerer, Baldridge, and Green (25), counseling is one of the most successful methods of reducing student dropouts. Crockett (10) cited the importance of academic advising in retaining students and Terenzini and Pascarella (59, p. 347) stressed that retention efforts should be focused "on what happens to students after they arrive on campus," rather than on precollege characteristics. According to Terenzini and Pascarella (60, p. 280), "there are important determinants of freshman-year voluntary persistence/withdrawal that are not merely reflections of the kinds of students enrolled, but rather are subject to the influence of institutional policies,
programs, or conditions that affect students after their arrival on campus."

Underpreparation is a continual source of attrition. According to Nielson and Polishook (35, p. 6), "at least thirty percent of all college freshmen need remediation in one or more of the basic skills . . . ." However, higher education has not been adequately prepared to meet the demand of remedial and developmental courses to prevent students from "falling into the cracks between their native abilities and deficient schooling" (35, p. 6). Most institutions are, however, trying to meet the needs of students. They are seeking to identify and utilize resources—counselors, advisors, tutors, professors, and programs to help students succeed (35). The problem is selecting the students who need help "out of the crowd and connecting them with the necessary assistance" (35, p. 6).

Early intrusive assistance will not only enhance student retention and thereby offset declining enrollment, more importantly, it will facilitate the development of human potential (35, 49). Early identification of marginal students is, therefore, important so that effective measures can be taken to help students adjust and develop academically and socially in the university environment (1, 5, 14, 25, 36, 45, 49, 60). The challenge for the university is "to improve the quality of student performance . . . ." (35, p. 6).
The first national study on student attrition was published in 1937. McNeely determined that 60 percent of first-time, full-time freshmen did not complete the baccalaureate degree within four years. In 1957, Iffert published a similar study that indicated 40 percent of first-time, full-time freshmen never graduate. Summerskill in 1962 and Skaling in 1971, verified the 40 percent figure of freshmen who failed to complete the baccalaureate (9). According to Kemerer, Baldridge, and Green (25), 30 percent of entering freshmen never earn their bachelor's degree.

Higher education has been concerned about attrition and retention for over fifty years. The early studies, prior to 1940, were predominantly descriptive. Educators believed that particular student characteristics were major factors in an individual's decision to leave college before the degree was earned (5, 39, 51). Between 1940 and 1950 researchers attempted to predict the probability of student persistence in school based on their academic ability (5, 36, 39, 51). According to Astin (1, p. 30), high school grades are the "most consistently potent predictor of college attrition." High school rank is also a strong predictor of student persistence (1).

The "landmark" national survey conducted by R. E. Iffert in 1957 began the trend in attrition research of
categorizing classifications of different types of dropouts and persistors. Until the late fifties, only two classifications were used for attrition studies—the students who persisted and the students who dropped out (1, 39). However, some students transferred to other universities; another group of students just stopped-out for a short period of time and then returned to school; other students withdrew because of academic ability; and some withdrew for nonintellectual reasons (61). Therefore, defining "dropout" became necessary in order to clarify the ambiguity of research findings on attrition (49, 61).

Researchers also began to classify student dropouts in terms of their college experiences. They not only described the characteristics of the students, but also the characteristics of the institutions, and they examined the congruence or "fit" between student and institution. Since about 1975, researchers have begun to investigate the role the university has in retaining students—what they do to encourage persistence or what they do to foster attrition (1, 5). Other retention studies since 1970 have focused on the importance of a student's social and academic integration within the institution (39, 58). Pascarella and Terenzini (58, 60) for example, examined the quality of informal student-faculty interaction out of the classroom and its relationship to persistence or attrition. Recent research indicates that institutions are doing self-studies
to determine what academic and nonacademic support systems they can provide to help students achieve their educational goals (5). The shift in emphasis of retention studies is from reactive to proactive (53). Studies focusing on early intervention strategies that assist high risk students to persist in college, meet individual student needs, help improve the quality of education, and aid the university in terms of income have replaced the purely descriptive and predictive studies of the past fifty years (5, 49). Keeping the students already enrolled is much more cost effective than the cost of recruiting new students (25, 37, 46). However, according to Kemerer (25), only a small number of institutions have developed effective action plans to reduce attrition. Effective enrollment management is the challenge that higher education institutions face in the future (25).

Proactive intervention strategies are based on the theories of "college fit," social integration, student-institutional congruence, interaction of social and academic integration, and student-faculty informal contact (13, 16, 23, 24, 32, 36, 38, 42). These theories provide researchers and administrators the rationale for the strategies they use to retain students (8). According to Dressel (49, p. 7), "retention implies a holding power, and adhesiveness, a quality or a set of characteristics of an institution such that an individual initially attracted to it will maintain the association and regard it as both desirable and
profitable." The theories that focus on student-environment interaction should provide administrators with information that will help them address the problems of declining enrollments, changes in student needs, and diminishing resources (8). Questions administrators are facing include (8, p. 251):

How can we "retain" students once admitted?  
Who is leaving and why?  
Where do we focus resources for the greatest impact?  
What do we need to know to make the best decisions for our institutions?  
How can we access information to make appropriate decisions?

Theoretical Models for Attrition/Retention

Despite fifty years of research on the problem of attrition/retention, "very few solutions to the complex problem have been identified. The main conclusion to draw from the research is that it is impossible to isolate a single cause for attrition--no simple solution exists" (5, p.3). However, information is available from research that demonstrates that student retention can be enhanced and that action plans for retention can be developed to meet the needs of individual college campuses (5, 9, 25, 27).

According to Jose (22, p. 63), "a satisfied student is the most important asset of any college or university and a dissatisfied student is the most damaging liability." Dissatisfied students usually transfer or drop out of college. However, some students may remain physically on campus, but drop out intellectually and become a negative
liability by causing other students to become discontented (10, 52). "If an institution wants to create a caring, responsive environment for its students, it must review and revise all aspects of campus life that affect the quality of the student experience on campus" (53, p. 86). Effective retention programs utilize theories that relate to "college fit," social integration, student-institutional congruence, interaction of social and academic integration, and student-faculty interaction (23, 27, 40, 41, 54, 58, 61).

Bean emphasizes the importance of theory in retention studies; however, he asserts that "theory is not a panacea" (46, p. 17). The value of theory, states Bean (46, p. 17), is in its usefulness for explaining "why students drop out of school . . . and to predict which students are most likely to drop out of school."

Models provide the link between an "abstract theory and the practical solution to a question" (46, p. 18). According to Bean (46, p. 18) a "model of student attrition is a representation of the factors presumed to influence decisions to drop out of an institution. The model identifies the interrelationships among the various factors and the relationships between these factors and the dropout decision." Early attrition studies were, however, atheoretical (or descriptive) studies. The descriptions are derived from empirical studies, "that is, things or relationships are assumed to exist because they are seen to
Atheoretical Models

Descriptive Studies

In one type of atheoretical attrition study, factual statements are made about the characteristics of attrition—for example, three percent of first-time, full-time freshmen drop out of college during the first six weeks because they are homesick; ten percent of the freshmen dropout because of academic difficulty (1, 39, 46, 51). The researcher can describe the extent of attrition, the time when students are most likely to drop out, and selected characteristics of dropouts (for example, high school grades, . . . sex, age, race . . . )" (46, pp. 18, 19). A descriptive study does not enable the researcher to say why a student might withdraw from college. According to Bean (46, p. 19), "descriptive studies are atheoretical because they are not based on a theory that links the variables in the study. Linkages (correlations) may be established, but the reasons why variables are related is not specified."

Precollege Characteristics

A second type of early atheoretical research attempted to predict the probability of a student remaining at the institution of first registration based on background or input characteristics of students (21, 31, 39, 46, 51, 59). According to Bean (46, p. 19), this type of predictive...
research produced additional atheoretical studies that attempted "to identify factors that would best predict which students would stay and which would drop out." However, why the factors were correlated with attrition or persistence was not explained. For example, the most reliable predictor of college persistence is high school academic performance; however, this fact does not explain why students with a strong academic record in high school drop out of college (1, 39, 46). Other student precollege characteristics that seem to be related to attrition/retention are sex, motivational level, educational aspirations, and family background such as religious preference, hometown size, parental income and education and race (1, 39, 46, 51, 59).

**Person-Role Fit**

According to Bean (46, p. 19), "models using the theory of person-role fit focus on the relationship between characteristics of the individual and requirements of the student role at a particular institution." The majority of studies on voluntary withdrawal from a total adult socializing organization are atheoretical models of student attrition because the theories mainly emanate from a narrowly designed empirical theoretical base (46, 49). Rootman's study of voluntary withdrawal from a total adult socializing organization presents a theoretical model "to explain empirical relationship and to predict voluntary
withdrawal from adult socializing organizations" (49, p. 258). Rootman's model was derived from information he collected from the cadets at the United States Coast Guard Academy in 1972 (49).

Voluntary withdrawal from an adult socializing organization was defined as "leaving the organization by choice . . . without being asked to leave by organizational representatives . . ." (49, p. 261). The dropout could have remained at the academy if he had chosen to stay (49). Voluntary withdrawal was the action the cadets took to cope with the stress of lacking person-role fit or "fit" between the cadet and his role at the academy, and "interpersonal fit" or the "fit" "between the individual and the cohort with which he is socialized" (49, p. 264). According to Bean (46, p. 20), "interpersonal fit is similar to friendship support, and person-role fit is similar to shared group values."

Rootman suggested that a student's ability to persist in the academy for the freshmen year was dependent upon the degree that his characteristics were congruent with the cadet role at the beginning of the summer session (swab summer) prior to the official beginning to the fall semester, and the "degree to which he fit the group with which he socialized" (49, p. 266). The cadet who was unable to conform to the role expectation or who did not relate well to his peers coped with the problem by eliminating the
source of the problem—that is, he withdrew from the stressful environment.

Bean asserts that the person-role fit strategy is probably not appropriate for the 1980s because institutions will not usually be able to have "control over the personality types of the students who matriculate (46, p. 20)." Rootman's findings are, however, similar to Tinto's an Spady's models of academic and social integration (2, 19, 54, 55, 61).

**Theoretical Models**

**Spady's Interactional Model**

Spady contributed the first theoretical model of the dropout process in 1970 (46), Spady (54), Tinto (61), and Pascarella (41), used Durkheim's (17) theory of suicide as the foundation of their theories of social and academic integration (27, 46). Durkheim contended that the likelihood of suicide increases if a person does not have close relationships with others in a social system (friendship support), and if the individual's attitudes, morals (values), interests and personality dispositions are not congruent with the shared group values (27, 46, 54). According to Durkheim (54, p. 77), "breaking one's ties with a social system stems from a lack of integration into the common life of that society."

Spady's theory is based on the premise that the dropout process is best explained in terms of the interaction
between a student and his college environment. The student's "attitudes (i.e., dispositions, interests, attitudes and skills) are exposed to influences, expectations, and demands from a variety of sources (including courses, faculty members, administrators, and peers)" (54, p. 77). If students are able to assimilate successfully into the social and academic life of the university they will persist; however, if the rewards from either system are inadequate they may decide to withdraw from the institution (27, 46, 54).

Spady related student attrition to Durkheim's theory of suicide as follows (54, p. 78):

Although dropping out is clearly a less drastic form of rejecting social life than is suicide, we assume that the social conditions that affect the former parallel those that produce the latter: a lack of consistent, intimate interaction with others, holding values and orientations that are dissimilar from those of general social collectively, and lacking a sense of compatibility with the immediate social system. However, since the student's academic role has many parallels with his future occupational role, it would not be inappropriate to extend this analogy a step farther. Poor performance in one's occupational role (viz. low grades) and inadequate identification with the norms of the occupational group (viz. low intellectual development) are also plausible additions to this system. The elementary Durkheiminan model that we propose, then, consists of five independent variables, four of which influence the fifth, social integration, which in turns interacts with the other four to influence attrition. We would like to suggest further, however, that the link between social integration and dropping out is actually indirect. Intervening are at least two critical variables that flow from the integration process: satisfaction with one's college experiences and commitment to the social system (i.e., college).
Although Durkheim's model did not account for family and cultural background variables or academic ability, Spady identified them as important variables in attrition and included them in his theoretical model. He also included college grade performance and intellectual development (27, 46, 54). Spady's model stipulates that all these factors lead to social integration. According to Bean (46, p. 21), social integration was expected to increase satisfaction, and satisfaction in turn would increase institutional commitment, which was the direct antecedent of dropout. Spady (55) stated that social integration, satisfaction, and institutional commitment can generally be explained on the basis of intrinsic rewards related to interpersonal relationships and intellectual development; however, the decision to drop out is usually based on academic performance (extrinsic rewards are grades).

In a later study (55), Spady found that the intrinsic rewards of social integration and intellectual development were more important for the satisfaction of women than were the extrinsic rewards of academic performance. However, the men placed somewhat more importance on the extrinsic rewards than intrinsic. His research also indicated that overall satisfaction was based predominantly "on the academic, intellectual, and social experiences that occur during the first several months of college, and is influenced only indirectly by the dispositions and characteristics that stu-
dents bring to those experiences" (55, p. 60). Spady concluded that since students enter college with different attitudes toward their school, greater institutional commitment could be produced by providing opportunities that would intrinsically influence them as persons" (as opposed to just students) rather than by attempting to modify the academic reward structure itself" (55, p. 60). Spady also found that along with the intrinsic rewards, students were also influenced by personal contacts with peers and faculty. All of these aspects were important "components of student integration, satisfaction and commitment" (55, p. 60).

**Tinto's Theoretical Model of Dropout Behavior**

Tinto's theoretical model of dropout behavior is based on Durkheim's theory of suicide as is Spady's model. Durkheim attributed the likelihood of suicide occurring to the lack of sufficient "moral (value) integration and insufficient collective affiliation" (61, p. 91). Spady believed that the college community could be treated as a social system having its own values and social support; therefore, dropout from the college social system could be viewed as suicide in the larger social system (61). Tinto (61, p. 92) stated that "insufficient interactions with others in the college and insufficient congruency with the prevailing value patterns of the college" resembled the conditions that existed in the wider society that precipitated suicide (46, 61). Lack of integration into the college community contri-
buted to low commitment to the college and increased the probability of attrition (46, 61).

Colleges, however, have an academic as well as a social system; therefore, attrition may be voluntary (like suicide) or forced withdrawal due to poor academic performance or for breach of rules pertaining to academic behavior (e.g., cheating or stealing exams) (61). According to Tinto (61), a person can achieve assimilation into one of the systems without being assimilated in the other. However, a reciprocal function between the two areas would be more appropriate in order to preserve a balance between academic and social spheres.

Tinto said that Durkheim's theory of suicide was a descriptive theory since it "specifies the conditions under which varying types of dropout occurs" (61, p. 92). Durkheim's theory does not explain why different students "adopt various forms of dropout behavior" (61, p. 92). Tinto maintained that additional information about students' characteristics is needed to determine what "psychological attributes . . . predispose certain individuals toward suicide responses" (61, p. 93).

Tinto contended that a theoretical model of dropout should include background characteristics (sex, race, ethnicity, parental education, parental socioeconomic status, and high school experiences) and an individual's academic expectations (goal commitment--two or four-year
degree, and institutional commitments—why he chose to attend the particular university). According to Tinto (61, p. 94), "these commitments are often substantial and are frequently important factors influencing a person's persistence in college and/or decisions to transfer to alternative institutions."

Tinto's model of dropout behavior (Figure 1) is a "longitudinal process of interactions between the individual and the academic and social systems of the college during which a person's experiences in those systems . . . continually modify his goal and institutional commitments in ways which lead to persistence and/or to varying forms of dropout" (61, p. 94).

Students enter the college experience with a multiplicity of personal and motivational attributes, precollege experiences, and family background characteristics. These attributes impact academic performance and educational expectations, so that they determine the levels of goal and institutional commitment (46, 61). Tinto suggested that the student's assimilation into each system in the university, social and academic, enhanced commitment and led to increased levels of institutional commitment. Low institutional commitment, Tinto (46, 61) believed, led to increased possibility of dropout from college.
Fig. 1--Tinto's conceptual model for the dropout process (61, p. 95)
Tinto (42) also stated that differing transfer profiles can be explained by understanding the interaction of the various levels of goal and institutional commitment and "the characteristics of the institution (e.g., level, quality, and size)" (61, p. 97). For example, low institutional commitment might lead to transfer if educational expectations were considerably modified.

Another perspective of institutional commitment is related to the theory of cost-benefit analysis. "This theory states that individuals will direct their energies toward that activity that is perceived to maximize the ratio of benefits to costs over a given time perspective" (61, p. 97). In other words, a student might withdraw from an institution if some other alternative would provide "greater benefits, relative to costs, over time than ... staying in college" (61, p. 98).

The students' "perceptions of reality" (61, p. 98) are important in the student's assimilation of the academic and social environment of the university, and of the cost and benefits of the college program. Individuals with differing characteristics can hold differing perspectives on similar situations (46, 61). One student's perspective and institutional commitment might encourage him to remain at a particular college while another student would feel compelled to leave (61).
The following synthesis of research pertains to individual characteristics related to dropout that Tinto believed was important to his theoretical model of the process of attrition. These characteristics directly or indirectly affect a student's integration into the social experiences and educational expectations (1, 38, 61). Panos and Astin (38) reported that students from lower socioeconomic families had higher dropout rates than those students from higher status families. However, in a later study, Astin (1, p. 35) found that when other family background variables were considered, "family income did not contribute anything over and beyond the contribution of the other factors." Spady (55) and Astin (1) said that the reason more students dropped out of college from low income families was due to the parent's lack of education, lack of ability, lack of motivation, and a greater concern for financial matters. Students from homes where parents had a college education tended to be influenced to persist in college by their parents. The fact that parents had completed college was also an influencing factor (1). Hackman and Dysinger (20) reported that parents' expectations for their children were as important as the children's own expectations of completing college. They concluded that the quality of a student's family relationship was an important factor contributing to persistence or attrition (20, 61). Astin (1) found that
students who indicated an interest in earning a doctorate or a professional degree tended to persist in college more than those students with fewer academic aspirations.

Individual Characteristics

According to Hackman and Dysinger (20, p. 321), "persisters tend to be both talented and committed . . . ." They reported that research suggests that "commitment and academic competence may interact in determining persistence and withdrawal" (20, p. 321). They distinguished three types of attrition (20, p. 321):

1. Students with solid academic competence but moderately low commitment tend to withdraw from college—but to transfer to another institution or to re-enroll at the same school later.
2. Students with poor academic qualifications but moderately high commitment tend to persist in college until they finally are forced to leave because of poor academic performance.
3. Students with both low commitment and moderately low academic competence tend to withdraw from college and not re-enroll.

Summerskill (57) reported in his review of the literature that low scholastic aptitude, poor grades, lack of motivation, inability to adequately cope emotionally, and financial difficulties contributed significantly to dropout. Vaughan (62) observed that academically dismissed students differed from other withdrawing students in that they were more likely to have emotional problems, be impulsive, exhibit a low commitment to education, and lack the ability to learn from past experience. The dismissed students also
tended to be hyperactive. According to Vaughan (62, p. 688), students who withdraw "make a greater effort than the persisting students to paint a rosy picture of themselves." He concluded that students who withdraw for various reasons differ from persisting students "in cognitive measures and in personality factors" (62, p. 680). Pantages and Creedon (39) and Sexton (51) contended that although personality traits were important variables in the dropout process, they should not be considered as definitive predictors of attrition.

Cope (9) and Spady (54) stated that sex seemed to have a relationship to college persistence/attrition. They found that more men finished degree programs than women. However, women who withdrew from college were usually voluntary withdrawals, rather than academically dismissed students. Tinto (61, p. 101) believed that men tended to view "educational attainment as being directly related to their occupational careers and feel the need to persist in college as an economic necessity." Astin (1, 2) found that more men than women remain in college beyond four years, however, women tend to graduate in a four year period. According to Tinto (61, p. 58), sex is not a good predictor of persistence/attrition, "but it becomes more significant as scholastic, environmental, institutional, and longitudinal factors are taken into consideration."
Past Educational Experience

The literature clearly indicates that a student's academic performance in high school is the most reliable predictor of college success. High school grades and high school rank, however, have greater predictive strength than the SAT or ACT test scores (1, 5, 13, 37, 38, 51, 57, 61). Iffert (21), Morrisey (31), and Sexton (51), state that although high school performance is a strong predictor of academic success in higher education, "it does not predict persistence at the college level" (39, p. 63). The student's academic rating of the high school is also an important factor in persistence (1, 61). Tinto and Nelson agree that high school characteristics are important to retention in college because they influence student's aspirations, expectations, and motivations for higher education. According to Nelson (33), the degree of social status and academic ability of students in a particular high school affects students' perceptions of their own ability and expectations of college success as well as their goal commitment to complete a college degree. According to Tinto (61, p. 102),

once the individual's ability is taken into account, it is his commitment to the goal of college completion that is most influential in determining college persistence. Whether measured in terms of educational plans, educational expectations, or career expectations, the higher the level of plans, the more likely is the individual to remain in college.

Hackman and Dysinger (20) and Spady (54) concur that there
is a "direct relationship between the level of an individual's commitment to the goal of college completion and persistence in college" (61, p. 102).

**Motivational Factors and Attrition**

Iffert (21) and Summerskill (57) found in their studies that the most cited reasons dropouts gave for their decision to withdraw were related to motivation. Pantages and Creedon (39) pointed out the difficulty of measuring motives once the motivational factors related to retention were known. Marks (28), however, endeavored to measure students' motivational levels by determining the students' own perceptions and expectations about the possibility of their dropping out. He found that their expectations correlated with their level of aspiration, fear of failure, and the attitudes of their parents. Marks' other pertinent findings were (39, pp. 65-66):

(a) those students who expect to drop out actually do drop out in significantly high percentages;

(b) there is no correlation between the expectation of dropping out and the student's scholastic ability;

(c) those students most likely to drop out were uncommitted to college and had low aspirations and educational values--they were more concerned with parental attitudes and expectations than with their own; and

(d) those students who dropped out had difficulty resolving conflicts concerning their commitment to educational values.

Hackman and Dysinger (20) found that students were motivated to persist in college if the "fit" between the student and the college was good. They said that the needs
and goals of the students should be congruent with the "demands and resources of the college" (39, p. 66). High commitment facilitates students remaining in school even when the fit is bad. Low commitment, however, tends to result in dropout (20, 39).

Interaction Within the College Environment

Terenzini and Pascarella (45, 60) contend that precollege characteristics of students are not in themselves significant variables in student retention. "Persistence in college is . . . not simply the outcome of individual characteristics, prior experiences, or prior commitments" (61, p. 103). These background traits are important, however, in the way "they interact with students' college experiences" (45, 60, p. 280; 61). Attrition/persistence results from the culmination of a "longitudinal process of interactions between the individual and the institution (peers, faculty, administration, etc.) in which he is registered (61, p. 103). The student's social and academic integration into the university systems determines the level of a student's satisfaction with the college and the student's decision to stay or leave the college environment (39, 44, 45, 46, 58, 60, 61).

Academic Integration

Students' academic integration can be measured by using their grades and intellectual development (39, 44, 45, 46,
Both measures are important in the student's social and academic integration into the college; however, grades relate more to the academic standards of the institution, and intellectual development corresponds more to the student's identification with the norms and values of the academic system (44, 58, 61). According to Spady (54, 61) grades are the extrinsic rewards for college participation, and intellectual development is an intrinsic reward that is part of a student's academic and personal development. Tinto (61, p. 104) stated that intellectual development is the student's "evaluation of the academic system, grade performance . . . an evaluation of the student's attributes and achievements in relation to the system's value and objectives."

Summerskill (57, 61) noted that the degree of congruency between the student's intellectual development and the intellectual attitude of the college is important to retention. Findings by Summerskill (57), Rootman (49), Pascarella and Terenzini (44, 58, 60), Tinto (61), Feldman and Newcomb (18), and others support the "college fit" or "person-role fit" theory that emphasizes the importance of the interaction between characteristics of students and the institution on college retention/attrition.

Social Integration

Tinto (58, 61) also stressed the equal importance of social integration, along with academic integration on
college retention. Social integration occurs through peer group interactions, extracurricular activities, and informal interactions with faculty and administrative personnel within the university (41, 42, 43, 44, 46, 59, 61). Informal faculty contacts are also important in academic integration. According to research studies (41, 42, 43, 44, 46, 59, 61), students value the informal contacts with faculty to acquire advice and information on their coursework and academic programs, to discuss intellectual subjects and career concerns, as well as informal socialization with faculty.

According to Tinto (61, p. 107), "social integration, like academic integration, involves ... levels of integration and degrees of congruency between the individual and his social environment." These social contacts provide social rewards that contribute to the student's evaluation of the "costs and benefits of college attendance and ... modify his educational and institutional commitments" (61, p. 107). Cope (9) and Tinto (61) contend that social integration is a positive influence on student persistence in college. Pervin and Rubin (47), Rootman (49), and Spady (55) reported that a student's perception of social integration is strongly related to persistence. Their findings showed that students who withdraw from college "perceive themselves as having less social interaction than do college persisters" (61, p. 107). Spady (55) noted,
however, that although some students might not perceive that they are congruent with the "social fit" of the institution, sufficient friendship support can result in social integration with the college social systems so that the students persist. However, Spady (55, 61) also found that excessive social involvement can lead to dropout, as well as lack of social integration into the social systems of the college.

Tinto emphasized that individual social integration is most influenced by peer group relationships (61). Extracurricular activities and informal interactions with faculty relate to developing commitment to the institution. Goal commitment is influenced by the level of integration into the academic system of the institution. Tinto (61) hypothesized that high goal commitment would enable a student who was not socially integrated into the college system to persist in college; however, he noted the reverse would not be "true to the same extent because of the limiting condition that requires the maintenance of minimum levels of academic performance" (61, p. 111). Pascarella and Terenzini (44) tested Tinto's hypothesis concerning the compensatory nature of student-institution interactions, and found that high levels of academic integration tended to compensate for inadequate levels of social integration. They also found that high levels of social integration could compensate for low levels of academic integration.
Pascarella and Terenzini also found a similar relationship of compensatory interactions "between student-faculty relationship variables considered as measures of social integration ... and as measures of academic integration (i.e., faculty concern for teaching and student development, and non-class contacts for academic advising)" (44, p. 207).

Pascarella and Terenzini's studies (41, 42, 43, 44, 58, 59) substantiate Spady's (54) and Tinto's (61) "conception of sociological complexity of the influences on student persistence/withdrawal decisions" (40, p. 280). They also concluded from their findings that what happens to freshmen students after they arrive on campus is probably more important to retention than the attributes students bring to college (family income, level of family education, sex, personality traits, levels of motivation, and high school academic achievement) (44, 45, 59). According to Terenzini and Pascarella (44, p. 208-209; 60, p. 280):

There may be important determinants of freshman year persistence which are not merely the result of the kinds of students enrolled, but rather are subject to the influence of institutional policies and programs which affect the student after he or she arrives on campus. This may be particularly true if such programs and policies can positively influence the quality of relationships with faculty for men, and both faculty relationships and peer relationships in the case of women.

... even if particularly effective institutional programs or policies designed to reduce student withdrawal could be established ... it may well be that the positive benefits of those policies or programs will accrue differentially rather than generally.
That is, rather than benefiting all students equally, the impacts of such programs on student retention are likely to be mediated by the characteristics of the students involved and the levels of social and academic integration of those students in other areas.

In summary, Tinto's model is a complex longitudinal model that stresses the importance of the interaction of integration in the social and academic systems of the college. He attempts to differentiate between behaviors that result in academic dismissal and those that lead to voluntary withdrawal from school.

His theory accounts for the students' precollege characteristics--family background, personal traits and experience--levels of goal and institutional commitment, variables of the environment that are external to the institution, and "the influences of all these interrelated variables on social and academic integration and subsequent levels of commitment to institutional attendance" (58, p. 27; 60).

**Institutional Characteristics and Attrition**

Institutional characteristics also influence college persistence/attrition. The characteristics of the institution--resources, facilities, organizational structure and the composition of its members, administrative policies, academic program, faculty-student ratio, size, selectivity, and the type, public or private--impact the assimilation of a student into the social and academic systems of the
These characteristics are the basis of the academic and social climates or "presses" within the institution with which students must learn to adjust. For example, some students may drop out of one college because of the academic achievement standards of that particular school, but be successful in another college with different achievement standards. According to Tinto, much attrition seems to relate to a lack of congruence between the individual and the social climate of the university, rather than the student's failure in the academic system.

Pantages and Creedon state that "different types of institutions have different images and therefore appeal to different types of students." This statement is similar to "college fit" theory which asserts that "the more congruence there is between the student's values, goals, and attitudes, and those of the college, the more likely it is that the student will persist at that college." Astin holds that students will tend to select a college that matches with their individual characteristics. Their decision is also influenced by the reputation of the institution. In Iffert's "landmark study" on retention and withdrawal, he found that students had different reasons for attending different types of institutions. Hackman and Dysinger propose that students bring certain characteristics and skills to college to enable them to
assimilate into the social and academic climate of the institution, and therefore, receive its rewards. Their models stress that the college environment influences students' motivational levels which is congruent with the "college fit" theory.

**Quality of Institutions**

Astin (1) and others have found that the quality of an institution affects persistence. Tinto (61) urges that persistence in college is influenced by the interaction of the quality of the institution, the composition of its students, and individual performance. According to Tinto (61, p. 113), "these interactive effects can be summarized in terms of the 'frog-pond' effect and the 'social status' of educational institutions." Davis (11) first used the term "frog-pond" effect to signify the direct relationship between ability level of the student body of an institution and their expectations of themselves. Tinto (61, p. 114) described the "social status" effect as "the higher the average social status composition of the institution, the higher will be the perceived value of that education by the individuals within that institution." Tinto further asserted that high quality institutions usually have student bodies of higher social status, therefore, the dropout rate should be lower in those institutions (61). Tinto's statement agrees with the findings of Meyer (29) and Nelson (33)
in their studies of "frog-pond" and "social status" effects. Tinto (61, p. 144) also noted that when social status and ability are controlled, "students of higher social status are more likely to graduate at all types of institutions than are lower status students." Kamens (23) also found that students of varying ability and expectations of higher quality institutions are more likely to graduate than students of similar ability at less prestigious institutions.

**Housing**

Another characteristic of institutions that affects persistence in college is student housing. Astin (1) and Iffert (21) found that students who live off-campus and commute to school are more likely to drop out than on-campus students. According to Tinto (61), on campus housing provides a positive socializing focal point for students and fosters their adjustment to college life and consequent satisfaction with the university.

**Student-Faculty Relationships**

The quality of student-faculty relationship is an important factor in determining the satisfaction of students with their college (39, 42, 46, 61, 64). According to Pantages and Creedon (39 p. 79), "a positive interaction facilitates the development of healthy attitudes toward learning and toward the college." Iffert (21) found in his
study that students ranked faculty high on academic qualities, but gave them low ratings on informal interactions, Pascarella (46) emphasized that students' background characteristics influenced institutional factors, informal contact with faculty, other college experiences and educational outcome. According to Pascarella's conceptual model (46, p. 23), "informal contact with faculty is expected to influence other college experiences . . . Informal contact with faculty is also supposed to influence educational outcomes. . . ."

Wilson, Wood, and Gaff (64) assert that effective education dictates that faculty and students have a close working relationship. Unless the professors' classes are small, out-of-class interaction is the only way to establish an informal, working relationship (64).

In several studies (41, 42, 64) researchers found that the most common discussions between students and faculty concerned intellectual or academic matters. Faculty also had contact with students in the role of "career advisor, friend, counselor and campus citizen" (64, p. 78).

Characteristics found to correspond to the degree of informal out-of-class contact professors had with their students were social-psychological characteristics (41, 42, 64). These characteristics included faculty attitudes that reflected the belief that education was an interactive process and faculty behavior that invited discussion in and
out of the classroom. Wilson, Wood, and Gaff pointed out that a professor can be available to students without being accessible. Being accessible to students, they said, meant willingness to listen, exchange ideas, and assist students if they could (64). According to Wilson, Wood, and Gaff (64, p. 85):

a faculty member who encourages students to participate in the conduct of courses communicates to students that he is interested in what the students think. Similarly, a faculty member who relates his course content to other fields of study and to current social problems as well as to the history of ideas may well communicate to students a wider range of topics which he feels are worth discussing.

Faculty who interact with their students outside of the classroom gain personal and educational benefits from their contact with students. They increase their knowledge about student's academic strengths and weaknesses, and they experience a sense of enjoyment and accomplishment from their teaching (64).

In another study, Wilson, Gaff, Dienst, Wood and Bavry (42, 63) reported that students who frequently interacted with faculty out-of-class had precollege characteristics and values similar to those of their college's faculty. Pascarella and Terenzini (42, p. 550) suggest that "the personal orientations and characteristics of faculty to whom freshmen are exposed early in their academic experience (i.e., those who teach freshmen) may be an important determinant of students' subsequent willingness to seek contact with faculty beyond the classroom." They also
assert that administrative policies and programs, such as freshman orientation, student housing, and faculty recruitment and reward systems, encourage a social atmosphere on campus that facilitates informal out-of-class faculty-student interaction (42).

Astin found in his longitudinal study on student development that informal out-of-class interaction between students and faculty appears to be related to college persistence (3, p. 233):

Student faculty interaction has a stronger relationship to student satisfaction with the college experience than any other variable or, indeed, any other student or institutional characteristic. Students who frequently interact with faculty are more satisfied with all aspects of their institutional experience, including student friendships, variety of courses, intellectual environment, and even administration of the institution.

Spady (55) and Tinto (61) focused major attention to the importance of relationships between students and their peer group and students and faculty in college persistence. They, along with Pascarella and Terenzini (42), also stress the importance of the frequency and quality of student-faculty interaction on student retention. Beal and Noel (5, 27) reported the following as the most important factors that impact retention as perceived by the college personnel who responded to their survey, "What Works In Student Retention": a caring attitude of faculty and staff, effective teaching, adequate financial aid, student participation in campus activities, and quality academic
advising. According to Smith (52), a caring, competent faculty is the most potent retention factor on campus. An incompetent, non-caring faculty can be the most potent attrition factor.

The literature on theory and research in student retention/attrition proposes numerous policies and programs designed to increase retention and decrease attrition. According to Smith, Lippitt, Noel, and Sprandel (53), as well as others, each institution must analyze its own circumstances and develop intervention strategies that will address their needs. There are, however, several general areas of change that can help most campuses to some extent. An important factor for institutions to remember is programs designed to increase college retention must be supported by everyone on campus (37, 53). Effective retention efforts begin with recruitment and admissions. According to Noel (20, p. ix), "it starts with an attitude that suggests the institution exists to serve students. This attitude should permeate the entire campus . . . faculty, administrators, and support staff . . . ."

Recruitment and Admissions

Recruitment and retention are linked together. One of the first steps of recruitment is to have a clear understanding of the nature of the institution and its mission (9, 25, 30, 52). The university should try to recruit students that will fit or match the characteristics
of the college since student satisfaction is a major factor in retention (23, 25, 32, 40). Cope and Hannah (9) contend that the match between a student's values and the values of the institution is a primary deterrent of attrition. According to Noel (37), if the college does not offer what the student needs or expects, there will tend to be a mismatch between institution and student. Noel (37, p. viii) states that "a well-managed admissions program will focus its recruiting efforts on the prospective students the institution is best equipped to serve. Effective admissions programs recruit 'graduates-to-be' not 'freshmen-to-be.'"

To prevent dissatisfaction with the institution after enrollment, Ramist (48) emphasizes the importance of keeping all promotional materials as well as official bulletins or catalogues current and free of discrepancies. The materials should honestly reflect the nature and mission of the university and should provide correct projections of cost for education at that particular university. Diltz and others (15, 30) suggest pre-admission counseling and advising to facilitate students' adjustment to college and to prevent obvious mismatches from occurring.

**Orientation Programs**

Pantages and Creedon (1, 39) recommend that freshmen orientation programs should be more comprehensive and include parents where possible and transfer students. They base their suggestion about including parents on research
that has demonstrated that parents' attitudes and expectations exert considerable influence on their children's decisions to persist or withdraw (20, 39, 51). Pantages and Creedon (39, p. 94) also suggest a move away from "one-shot orientation programs and toward programs scheduled at critical points throughout the academic year. . . ." Orientation programs should facilitate the students' transition to college and help them develop a sense of family and belonging in their new environment (1, 7, 19, 39). Numerous authorities emphasize that the first six weeks of college is the most critical (1, 19, 53).

**Counseling and Advising**

Counseling and academic advising are student services that serve as a liaison "between student needs and institutional resources . . ." (5, p. 95). Noel (5) stresses the importance of recognizing student problems early so that they can be directed to appropriate resources. Noel (5, p. 95) stated that "it is important that intervention occur before the needs become acute and the tendency to drop out becomes irreversible." Since students do not normally seek out counseling services, and academic advising services are not usually designed to provide early detection or intervention strategies, early warning systems are needed to flag dropout (high risk) students (1, 5, 14, 25, 26, 36, 45, 50). Noel (5) proposed that early detection strategies should be designed to include dropout prone
students, students with marginal academic credentials, students undecided about their major or career choice, students with emotional and/or motivational problems, and students in need of financial assistance, tutoring and study skills, etc. (1, 5, 6, 24, 25, 50).

Proactive or intrusive counseling does not guarantee that students will persist in college; however, the method does provide the counselor the opportunity of directing students to appropriate resources so that they may have help from caring people while they try to make their decisions (1, 5, 14, 25). In a study at California State College, Demos (14) found that approximately 10 percent of the students who had planned to leave the college decided to stay as a direct result of an exit interview with a counselor. The exit interview not only provides the counselor with the opportunity to review with a student the decision to withdraw, but it also provides administrators with an idea of why the student is leaving. The personal contact also demonstrates the concern of the university for its students (1, 13, 14, 25, 27). Lenning, Beal, and Sauer (27) also found that the counseling session or exit interview facilitated the student's re-entry into an institution at some later date.

Academic Advising

According to Noel (37, p. 96), "how an institution's academic advising measures up to students' needs is the
major determinant of whether or not the institution has a 'staying' environment." Noel (37) asserts that there are three major components to academic advising—comprehensive student information, thorough knowledge of institutional policies, requirements, and course scheduling, etc., and "a catalyst that brings the resources of the institution in line with the student's characteristics and goals" (37, p. 94). The academic advisors should be able to not only provide effective academic planning and course scheduling, but they should also be able to perceive student problems and refer their advisees to appropriate resources (37).

According to Crockett (10, p. 30), "advisers should be willing and able to help students define and develop realistic goals, to perceive their needs accurately, and to match these needs with appropriate institutional resources." He also stated that the adviser can best accomplish these goals within a caring and trusting relationship (37). Crockett maintains that good advisers must convey to students their interest in them and "exhibit empathy, warmth, intuition, and flexibility" (37, p. 32). He also emphasized the importance of advisors being willing to participate in in-service training to improve the quality of their advising, and being willing to spend time with their advisees (37). Although students do not need to see their advisers on a daily basis, they do need frequent contact with their advisers. Austin college, Sherman, Texas, for
example, has initiated a mentor program. The students are assigned to advisers at the beginning of their freshman year and the professor serves as a mentor for the students until they graduate. Good advising is not, therefore, "simply seeing a student once a semester or twice a year to approve a course schedule" (37, p. 33).

Academic advising is a major influence in student satisfaction. Important factors in the advising process, according to most students are: "accessibility, specific and accurate information, advice and counsel, and a caring and personal relationship with the adviser" (37, p. 34).

According to Jose (22, p. 59), students who were dissatisfied with their institutions have cited the following negative experiences as having precipitated their thoughts of transfer:

Abrupt, discourteous, and condescending treatment in administrative and faculty offices.
Failure of faculty members to keep appointments with students.
Advisors and counselors who are uninformed about institutional policies and procedures and unwilling to become knowledgeable about anything but their own specialized areas.
Unwillingness on the part of faculty and administrators to take time to discuss student problems and opportunities.

Jose asserts that satisfied students are the most important assets on any college campus, but the dissatisfied student is a damaging liability (22).
Summary

According to Noel (37), unless there is a "staying" environment (attitudes of serving and caring) the impact of retention strategies on a campus will be minimal. Noel states that the "creation of a 'staying' environment begins with the premise that the quality of student life on a given campus is everyone's concern. Everyone must be a retention agent" (37, p. 96). Everyone on campus needs to demonstrate an attitude of service and caring. A synthesis of research has identified that students' social and academic integration into the institution are two major components of the "staying" environment that enhance the probability of persistence in college (1, 37, 39).

The university should design a variety of programs to prevent or to provide early intervention in the withdrawal process. Intervention strategies should be the responsibility of everyone on campus--president, faculty, administrative staff, housing personnel, cafeteria, and custodial employees (37, 39). According to Noel (37, p. 88), "effective retention strategy must involve all functional units of the institution in order to affect all aspects of the student flow."

Retention programs, from a pragmatic view, can conserve an institution's income (1, 50). However, from a humanistic standpoint, intervention strategies that prevent students from dropping out of school, enrich their lives, help them to
develop their potential and achieve their educational goals, and enable them to contribute more to society (50). Texas State Representative Wilhelmina Delco has said, once an institution decides to admit a student it has recruited, then the school has an obligation to provide whatever support systems are needed to help that student be successful in college (12).
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CHAPTER III

METHODS AND PROCEDURES

Introduction

The Stratil Counseling Inventory-College Form (SCI-C) was used to identify dropout prone freshmen students and to provide guidelines for determining appropriate early intervention strategies to utilize for the purpose of assisting freshmen to achieve their academic and personal growth goals and, therefore, persist at Hardin-Simmons University, Abilene, Texas. The SCI-C was utilized to carry out the purposes of the study. The purposes of the study were

1. To identify high risk students (dropout prone and/or maladjusted) using the Stratil Counseling Inventory-College Form (SCI-C) in order to provide assistance and counseling support for freshmen students early in the first semester;

2. To identify support services that could facilitate retention by assisting students in achieving their educational goals. Support services included counseling services, academic support services, employment services, and administrative services;
3. To refer students in need of special assistance to the appropriate support service personnel to facilitate remediation of problem areas as identified by the SCI-C;

4. To determine if using any one or combinations of six scales of the SCI-C (Attitudinal Predictor of GPA, Dropout Proneness, Transfer Proneness, Psychological Coping, Motivation, and Responsiveness) with SAT or ACT test scores and high school rank provides greater predictability of college academic success than use of high school rank and SAT or ACT test scores alone;

5. To compare the percent retention rate of freshmen students for the 1984-85 academic year with the retention rates of freshmen students from 1980-1984 at Hardin-Simmons University.

Research Population

The population selected for this retention study was the 1984-85 freshman class at Hardin-Simmons University (HSU), a four-year Baptist University in Texas serving a student body of approximately 2000 students. The size of the 1984-85 first-time, full-time freshman class was 350 students.

Hardin-Simmons University is located in Abilene, Texas, 150 miles west of Fort Worth, Texas. Abilene, population 100,000 people, has three private higher education
institutions: Abilene Christian University, Hardin-Simmons University, and McMurry College.

Selection of the Sample

The retention study sample was all first-time, full-time freshmen students in attendance at Freshman Orientation. Freshman Orientation was held during the week prior to the beginning of the 1984 Fall Semester.

The Instrument

The Stratil Counseling Inventory-College Form (SCI-C) is a new counseling instrument "that addresses the problems of college attrition more directly and effectively than any other commercial product now available" (6, p. 1). The inventory was published in 1984.

Stratil's rationale for developing the instrument was based on research findings indicating that "counseling is one of the most successful methods of reducing dropout" (14, p. 1; 6). The SCI-C is a system to obtain "attrition-related counseling information about all incoming freshmen. It quickly identifies which students are most in need of help, describes the general nature of their problems, and facilitates the establishment of initial contact" (6, p. 1). The SCI-C also provides important information for other members of the university support staff (6, 7, 8).

The SCI-C instructions stress that the test program is voluntary. The instructions also make "a special effort to
elicit students' support . . . The instructions . . . create a fairly strong incentive to participate responsibly and with a sense of free choice" (6, p. 2).

Comprehension of Test Instructions and Items

The SCI-C contains two comprehension scales consisting of items that most individuals in the country answer in a predictable manner, such as, "I can still remember the school where I attended first grade" (6, p. 2). The inclusion of the comprehension scales is to identify those examinees who "respond in an aberrant manner. The most frequent causes of this behavior are carelessness and poor reading skills. The latter is especially a factor with foreign students" (6, p. 2).

"The two comprehension scales are located in different areas of the test and written in different formats to insure adequate response sampling. If a student's scores on these scales are near the mode, one can feel confident that the SCI-C as a whole has been completed properly" (6, p. 2).

Academic Coping Status

The SCI-C differs from other counseling instruments in that it includes an "analysis of the student's capacity to cope with academic challenges" (6, p. 2). The SCI-C includes a general predictor of dropout, a detailed analysis of various dropout factors, a predictor of transfer, an attitudinal predictor of grade point average (GPA), and a
self-assessment of academic ability (6, 7, 8). The dropout prone scale is a measure of "the tendency toward premature termination of education, whereas the GPA predictor is a measure of grades" (8, p.14).

Criterion data on college grade point averages (GPAs) was used to develop the "attitudinal predictor of GPA from existing SCI-C items" (8, p. 10). The Pearson Product Moment Correlation "between this 19-item index and students' GPAs during their first semester of college was +.58 (N=185), p<.0001" (8, p. 101).

Students were asked to rate their perceived "academic ability relative to the general population of our society" (7, p. 3). Their self-rating on academic ability "correlated +.48 with SAT-Verbal, +.37 with SAT-mathematics, and +.49 with SAT-Total (N=78)" (8, p. 101). According to Stratil (7, p. 3), "the tendency to underestimate one's ability, relative to the SAT or other objective measures, is probably an indication of low self-esteem."

"The index of high school grades correlated +.72 (N=90) with registrar's information regarding actual high school rank" (7, p. 3).

**Dropout Proneness.**--The SCI-C has "a 41-item scale designed to measure a student's proneness to drop out of school before graduating" (6, p. 2). The items are modeled after the items Astin used in his research sample of 41,000 students. "The scale's items measure the same conceptual
variables that Astin identified as predictive of dropout. . . ." (6, p. 2).

In order to determine why a student might drop out if that student is identified as dropout prone, Stratil constructed separate subscales from factors that were factor analyzed from the dropout scale. The following factors make up the subscales (6, p. 2):

1) Explicit anticipation of dropping out
2) Low academic expectations
3) Poor study habits
4) Concentration difficulties
5) Susceptibility to test distress
6) Weak educational values
7) Low parental education
8) Academic problems in high school
9) Campus social isolation
10) Lack of campus-related employment

The scores on these subscales indicate specific areas of dropout proneness. The counselor can, therefore, provide help where it is most needed (6, 8).

Transfer proneness.—Transfer proneness is measured by a different scale than the dropout proneness scale. The counselor can help "reduce transfer in cases where dissatisfaction is due to social isolation, emotional problems, or lack of familiarity with the ways in which the institution's programs can be adapted to fit specific needs (6, p. 2).

Psychological Coping Status

The SCI-C also measures "three major mental health variables that provide a basis for understanding student
Concordance.--Stratil defines concordance "as the tendency to maintain a balanced and positive outlook toward life in general (8, p. 16). Three concordance scales are included in the SCI-C; however, two concordance scales, E and T are combined to give one standard score. The other concordance scale is the Self-Esteem Scale that measures a student's "self-respect, sense of competence, and feelings of adequacy" (6, p. 2). General Concordance Scale-E measures "nonspecific feelings of security and satisfaction (e.g., 'I often have a positive upbeat train of thought in my mind')" (6, p. 2). General Concordance Scale-T uses a "trait-rating format (e.g., 'Has a solid feeling of inner harmony and emotional well-being.')" (6, p. 2). The concordance scales have "high validity relative to many comparable self-report scales" (6, p. 2).

Social Adjustment.--According to Stratil (6, p. 2), "a key factor in evaluating a student's psychological preparedness for college is the general quality of his or her social relations." Research findings indicate that "students who feel respected and secure in their social relations tend to succeed in their academic work" (6, p. 2). The six items on the Social Adjustment Scale that measure this construct are "global in nature (e.g., 'Is very successful in getting along with people.')" (6, p. 3).
Primary Coping Style.—"The behavioral effect produced by the interaction of two or more traits is sometimes greater than, or qualitatively different from, the combined effects produced by each trait operating separately" (6, p. 3). Knowledge of this interaction is important in understanding complex behavior states Stratil (6, 8).

The SCI-C applies this principle of interaction in its analysis of Coping Style. The concordance scales measure "how effectively an examinee is coping" (6, p. 3); however, the two scales that measure coping style, identify the student's preferred mode of coping (6, 8). The first scale measures constriction. Constriction indicates the tendency for an examinee to "dislike or avoid threatening situations" (6, p. 3). Threatening situations refer to any situation that might have the potential of reducing one's self-esteem or sense of security, such as "interpersonal conflict, informational complexity, the unknown, alien attitudes, intimate self-disclosure, and indications of unconscious, egocentric, or primitive sources of motivation" (6, p. 3).

The second scale that measures coping style is the Concordance Exaggeration Scale. This scale "assesses tendencies to deny emotional problems to oneself or others" (6, p. 3). The Concordance Exaggeration Scale was modeled after "instruments like the Marlowe-Crowne Social Desirability Scale" (6, p. 3). The Concordance Exaggeration Scale focuses exclusively on the denial of emotional
problems. Results on this scale "can be used to assess the validity of the true concordance scales that measure how effectively a student is coping. "In cases where true concordance and concordance exaggeration are both high, the examinees scores on true concordance are suspect" (6, p. 3).

Motivational Profile

The next section of the SCI-C contains 12 scales that measure the student's specific motivational tendencies. The scales consist of six items each that "have relatively high reliability and validity" (6, p. 3). The 12 scales are as follows (6, p. 3):

1) Ascendancy (the tendency to assert one's influence over others)
2) Industriousness (the tendency to work hard and seek new and exciting forms of entertainment)
3) Adventurousness (the tendency to seek new and exciting forms of entertainment)
4) Gregariousness (the tendency to seek a large amount of companionship)
5) Intimateness (the tendency to disclose sensitive information about oneself)
6) Altruism (the tendency to offer help and to feel compassion for others)
7) Authenticity (the tendency to communicate honestly)
8) Approvingness (the tendency to hold favorable evaluations of others)
9) Amenability (the tendency to be cooperative and responsive to other people's ideas)
10) Conventionality (the tendency to hold attitudes that agree with the mainstream of society)
11) Prudence (the tendency to take many precautions against danger)
12) Orderliness (the tendency to keep objects clean and methodically organized).

The motivation scales provide counselors with information that help them understand some of the causes and
implications of problems identified in the preceding
sections of the instrument. "Two students with high dropout
proneness, for example, may differ sharply in the underlying
causes of their problem" (6, p. 3). The motivational scale
can provide information about the student that will assist
counselors in understanding the problems so that they may
formulate "etiological hypotheses, intervention goals, and
counseling strategies" (6, p. 4).

**Interest in Support Services**

The interest scale for support services provides an
index to a student's interests in receiving services such as
counseling, career planning and placement, reading, writing
and math labs, tutoring, different types of discussion
groups, and other services provided by student services.
The interest scale enables counselors to make initial
contact with students who may be too reticent or embarrassed
to ask for help directly. The information can be used, for
example, as a basis for forming seminars, special interest
groups, or inviting students to enroll in special classes
that might focus on a personal growth and values
clarification (6, 8).

**Individualized Computer Report**

Each student's results are presented in a standard
score format. The front page of the report identifies the
student, the institution, and gives the student's age and
sex. The front page also contains a summary code that facilitates categorization according to student's needs.

The code is a three-digit number that ranges from one to five (e.g., 544). "Each digit represents the student's relative standing on one of three global indices relevant to counseling" (6, p. 4). The first digit represents the student's relative position on the Dropout Proneness Scale. The middle digit indicates the student's degree of maladjustment, and the third digit provides an indicator to the student's "inclination to respond favorably in intervention" (6, p. 4). The digits range from one to five according to the following scale (7, p. 2):

- 5 = Very High (top 20%)
- 4 = Above Average (next highest 20%)
- 3 = Average (middle 20%)
- 2 = Below Average (next lowest 20%)
- 1 = Very Low (lowest 20%)

Reliability and Validity of the Instrument

Reliability

Stratil has developed the SCI-C during "an extensive research program over the past four years" (6, p. 4). A major focus of attention during the research was to maximize "internal consistency reliability (homogenity)" (6, p. 4). On one recent cross-validation sample of 118 students the Cronbach alpha coefficient for the psychological coping scales ranged from .902 to .766. The median was, .820, "The Alpha coefficients for the Motivational Scales ranged .843
to .532, with a median of .745" (6, p. 4). The Alpha coefficient for the Dropout Proneness Scale was .609.

According to Stratil (6, p. 4), the lower Alpha on the Dropout Proneness Scale "is to be expected in a multifactor scale that has been designed to predict a specific behavior rather than a specific attitudinal construct."

**Validity**

Validity has also been a major component of the SCI-C research. According to Stratil (6, p. 4), "a series of studies with college students established that scores on the various adjustment and motivational scales correlate significantly with peer ratings and self reports on theoretically related scales." Stratil reported the following correlations (6, p. 4):

The Self Esteem Scale, for example, correlated .41 with peer ratings of concordance and .89 with Rosenberg's (1979) well-respected self-esteem scale (N=90). Similarly the Constriction Scale correlated negatively with peer ratings of ascendency (-.23), industriousness (-.23), and altruism (-.26, N=90). In the same study, it also correlated positively with Altemeyer's (1981) Right-Wing Authoritarianism Scale (.33) and negatively with Mehrabian and Epstein's (1972) Emotional Empathy Scale (-.42) and Costa and McCrae's (1978) measure of openness to experience (-.66).

Virtually all of the scales in the motivational profile have yielded significant self vs. peer validity coefficients, with the total array demonstrating a pattern of validity that rivals much longer, well-established tests like the California Psychological Inventory (Gough, 1969) and the Jackson Personality Inventory (Jackson, 1974).

The validity of the Dropout Proneness Scale is also very sound. First, all of its items were carefully developed to measure the same conceptual variables that Astin has found to be related to
dropout. Since Astin's research has an exceptionally broad empirical base, it is quite unlikely that the scale's conceptual foundation contains any serious flaw.

Second, all of the dropout items have high content validity in terms of the types of variables that an experienced counselor would expect to be related to dropout proneness. Consider the following sample items: a) 'There is a strong possibility that I will drop out of college and never finish'; b) 'My concentration wanders a lot when I'm trying to study . . . .

Third, the dropout scale's concurrent validity has been demonstrated in a complex pattern of correlation with various self-report scales. In this research (N=118), it correlated positively with constriction (.31) and negatively with self-esteem (-.59), general concordance (-.57 and -.48), ascendancy (-.32), industriousness (-.51), gregariousness (-.21), altruism (-.23), authenticity (-.21), approvingness (-.26), amenability (-.21), orderliness (-.23), and social adjustment (-.37). The high scorer thus shows chronic emotional distress, psychological constriction, weak self discipline, and alienation from others. Not only is this pattern highly consistent with the scale's theoretical construct, it also argues persuasively for the premise that proper counseling can be a significant tool in reducing dropout.

. . . . it should be noted that every major scale on the SCI-C is balanced for acquiescence response set (i.e., the tendency to respond with indiscriminant agreement to all items). This has been accomplished by an exact or very close equality in the number of items indicating the trait being measured (protrait items) and the number of items indicating the opposite tendency (contrait items).

Procedures for Collection of Data

The retention study involved the collection of data by means of the Stratil Counseling Inventory-College Form (SCI-C). The respondents completed the inventory within an hour. Psychological Configurations in Pembroke, North Carolina scored the instrument on an optical scan computer.
The inventory results were reported on individual computer printouts.

The procedures used were as follows.

1. The SCI-C was investigated and a sample package a test materials was ordered. The five inventories in the "sampler" were administered to five students known to the researcher, as recommended by Stratil, author of the instrument. The inventory results were compared to what was known about the academic and psychological profile of the students to determine if the instrument would address the purpose of the study.

2. The SCI-C instrument was then administered to all first-time, full-time freshmen students in attendance at Freshman Orientation the week prior to the beginning of the 1984 fall semester.

3. The completed inventory was mailed to Psychological Configurations for scoring. The computer printed results were returned to Hardin-Simmons University within two weeks.

4. The SCI-C results were categorized according to the intervention code on each printout. The intervention code summarizes the findings on the dropout scales (D), maladjustment scales (M), and responsiveness scales (R). The code (DMR) ranges from one to five for each scale. The code, for
example, might be 555 for a student who is dropout prone and maladjusted, but who is responsive to help from selected university personnel. One to three on the R code indicates a lack of interest in receiving help for problem areas identified by the SCI-C (6, 7, 8). The DMR categories are tabulated in Table I of Chapter IV.

5. Students in the high risk category were those students with a score of four or five on the DM scales. Students who scored four or five on the R scale were counseled before those students with a three or lower on the R scale because they indicated more responsiveness to assistance from the support services personnel. Intervention strategies were begun for high risk students before mid-term of their first semester in college.

6. The students categorized as high risk (dropout prone) were notified by a letter or telephone call to arrange an appointment with the Associate Dean for Student Development for interpretation of the SCI-C results. Other students were counseled and advised as the need arose, or if they asked for assistance. The SCI-C information relating to the identification and categorization of students is listed in Table I of Chapter IV.
7. The explanation and implications of the SCI-C were discussed with faculty and administration to assure a campus-wide cooperative effort in providing early intervention strategies for high risk students. The intervention strategies were used to help students achieve their educational goals by assisting them to develop intellectually, emotionally, socially, physically, and spiritually.

8. The criterion used as a common basis for counseling with the freshmen during the interpretation of the SCI-C was as follows:

   a. Established rapport;

   b. Discussed study skills, time management, and the students perspective of their academic strengths and weaknesses;

   c. Used the constriction scale on the SCI-C to determine the use of a direct approach or an indirect approach for discussing problem areas;

   d. Used the motivational scale as a guide to discuss the underlying causes of problem areas identified by the SCI-C;

   e. Based on the assessment of academic need, emotional and social growth needs,
and the interest in support services, as determined by the SCI-C and the initial interview, the students were referred to appropriate personnel to facilitate remediation of problem areas. The support services for which students indicated an interest on the SCI-C are tabulated in Table Two of Chapter IV.

9. The students' academic progress and social integration were monitored throughout the year. The Associate Dean for Student Development contacted the students a minimum of three times after the initial interview. Follow up personal contacts were attempted for each student in the high risk category to maintain contact with the students' progress, to offer further assistance, and to establish an adult friendship outside the classroom. The rationale for establishing an informal adult-student relationship was based on research that asserts that informal faculty-student relationships outside of the academic classroom facilitate student persistence in college (4, 9, 10). Research also demonstrates the importance of assisting students to become involved with their peers in the social and
academic life of their institutions (1, 3, 5, 9, 10).

10. The data collected from the study during the 1984-85 academic year was analyzed to determine if intrusive counseling influenced the retention effort at Hardin-Simmons University. Psychological Configurations provided the data on a printed computer report, and also on a five and one-quarter inch double density single side diskette. Other data for the study was obtained from students' high school transcripts, SAT or ACT test scores, college grade reports and the Hardin-Simmons University Institutional Research Reports.

11. The SPSS software computer package was used to analyze the data for the study.

Hypotheses and Procedures for Analysis of the Data

The analysis of the data obtained from the SCI-C instrument corresponds with the hypotheses for this study.

Hypothesis One

The Attitudinal Predictor of GPA from the SCI-C will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success.

Multiple regression analysis was used to obtain a multiple correlation coefficient between the predictor
variables and the criterion (first year GPA). The significance of the multiple correlation was tested utilizing an "F" ratio. The null hypothesis that there will be no additional significant predictability of college academic success using the Attitudinal Predictor of GPA in addition to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success was utilized for the statistical tests. The .05 level of significance was used.

Hypothesis Two

The Dropout Proneness Scale of the SCI-C will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success.

Multiple regression analysis was used to obtain a multiple correlation coefficient between the predictor variables and the criterion (first year GPA). The significance of the multiple correlation was tested utilizing an "F" ratio. The null hypothesis that there will be no additional significant predictability of college academic success using the Dropout Proneness Scale in addition to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success was utilized for the statistical tests. The .05 level of significance was used.
Hypothesis Three

The Transfer Proneness Scale of the SCI-C will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success.

Multiple regression analysis was used to obtain a multiple correlation coefficient between the predictor variables and the criterion (first year GPA). The significance of the multiple correlation was tested utilizing an "F" ratio. The null hypothesis that there will be no additional significant predictability of college academic success using the Transfer Proneness Scale in addition to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success was utilized for the statistical tests. The .05 level of significance was used.

Hypothesis Four

The Psychological Coping Scale of the SCI-C will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success.

Multiple regression analysis was used to obtain a multiple correlation coefficient between the predictor variables and the criterion (first year GPA). The significance of the multiple correlation was tested utilizing an "F" ratio. The null hypothesis that there will
be no additional significant predictability of college academic success using the Psychological Coping Scale in addition to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success was utilized for the statistical tests. The .05 level of significance was used.

Hypothesis Five

The Motivational Scale of the SCI-C will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success.

Multiple regression analysis was used to obtain a multiple correlation coefficient between the predictor variables and the criterion (first year GPA). The significance of the multiple correlation was tested utilizing an "F" ratio. The null hypothesis that there will be no additional significant predictability of college academic success using the Motivational Scale in addition to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success was utilized for the statistical tests. The .05 level of significance was used.

Hypothesis Six

The Responsiveness Scale of the SCI-C will provide additional predictability of college academic success to the
current measures (SAT or ACT test scores and high school rank) used to predict college academic success.

Multiple regression analysis was used to obtain a multiple correlation coefficient between the predictor variables and the criterion (first year GPA). The significance of the multiple correlation was tested utilizing an "F" ratio. The null hypothesis that there will be no additional significant predictability of college academic success using the Responsiveness Scale in addition to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success was utilized for the statistical tests. The .05 level of significance was used.

**Hypothesis Seven**

Combinations of the six scales of the SCI-C will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success.

Multiple regression analysis was used to obtain multiple correlation coefficients between the predictor variables and the criterion (first year GPA). The significance of the multiple correlations was tested utilizing an "F" ratio. The null hypothesis that there will be no combinations of the six scales of the SCI-C that will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and
high school rank) used to predict college academic success was utilized for the statistical tests. The .05 level of significance was used.

**Hypothesis Eight**

The student retention rate of first-time, full-time freshmen who plan to return to Hardin-Simmons for their second year and with whom intervention strategies have been utilized will show an increase over the retention rates of first-time, full-time students who returned to Hardin-Simmons for the years 1980-1984.

A z test for difference of proportions of independent samples was utilized to compare the retention rate of the 1984 freshman class with the average rate of retention for the freshman classes of 1979 to 1983. The null hypothesis that there will be no significant increase in the retention rate for first-time, full-time freshmen who plan to return to Hardin-Simmons for their second year and the retention rates of first-time, full-time students who returned to Hardin-Simmons for the years 1980-1984 was utilized for the statistical tests. The .05 level of significance was used.
CHAPTER BIBLIOGRAPHY


CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

INTRODUCTION

The problem addressed in this study was first year student retention at a private liberal arts university. The *Stratil Counseling Inventory-College Form (SCI-C)* was used to identify dropout prone freshmen students and to provide guidelines for determining appropriate early intervention strategies to assist freshmen in achieving their academic and personal growth goals and, therefore, to persist at Hardin-Simmons University, Abilene, Texas.

The SCI-C was used to carry out the purposes of the study which were

1. To identify high risk students (dropout prone and/or maladjusted) using the *Stratil Counseling Inventory-College Form (SCI-C)* in order to provide assistance and counseling support for freshmen students early in the first semester;

2. To identify support services that could facilitate retention by assisting students in achieving their educational goals. Support services included counseling services, academic support services, employment services and administrative services;
3. To refer students in need of special assistance to the appropriate support service personnel to facilitate remediation of problem areas as identified by the SCI-C;

4. To determine if using any one or combinations of the six scales of the SCI-C (Attitudinal Predictor of GPA, Dropout Proneness Scale, Transfer Proneness, Psychological Coping, Motivational Scale, and Responsiveness Scale) with SAT or ACT and high school rank, provides greater predictability of college persistence/attrition than use of high school rank and SAT or ACT test scores alone;

5. To compare the percent retention rate of freshmen students for the 1984-85 academic year with the retention rates of freshmen students since 1980 at Hardin-Simmons University.

The statistical analysis for this study was computed on two sets of data. This was necessary since 137 freshmen students took the American College Testing Program (ACT) examination and 148 first-time students took the Scholastic Aptitude Test (SAT) to satisfy college entrance requirements. However, the data relating to the students' interest in support services as identified by the SCI-C and the number of times students were referred to support services are presented as one group (SAT and ACT) in both
tabular and narrative form. The initial interviews with the students and the subsequent referrals occurred before information about which college entrance examination they had taken was available.

Statistical analysis was, however, also computed for the total sample (N=285) by using ACT composite scores for SAT equivalent total scores. The summary tables of findings for the SAT groups and SAT equivalents group are located in Appendix D because the equivalent scores are approximations, rather than accurate calculations (See Appendix C).

Identification of High Risk Students

The SCIC was used to identify high risk students (dropout prone), as well as low risk students (students expected to succeed academically and personally during their freshman year). The high risk group was categorized by a four or five on the SCIC intervention code (DMR). The code summarizes the findings on the dropout proneness scale (D), the maladjustment scale (M), and the responsiveness or interest of support services scale (R). The DMR code has a range from one to five for each scale (one is very low-lowest 20 percent and five is very high-highest 20 percent). For example, the code might be 555 for the student who is dropout prone and maladjusted, but who is responsive to help from selected university personnel.

Students who were categorized as high risk and who had a four or five on the responsiveness scale were counseled
before those students with a responsiveness (R) code of one, two or three, since they had responded on the SCIC that they were willing to accept assistance. As indicated by Table I, 285 first-time, full-time, students were categorized as low risk, dropout prone, maladjusted, or dropout prone and maladjusted.

An examination of the data recorded in Table I shows that 175 of the 285 first-time, full-time students were identified by the SCIC as low risk. The other 110 freshmen students were categorized by the SCIC as high risk students.

The mean standard score on the SCI-C scales is 50 and the standard deviation is 10. The table indicates that the mean score for the low risk category on the dropout scale was 37.59 for the SAT group and 39.48 for the ACT group. The standard deviation for the SAT group was 6.37 and it was 6.63 for the ACT group. The mean psychological coping score which is reported on the DMR intervention code as maladjustment was 55.99 for the low risk students who took the SAT and 56.02 for those who took the ACT. The standard deviation for the SAT group was 5.41 and 4.23 for the ACT students. The students in the low risk category had a mean score of 46.12 with a standard deviation of 8.58 on the responsiveness code. The ACT group mean for responsiveness was 48.95 with a standard deviation of 9.08.

Of the 110 students categorized as high risk, 21 students were identified as dropout prone (SAT group-9,
TABLE I

SUMMARY OF CATEGORIES OF FRESHMEN STUDENTS AS DETERMINED BY THE STRATIFIED COUNSELING INVENTORY - COLLEGE FORM (SCI-C) INTERVENTION CODE (DMR)*

<table>
<thead>
<tr>
<th>Categories of Freshmen by DMR Code</th>
<th>Number of Freshmen in Each Group**</th>
<th>Mean Dropout Prone Scale (D)</th>
<th>Standard Deviation of D</th>
<th>Mean Psychological Coping Status (Maladjusted Scale - M)</th>
<th>Standard Deviation of M</th>
<th>Mean Responsiveness Scale (R)</th>
<th>Standard Deviation of R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>D Code of 1 to 3</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>SAT</td>
<td>91</td>
<td><strong>37.59</strong></td>
<td>6.37</td>
<td><strong>55.99</strong></td>
<td>5.41</td>
<td><strong>46.12</strong></td>
<td><strong>8.58</strong></td>
</tr>
<tr>
<td>ACT</td>
<td>84</td>
<td><strong>39.48</strong></td>
<td>6.63</td>
<td><strong>56.02</strong></td>
<td>4.23</td>
<td><strong>48.95</strong></td>
<td><strong>9.08</strong></td>
</tr>
<tr>
<td>Dropout Prone</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>D Code of 4 or 5</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>SAT</td>
<td>9</td>
<td><strong>56.44</strong></td>
<td>1.67</td>
<td><strong>53.11</strong></td>
<td>3.69</td>
<td><strong>43.33</strong></td>
<td><strong>7.35</strong></td>
</tr>
<tr>
<td>ACT</td>
<td>12</td>
<td><strong>54.83</strong></td>
<td>1.19</td>
<td><strong>52.25</strong></td>
<td>3.25</td>
<td><strong>46.00</strong></td>
<td><strong>5.01</strong></td>
</tr>
<tr>
<td>Maladjusted</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>M Code of 4 or 5</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>SAT</td>
<td>33</td>
<td><strong>43.73</strong></td>
<td>5.00</td>
<td><strong>43.97</strong></td>
<td>4.54</td>
<td><strong>48.24</strong></td>
<td><strong>9.14</strong></td>
</tr>
<tr>
<td>ACT</td>
<td>23</td>
<td><strong>46.13</strong></td>
<td>5.09</td>
<td><strong>44.61</strong></td>
<td>4.90</td>
<td><strong>54.35</strong></td>
<td><strong>7.80</strong></td>
</tr>
</tbody>
</table>
TABLE I--Continued

<table>
<thead>
<tr>
<th>Categories of Freshmen by DMR Code</th>
<th>Number of Freshmen in Each Group**</th>
<th>Mean Dropout Prone Scale (D)</th>
<th>Standard Deviation of D</th>
<th>Mean Psychological Coping Status (Maladjusted Scale - M)</th>
<th>Standard Deviation of M</th>
<th>Mean Responsiveness Scale (R)</th>
<th>Standard Deviation of R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropout Prone and Maladjusted D and M Code of 4 or 5</td>
<td>SAT ACT</td>
<td>15</td>
<td>18</td>
<td>57.53</td>
<td>3.87</td>
<td>45.07</td>
<td>5.18</td>
</tr>
<tr>
<td>SAT</td>
<td></td>
<td>15</td>
<td></td>
<td>57.53</td>
<td></td>
<td>45.07</td>
<td></td>
</tr>
<tr>
<td>ACT</td>
<td></td>
<td>18</td>
<td></td>
<td>60.00</td>
<td></td>
<td>40.44</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>148</td>
<td></td>
<td>137</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>285</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*DMR - Dropout Proneness, Maladjusted, Responsivness Code
**SAT, ACT (Scholastic Aptitude Test and American College Testing Program) The data was analyzed in two groups. The groups were determined on the basis of the college entrance exam taken by the student for admission to Hardin-Simmons University.

SCI-C Intervention Code Ratings (DMR)
- High Risk (Dropout Prone - D)
- Maladjusted (Psychological Coping Status - M)
- Responsiveness (Interest in Support Services - R)

The Mean Standard Score is 50
Standard Deviation is 10

DMR Ratings
- 5 = (very high - highest 20 percent)
- 4 = (above average - next highest 20 percent)
- 3 = (average - middle 20 percent)
- 2 = (below average - next lowest 20 percent)
- 1 = (very low - lowest 20 percent)
ACT group-12); 56 were categorized as maladjusted (SAT group-33, ACT group-23); and 33 were grouped as both dropout prone and maladjusted (SAT group-15, ACT group-18). The mean scores on dropout proneness, maladjustment, and responsiveness for SAT students categorized as dropout prone were 56.44, 53.11, and 43.33 respectively. The standard deviations in the same sequence were 1.67, 3.69, and 7.35. The ACT dropout prone group posted the following mean scores and standard deviations: dropout proneness - 54.83 and 1.19; psychological coping status (maladjustment) - 52.25 and 3.25; and responsiveness - 46.00 and 5.01.

The mean dropout prone score for the group of students who took the SAT and who were categorized as maladjusted was 43.73 with a standard deviation of 5.00. Their mean score on the psychological coping scale was 43.97 with a standard deviation of 4.54 and the mean responsiveness score was 48.24 with a standard deviation of 9.14. Of those students grouped as maladjusted with ACT scores, the mean scores for dropout proneness, psychological coping status, and responsiveness were 46.13, 44.61 and 54.35 respectively. The standard deviations for each of those scores in the same order were 5.09, 4.90, and 7.80.

The mean scores with their standard deviations for the 33 students identified by the SCI-C as being both dropout prone and maladjusted were: dropout prone - 57.53 and
3.8705; psychological coping status - 45.07 and 5.18; and responsiveness - 52.80 and 7.40. The mean scores and standard deviations for the ACT group who were categorized as dropout prone and maladjusted were: dropout prone - 60.00 with a 3.14 standard deviation; psychological coping status - 40.44 with a standard deviation of 7.36; and responsiveness - 49.44 with a standard deviation of 11.98.

The statistical analysis of the SAT and SAT equivalent of ACT group for the mean scores and standard deviations of the categories of freshmen students as determined by the SCI-C intervention code did not differ significantly from the analysis of each separate group (SAT and ACT). The mean scores and standard deviations reflect an average of the separate scores for the ACT and SAT groups (Appendix D - Table A).

Table I and Table A in Appendix D indicate the mean scores of the SCI-C intervention code. Table I represents the findings of the SAT and ACT groups. Table A in Appendix D contains the mean scores of the SCI-C intervention code for the SAT and SAT equivalent of the ACT group.

Significance of the Maladjustment and Dropout Prone Scales

The significance of the maladjustment category as presented in Table I in the dynamics of dropout is discussed.
in the literature by Astin (1), Summerskill (18), Spady (16), Vaughan (23), Terenzini and Pascarella (14, 21), and Tinto (19, 22). Their studies showed that lack of motivation, inability to adequately cope emotionally, and lack of social integration, were major factors involved in dropout. Pascarella and Terenzini (13, 14, 20) concluded from their studies that what happens to freshmen students after they arrive on campus is probably more significant in retention than the attributes students bring to college (family income, level of family education, sex, personality traits, and high school academic achievement). Therefore, how students cope with their campus environment (academic, social, and personal) is an important factor in their ability to succeed in the university and persist until they have completed their educational goals.

The SCI-C maladjustment code is derived from 12 scales that measure motivational tendencies and five scales that measure how students normally cope with life in general, their coping style, their self esteem, and their social adjustment (3, 9). These measures provide a basis for understanding student problems, academically, socially, and personally (3, 9). According to Terenzini and Pascarella (21), studies should be conducted utilizing the diverse variables known to be associated with retention to determine their interactive relationships with student persistence in
college. Understanding how students cope with their circumstances of college life, what coping style they normally use, how well they are socially integrated, and knowing how they feel about themselves (self-esteem) and what their motivational tendencies are, might help explain why students often drop out (1, 15, 17). For example, according to Astin (1), Bean (15), and Pantages and Creeden (12), the most reliable prediction of college persistence is high school academic performance; however, this fact does not explain why students with strong academic records in high school often drop out of college.

The dropout prone category summarized in Table I measures students' perception toward their academic ability, study habits, expectations of academic success, and susceptibility to test distress. It also measures their educational values, as well as those of their parents, and their explicit anticipation of dropping out of school (17). Although Bean (15, p.17) states that "theory is not a panacea" in retention studies, he does advocate the value of theory in its usefulness in explaining "why students dropout of school . . . and to predict which students are most likely to dropout of school" (15, p.17).

Student Interest In Support Services

Every student (110) listed in the high risk category visited with the Associate Dean for Student Development at Hardin-Simmons University before mid-term of their first
semester. The Associate Dean for Student Development counseled the students concerning the outcome of the SCI-C. The students who needed or requested assistance from the various support services were then referred to the appropriate support personnel. The summary of student referrals and of student interest in support services as identified by the SCI-C is tabulated in Table II.

Examination of the data in Table II shows the number of times students in the high risk category, as identified by the SCI-C, indicated an interest in the various support services listed on the SCI-C responsiveness scale.

The number of students referred to the various support service personnel is tabulated in Table II as well as the percent of students who were referred to support service personnel. As indicated on Table II, 52.7 percent of the students were referred to counseling services. Twenty six students or 23.6 percent were referred to various groups on campus to facilitate their social integration into campus life. Of the students who indicated an interest in academic services, 64.5 percent were referred to student services personnel for assistance with study and exam skills; 27.3 percent were referred to the math lab or to their math professor; 5.5 percent indicated a need for improving their reading skills; 52.7 percent were referred to the writing lab; and 41.8 percent were referred to their professors for assistance in study preparation or for tutoring assistance.
TABLE II.

STUDENT INTEREST IN SUPPORT SERVICES AS IDENTIFIED BY THE RESPONSIVENESS SCALE (R) ON THE SCI-C AND SUMMARY OF STUDENT REFERRALS TO SUPPORT SERVICES FOR STUDENTS CATEGORIZED AS HIGH RISK IN THE ACT AND SAT GROUPS

<table>
<thead>
<tr>
<th>Support Services Listed on the SCI-C Responsiveness Scale</th>
<th>Frequency of Support Services Listed</th>
<th>Frequency of Students Referred</th>
<th>Percent Referred N=110 *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counseling Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discuss SCI-C Results</td>
<td>99</td>
<td></td>
<td>52.7</td>
</tr>
<tr>
<td>Discuss Personal Problems</td>
<td>24</td>
<td>20</td>
<td>18.2</td>
</tr>
<tr>
<td>Discuss Roommate Problems</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discuss Instructor Problems</td>
<td>42</td>
<td>25</td>
<td>22.7</td>
</tr>
<tr>
<td>Assessment of Vocational Interests</td>
<td>72</td>
<td>13</td>
<td>11.8</td>
</tr>
<tr>
<td>Encounter Experiences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attend Gathering to Meet New Friends</td>
<td>103</td>
<td>26</td>
<td>23.6</td>
</tr>
<tr>
<td>Join Encounter Group</td>
<td>63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic Support Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help with Study and Exam Skills</td>
<td>99</td>
<td>71</td>
<td>64.5</td>
</tr>
<tr>
<td>Help with Math Skills</td>
<td>28</td>
<td>30</td>
<td>27.3</td>
</tr>
<tr>
<td>Help with Reading Skills</td>
<td>58</td>
<td>6</td>
<td>5.5</td>
</tr>
<tr>
<td>Help with Writing Skills</td>
<td>80</td>
<td>58</td>
<td>52.7</td>
</tr>
<tr>
<td>Tutoring in Selected Courses</td>
<td>75</td>
<td>46</td>
<td>41.8</td>
</tr>
<tr>
<td>Referred to Failsafe Seminar for Study Skills</td>
<td>110</td>
<td></td>
<td>100.0</td>
</tr>
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</table>
### TABLE II--Continued

<table>
<thead>
<tr>
<th>Support Services Listed on the SCI-C Responsiveness Scale</th>
<th>Frequency of Support Services Listed</th>
<th>Frequency of Students Referred</th>
<th>Percent Referred N=110 *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help in Finding Part-Time Job</td>
<td>55</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>Help in Finding Summer Job</td>
<td>54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discuss Occupational Trends</td>
<td>85</td>
<td>13</td>
<td>11.8</td>
</tr>
<tr>
<td>Administrative Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discuss Campus Groups</td>
<td>91</td>
<td>20</td>
<td>18.2</td>
</tr>
<tr>
<td>Discuss Annoying Regulations</td>
<td>23</td>
<td>11</td>
<td>10.0</td>
</tr>
<tr>
<td>Discuss Financial Aid</td>
<td>56</td>
<td>6</td>
<td>5.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1028</strong></td>
<td><strong>457</strong></td>
<td></td>
</tr>
</tbody>
</table>

* N = Total Number of Students in the High Risk Category

In selected courses. One hundred sixty four students were referred to a Failsafe Seminar for study skills; however, only 36 students participated in the first session of the seminar. Four other sessions were planned, but the last three sessions were canceled because so few people participated in the second session. Study skills assistance was then provided on an individual basis. The Student Development personnel found that students in need of help,
however, often waited until their problems were almost unalterable before they accepted the university's invitation for academic assistance.

Although 55 students indicated an interest in having help to find a part-time job, only two students needed to be referred to student employment at the time the SCI-C was discussed with them. Approximately 12 percent of the high risk students were interested in discussing occupational trends. These students were referred to Career Planning and Placement or to professors who were authorities in the areas about which the students had inquired. Thirty seven percent of the students were referred to administrative services. Of that percentage 23 students were referred to the Registrar or to the Vice-President for Academic Affairs to discuss academic regulations and policies. Only six students out of the 110 high risk group had questions that needed to be discussed with financial aid personnel.

Table III is a summary of the student referrals to the academic support services for students categorized by the SCI-C as low risk but who began to have difficulty with their grades at mid-term of the 1984 fall semester. After mid-term grades were posted in October, 54 students in the low risk category were requested to visit with the Associate Dean for Student Development because their mid-term grade reports were unsatisfactory. The purpose of the visit was to determine what assistance could be offered to the
### TABLE III

**SUMMARY OF STUDENT REFERRALS TO ACADEMIC SUPPORT SERVICES FOR STUDENTS IN ACADEMIC DIFFICULTY AT FALL MID-SEMESTER WHO WERE IDENTIFIED BY THE SCI-C AS LOW RISK IN THE ACT AND SAT GROUPS**

<table>
<thead>
<tr>
<th>Academic Support Services listed on the SCI-C Responsiveness Scale</th>
<th>Frequency of Support Services Listed</th>
<th>Frequency of Students Referred</th>
<th>Percent Referred N=110 *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Help with Study and Exam Skills</td>
<td>47</td>
<td>13</td>
<td>24.1</td>
</tr>
<tr>
<td>Help with Math Skills</td>
<td>5</td>
<td>8</td>
<td>14.8</td>
</tr>
<tr>
<td>Help with Reading Skills</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help with Writing Skills</td>
<td>24</td>
<td>11</td>
<td>20.4</td>
</tr>
<tr>
<td>Tutoring in Selected Courses</td>
<td>34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referred to Professor Referred to Failsafe Seminar</td>
<td>23</td>
<td>54</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>132</td>
<td>109</td>
<td>. . .</td>
</tr>
</tbody>
</table>

N=Total Number of Students Categorized by the SCI-C as low risk who encountered academic difficulty at fall mid-semester.

Students to help them become more successful in their academic studies, and to help them resolve personal problems that might have developed during the critical first six-weeks adjustment period (1). According to Nielson and Polishook (10), the problem university personnel must contend with is how to select those students who need help "out of the crowd" and provide them with the appropriate assistance to facilitate their development. When the
students who had been identified as low risk were interviewed, they indicated that poor study habits and lack of self-discipline were major factors in their inadequate academic performance.

Table III shows the frequency with which students listed particular support services on the SCI-C. The table also indicates the number of students actually referred to support staff for academic assistance after mid-semester in the fall of 1984.

The Student Development staff observed that freshmen students who had been counseled in relation to the results of their SCI-C tended to return to the office of the Associate Dean for Student Development and to other resource personnel for assistance with problems, to obtain information concerning personal and academic matters, and to visit. It may be inferred from this observation that students value an out of classroom adult-student relationship. Tinto (22), Pascarella and Terenzini (13), maintain that faculty interaction with students outside the classroom in the role of friend and advisor is an important factor to student satisfaction with the college experience.

Additional findings noted in the students' return visits to the office of the Associate Dean for Student Development included two complaints concerning their professors. One major complaint from the freshmen students was that their academic advisors frequently just signed
course request forms rather than providing them with counsel. Another persistent problem the students discussed was that particular professors did not remember appointments or maintain office hours as posted.

Although it cannot be inferred that providing academic assistance to students and facilitating their adjustment into the social environment of the university enabled them to perform successfully in the classroom, there does appear to be a relationship between the assistance they received during their freshmen year and their academic success. The mean grade point averages for the SAT and ACT groups are shown in Table IV. The mean grade point average (GPA) for the 1984 fall semester for freshmen students in the ACT group was 2.49 and it was 2.71 for the SAT group. The spring mean GPA was 3.24 for the ACT group and 3.02 for

<table>
<thead>
<tr>
<th>Group</th>
<th>Fall Mean GPA*</th>
<th>Standard Deviation for Fall GPA</th>
<th>Spring Mean GPA</th>
<th>Standard Deviation for Spring GPA</th>
<th>Mean Cumulative GPA</th>
<th>Standard Deviation for Cumulative GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT</td>
<td>2.71</td>
<td>1.06</td>
<td>3.02</td>
<td>1.81</td>
<td>3.08</td>
<td>1.72</td>
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<tr>
<td>N=148</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACT</td>
<td>2.49</td>
<td>1.36</td>
<td>3.24</td>
<td>2.59</td>
<td>3.34</td>
<td>2.50</td>
</tr>
<tr>
<td>N=137</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

*GPA is based on a 4.00 scale.
students in the SAT group. The cumulative GPA for the SAT group was 3.08 and it was 3.34 for the ACT group (The cumulative GPA for the SAT group and the SAT equivalent of ACT group was 3.21).

The actual number of students receiving grades at the end of the fall semester was: SAT-147 rather than 148 and ACT-133 rather than 137. The computer program substituted the mean GPA for the missing values in calculating the overall mean GPA for each group. Three of the five students were administratively withdrawn from school, one academic scholarship student was hospitalized because of anorexia and bulimia, and the other student who had above average grades had a work conflict that prevented him from taking 12 hours of academic work.

There was a total of 31 students who left school by the close of the spring semester including the five students who left before the end of the fall semester. The missing value option of subprogram SPSS used the mean GPA of each group to calculate the GPA for the original number of students. Actual number of students for the spring semester in the SAT group was 138. The actual number of students in the ACT group at the end of the spring semester was 116. Of the 21 students in the ACT group who left school during the spring, nine students had grade point averages in a range of 1.67 to 3.80 (mean was 2.03), and seven students had a mean GPA of 1.00 (range of 0.27-1.50). Five students in the ACT
group had no grades posted because they left school before the end of the semester. Of the eight students in the SAT group who left school, four students had no grades posted, one had a GPA of 3.00 and three had an average GPA of 0.82.

Analysis of the Hypotheses of the Study

Hardin-Simmons University (HSU) is committed to the goal of assisting their students to succeed both academically and personally. Retention is important not only to students who are striving to attain educational goals, but also to the colleges and universities. In order to maintain a quality educational program, institutions must have a "staying environment" (11), and they must have a sound financial operations system. According to Astin (1) student retention is more cost effective than student recruitment to replace dropout students.

Hypotheses one through seven of this retention study were tested to determine if the Stratil Counseling Inventory-College Form (SCI-C) would provide additional predictability of college academic success, as measured by grade point average (GPA), to the current measures used at HSU to predict college academic success. The traditional measures used at HSU are high school rank and ACT or SAT test scores. Although high school grades are the common standard used to predict college success, Astin (1) emphasizes that high school grades do not explain why
students with high grades frequently drop out of college.

The SCI-C is primarily a counseling inventory that provides information to counselors to assist them in helping students become academically and socially integrated into the campus environment. It was not developed to predict academic success; however, the attitudes, traits, and characteristics it measures are related to academic success (15). The rationale for testing the variables of the SCI-C, therefore, was to determine which scales would provide the support staff and faculty the most significant information about the students. Having this type of information available would enable faculty and student services personnel to better assist students during the critical first six weeks adjustment period as well as mentor them throughout their college program. The SCI-C was administered during the week prior to the beginning of the 1984-85 academic year. The inventories were scored by Psychological Configurations. Psychological Configurations returned the results to HSU within two weeks. Prior to mid-semester, the Associate Dean for Student Development conferred with 110 students identified as high risk by the SCI-C. The students academic progress and social integration were monitored throughout the year by student development personnel, faculty and administrators. The Associate Dean for Student Development contacted the students a minimum of three times after the initial
interview. The follow up visits provided a basis to offer further assistance and to establish student/adult friendships outside the classroom. The importance of informal faculty-student interaction as a major factor in student persistence in college is well documented in the literature (12, 15, 18, 22).

Data collected from the study during the 1984-85 school year were also analyzed to determine if intrusive counseling influenced the retention effort at Hardin-Simmons University (hypothesis eight). The retention rate for first-time full-time students (1984-85) who returned for their second year was compared to the average retention rate for students returning for their second year during 1980 to 1984. The z test for difference of proportions of independent samples was used.

Data in the study were analyzed by the computer software package SPSS (Statistical Package for the Social Sciences). The SPSS subprograms used were: frequency distribution, breakdown, and regression.

Multiple regression and multiple stepwise regression analysis were used to test the prediction of the criterion—academic success—as measured by grade point average (GPA), from the independent variables of the SCI-C (Attitudinal Predictor of GPA, Dropout Proneness, Transfer Proneness, Psychological Coping Status, Motivation, and Responsiveness to Support Services) and ACT or SAT and high school rank.
Multiple regression is a multivariate technique used to determine the correlation between a criterion (dependent variable) and some combination of two or more predictor (independent) variables (4). Unless the user specifies otherwise, the computer program begins the regression analysis with the most powerful predictor of the criterion. The most powerful predictor is chosen on the basis of the product-moment correlation between the predictor and the criterion. The second predictor is entered into the regression equation based on "how well it improves upon the prediction achieved by the first variable" (4, p. 599.) The second variable should correlate as highly as possible with the criterion, but correlate very little with the first predictor variable. The third and other variables are entered into the equation based upon their additional contribution to the prediction made by the variables already entered in the regression equation (4, 8, 9).

The multiple correlation coefficient (R) measures "the magnitude of the relationship between the criterion variable and a predictor variable or some combination of predictor variables. The value of R varies according to the predictors entered in the regression equation and the order that they were entered. "Negative values of R are not possible" (4, p. 600). The range of R is 0.00 to 1.00. An F ratio can be used to test whether the multiple correlation coefficient is significantly different from zero. An F
ratio of 1.00, however, would be expected on the basis of chance alone (8).

The coefficient of determination ($R^2$) represents the amount of variance in the criterion that is explained by the variance in the predictor or a combination of predictor variables. $R^2$ expresses the magnitude of the relation between predictor variables and the criterion. According to Kerlingler and Pedhazur (8, p. 447), the two most important regression statistics are $R^2$ and Beta ($\beta$) or b weights.

The b's are weights that provide information about the relative contributions of the various predictor variables to the criterion. The sample regression weight b is considered to be an estimate of the population regression weight beta ($\beta$). In the basic equation of simple linear regression ($Y' = a + bX$), b is the slope or partial regression coefficient that indicates the change in $Y$ with a change of one unit of $X$. $Y'$ = predicted scores of the criterion ($Y$); $X$ = scores of the predictor variables; $a$ = intercept constant. Betas ($\beta$'s) are also slopes or standard partial regression coefficients. They are used when all the variables are in standard score form. "Partial" means that the effects of variables other than the one to which the weight applies are held constant" (8, p. 64). The b weights are not in standard form. When the scores on the predictor variables are multiplied by the regression weights (b or B) and then summed, the result is the best estimate of the
criterion score.

The best predictor is the predictor variable with the largest beta weight - ignore the sign (positive or negative). A small beta weight indicates that the corresponding predictor variable does not significantly contribute to the prediction (4, 8). However, Borg (4, p. 602) states that "the magnitude of a predictor variable's beta weight should not be confused with its importance." He points out that predictor variables can be "theoretically significant and highly correlated with the criterion, yet have a low beta weight" (4, p. 602). According to Borg (4), Kim and Kohout (9), and Kerlinger and Pedhazur (8), beta weights are somewhat arbitrary in that they depend on the predictor's correlation with the other predictor variables. Beta weights are also influenced by the order chosen to enter the predictors.

Statistical significance of a correlation coefficient implies the likelihood of an observed result. A significant result does not guarantee that the observed result is important or meaningful. It is also possible for a non-significant finding to be important to the situation. Kerlinger and Pedhazer (8) recommend that meaningfulness be given priority over a statistically increment of $R^2$. They point out that with large samples, which are required by regression analysis, even minute increments of $R^2$ will be statistically significant. Therefore, a researcher must
decide if the significant finding is practical or meaningful. "What is considered meaningful in one situation may not be considered meaningful in another situation" (8, p. 286). Kerlinger and Pedhazer (8) stress the importance of a large sample size to provide a more precise statistical estimate. Borg (4) suggests that there should be at least fifteen (15) subjects for each variable to be included in the multiple regression. According to Borg, (4, p. 623) statistical significance in prediction studies "is of little consequence because correlations usually must exceed this point to be of practical value . . . practical significance is more important than statistical significance." Borg states that although correlation coefficients that range from .20 to .35 express a slight relationship and may even be statistically significant, they are "of little value in practical prediction situations" (4, p. 624.) However, he maintains that combining several correlations around .50 in a multiple regression equation will "in some cases yield individual predictions that are correct within an acceptable margin of error. Borg contends that correlation coefficients in the range of .65 to .85 provide predictions that are accurate for most purposes. If the correlation is over .85, the variables are closely related (4).

With the exception of hypothesis eight, the hypotheses of this study were tested by multiple regression analysis. The level of significance was set at .05. Hypothesis eight
was tested by a z test for the difference of proportions for independent samples.

Hypothesis I

Null hypothesis one stated that there would be no additional significant predictability of college academic success using the Attitudinal Predictor of GPA in the SCI-C in addition to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success. Multiple regression analysis was used to obtain a multiple correlation coefficient between the predictor variables and the criterion (first year grade point average - GPA). The significance of the multiple correlation was tested by the F ratio. The .05 level of significance was used. The data for hypothesis one are presented in Table V and Table VI.

The data presented in Table V indicate that the Attitudinal Predictor of GPA (PL) of the SCI-C did not add significant additional predictability at the five percent (5%) level to the SAT scores and high school rank (HSR) used to predict academic success at Hardin-Simmons University (HSU). R² for SAT, HSR, and PL explained four percent (4%) of the unique variance of the criterion. Predictor variable PL accounted for three percent (3%) of the variance. Data for ACT, HSR and PL are presented in Table VI.

The data presented in Table VI show that the Attitudinal Predictor of GPA (PL) of the SCI-C did not add significant
**TABLE V**

MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES—
SCHOLASTIC APTITUDE TEST (SAT), HIGH SCHOOL RANK
(HSR), AND ATTITUDINAL PREDICTOR OF GPA (PI)—
OF THE STRATIL COUNSELING INVENTORY-COLLEGE
FORM USED TO PREDICT COLLEGE
ACADEMIC SUCCESS
(N=148)

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta</th>
<th>R</th>
<th>R^2</th>
<th>d/f</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT</td>
<td>0.077</td>
<td>0.096</td>
<td>0.009</td>
<td>1/146</td>
<td>1.35*</td>
</tr>
<tr>
<td>SAT, HSR</td>
<td>0.012</td>
<td>0.096</td>
<td>0.009</td>
<td>2/145</td>
<td>0.68*</td>
</tr>
<tr>
<td>SAT, HSR, PI</td>
<td>0.189</td>
<td>0.204</td>
<td>0.041</td>
<td>3/144</td>
<td>2.08*</td>
</tr>
</tbody>
</table>

* Not significant at .05 level

**TABLE VI.**

MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES—
AMERICAN COLLEGE TESTING PROGRAM (ACT), HIGH SCHOOL
RANK (HSR), AND ATTITUDINAL PREDICTOR OF GPA (PI)—
OF THE STRATIL COUNSELING INVENTORY-COLLEGE
FORM USED TO PREDICT COLLEGE
ACADEMIC SUCCESS
(N=137)

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta</th>
<th>R</th>
<th>R^2</th>
<th>d/f</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>0.014</td>
<td>0.017</td>
<td>0.000</td>
<td>1/135</td>
<td>0.04*</td>
</tr>
<tr>
<td>ACT, HSR</td>
<td>0.113</td>
<td>0.100</td>
<td>0.010</td>
<td>2/134</td>
<td>0.68*</td>
</tr>
<tr>
<td>ACT, HSR, PI</td>
<td>0.093</td>
<td>0.130</td>
<td>0.017</td>
<td>3/133</td>
<td>0.76*</td>
</tr>
</tbody>
</table>

* Not significant at the .05 level
predictability at the .05 level to the ACT scores and high school rank (HSR) used to predict academic success at HSU. \( R^2 \) in Table VI indicates that PI accounted for one percent (1%) of the variance of the criterion in addition to the one percent (1%) contributed by ACT score and HSR. Tables V and VI also indicates that SAT or ACT and HSR do not provide significant prediction of the criterion variable (college academic success). \( R^2 \) for ACT and HSR accounted for one percent of the variance of the criterion variable in the ACT group. In the SAT group, \( R^2 \) for SAT and HSR also only explained one percent of the unique variance of the criterion. The null hypothesis for both groups was retained.

**Hypothesis II**

Null hypothesis II stated that there would be no additional significant predictability of college academic success using the Dropout Proneness Scale in addition to current measures (SAT or ACT test scores and high school rank) used to predict college academic success. Multiple regression analysis was used to obtain a multiple correlation coefficient between the predictor variables and the criterion (first year GPA). The significance of the multiple correlation was tested by the \( F \) ratio. The .05 level of significance was used. Table VII and Table VIII record the data for hypothesis two.
### TABLE VII

**MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES--SCHOLASTIC APTITUDE TEST (SAT), HIGH SCHOOL RANK (HSR), AND DROPOUT PRONENESS SCALE (P2) OF THE STRATIL COUNSELING INVENTORY-COLLEGE FORM--USED TO PREDICT COLLEGE ACADEMIC SUCCESS (N=148)**

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta</th>
<th>R</th>
<th>R²</th>
<th>d/f</th>
<th>F</th>
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</thead>
<tbody>
<tr>
<td>SAT</td>
<td>0.077</td>
<td>0.096</td>
<td>0.09</td>
<td>1/146</td>
<td>1.35*</td>
</tr>
<tr>
<td>SAT, HSR</td>
<td>0.064</td>
<td>0.096</td>
<td>0.09</td>
<td>2/145</td>
<td>0.68*</td>
</tr>
<tr>
<td>SAT, HSR, P2</td>
<td>0.169</td>
<td>0.182</td>
<td>0.033</td>
<td>3/144</td>
<td>1.66*</td>
</tr>
</tbody>
</table>

* *Not significant at the .05 level.

### TABLE VIII

**MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES--AMERICAN COLLEGE TESTING PROGRAM (ACT), HIGH SCHOOL RANK (HSR), AND DROPOUT PRONENESS SCALE (P2) OF THE STRATIL COUNSELING INVENTORY-COLLEGE FORM--USED TO PREDICT COLLEGE ACADEMIC SUCCESS (N=137)**

<table>
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<tr>
<th>Predictor Variables</th>
<th>Beta</th>
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<th>R²</th>
<th>d/f</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>0.014</td>
<td>0.017</td>
<td>0.000</td>
<td>1/135</td>
<td>0.04*</td>
</tr>
<tr>
<td>ACT, HSR</td>
<td>0.113</td>
<td>0.100</td>
<td>0.010</td>
<td>2/134</td>
<td>0.68*</td>
</tr>
<tr>
<td>ACT, HSR, P2</td>
<td>0.159</td>
<td>0.176</td>
<td>0.030</td>
<td>3/134</td>
<td>2.85*</td>
</tr>
</tbody>
</table>

* *Not significant at the .05 level.
The data presented in Table VII demonstrate that the Dropout Proneness Scale (P2) of the SCI-C in combination with SAT scores and high school rank (HSR) accounted for three percent (3%) of the unique variance of the criterion (first year GPA). Addition of P2 to SAT and HSR explained two percent (2%) more of the variance than did SAT and HSR alone. Data for ACT test scores, HSR and P2 are presented in Table VIII.

As indicated in Table VIII, predictor variable P2 did not add significant additional predictability at the .05 level to ACT test scores and high school rank (HSR) used to predict academic success at HSU. However, the Dropout Proneness Scale (P2) did explain an additional two percent (2%) of the criterion than did ACT scores and high school rank. Null hypothesis three was retained for both the SAT and ACT groups.

**Hypothesis III**

Null hypothesis three stated that there would be no additional significant predictability of college academic success using the Transfer Proneness Scale of the SCI-C in addition to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success. Multiple regression analysis was used to obtain a multiple correlation coefficient between the predictor variables and the criterion (first year GPA). The significance of the multiple correlation was tested by the F ratio. The .05
level of significance was used. Data for hypothesis three are recorded in Table IX and X.

**TABLE IX**

MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES--
SCHOLASTIC APTITUDE TEST (SAT), HIGH SCHOOL RANK (HSR), AND TRANSFER PRONENESS SCALE (P3) OF THE STRATIL COUNSELING INVENTORY-COLLEGE FORM--USED TO PREDICT COLLEGE ACADEMIC SUCCESS (N=148)

<table>
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<tr>
<th>Predictor Variables</th>
<th>Beta</th>
<th>R</th>
<th>R²</th>
<th>d/f</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT</td>
<td>0.077</td>
<td>0.096</td>
<td>0.009</td>
<td>1/146</td>
<td>1.35*</td>
</tr>
<tr>
<td>SAT, HSR</td>
<td>0.064</td>
<td>0.096</td>
<td>0.009</td>
<td>2/145</td>
<td>0.68*</td>
</tr>
<tr>
<td>SAT, HSR, P3</td>
<td>0.080</td>
<td>0.123</td>
<td>0.015</td>
<td>3/144</td>
<td>0.74*</td>
</tr>
</tbody>
</table>

* Not significant at the .05 level

**TABLE X**

MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES--AMERICAN COLLEGE TESTING PROGRAM (ACT), HIGH SCHOOL RANK (HSR), AND TRANSFER PRONENESS SCALE (P3) OF THE STRATIL COUNSELING INVENTORY-COLLEGE FORM--USED TO PREDICT COLLEGE ACADEMIC SUCCESS (N=137)

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta</th>
<th>R</th>
<th>R²</th>
<th>d/f</th>
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<tr>
<td>ACT</td>
<td>0.014</td>
<td>0.017</td>
<td>0.000</td>
<td>1/135</td>
<td>0.04*</td>
</tr>
<tr>
<td>ACT, HSR</td>
<td>0.113</td>
<td>0.100</td>
<td>0.010</td>
<td>2/134</td>
<td>0.68*</td>
</tr>
<tr>
<td>ACT, HSR, P3</td>
<td>0.034</td>
<td>0.106</td>
<td>0.001</td>
<td>3/133</td>
<td>0.50*</td>
</tr>
</tbody>
</table>

* Not significant at the .05 level
The data recorded in Table IX indicate that the Transfer Proneness Scale (P3) of the SCI-C in combination with SAT test scores and high school rank provide an explanation of 1.5 percent of the variance of the criterion. The F ratio was not significant at the .05 level; therefore, null hypothesis three was retained for the SAT group. The data for the ACT group are tabulated in Table X. As shown by Table X, the Transfer Proneness variable (P3) of the SCI-C did not add additional significant predictability of the criterion. The data clearly demonstrate that neither ACT, high school rank nor P3 provided significant predictability of the criterion (college academic success). Null hypothesis three was retained for the ACT group.

**Hypothesis IV**

Null hypothesis IV stated that there would be no additional significant predictability of college academic success using the Psychological Coping Scale (P4) of the SCI-C in addition to current measures (SAT or ACT test scores and high school rank) used to predict college academic success. Multiple regression analysis was used to obtain a multiple correlation coefficient between the predictor variables and the criterion (first year GPA). The F ratio was used to test for the significance of the multiple correlation. The acceptable level of significance
was the .05 level. Data for hypothesis four are presented in Table XI and Table XII.

**TABLE XI**

MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES--SCHOLASTIC APTITUDE TEST (SAT), HIGH SCHOOL RANK (HSR), AND PSYCHOLOGICAL COPING SCALE (P4) OF THE STRATIL COUNSELING INVENTORY-COLLEGE FORM--USED TO PREDICT COLLEGE ACADEMIC SUCCESS (N=148)

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta</th>
<th>R</th>
<th>R²</th>
<th>d/f</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT</td>
<td>0.077</td>
<td>0.096</td>
<td>0.009</td>
<td>1/146</td>
<td>1.35*</td>
</tr>
<tr>
<td>SAT, HSR</td>
<td>0.064</td>
<td>0.096</td>
<td>0.009</td>
<td>2/145</td>
<td>0.68*</td>
</tr>
<tr>
<td>SAT, HSR, P3</td>
<td>0.072</td>
<td>0.204</td>
<td>0.145</td>
<td>3/144</td>
<td>0.70*</td>
</tr>
</tbody>
</table>

* Not significant at the .05 level

**TABLE XII**

MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES--AMERICAN COLLEGE TESTING PROGRAM (ACT), HIGH SCHOOL RANK (HSR), AND PSYCHOLOGICAL COPING SCALE (P4) OF THE STRATIL COUNSELING INVENTORY-COLLEGE FORM--USED TO PREDICT COLLEGE ACADEMIC SUCCESS (N=137)

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta</th>
<th>R</th>
<th>R²</th>
<th>d/f</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>0.014</td>
<td>0.017</td>
<td>0.000</td>
<td>1/135</td>
<td>0.04*</td>
</tr>
<tr>
<td>ACT, HSR</td>
<td>0.113</td>
<td>0.100</td>
<td>0.010</td>
<td>2/134</td>
<td>0.68*</td>
</tr>
<tr>
<td>ACT, HSR, P4</td>
<td>-0.180</td>
<td>0.204</td>
<td>0.041</td>
<td>3/133</td>
<td>1.92*</td>
</tr>
</tbody>
</table>

* Not significant at the .05 level
The Psychological Coping Scale (P4) of the SCI-C did not provide additional significant predictability of the criterion in combination with SAT scores and high school rank. P4 accounted for only 1.5 percent (1.5%) of the variance of the criterion for the SAT group. The ACT data are shown in Table XII.

The Psychological Coping Scale (P4) of the SCI-C did not contribute additional significance to the prediction of the criterion in combination with ACT scores and high school rank. Predictor variable P4 did, however, explain three percent (3%) more of the variance of the criterion than did ACT and high school rank. Null hypothesis IV was retained for the ACT and SAT groups.

**Hypothesis V**

Null hypothesis five stated that there will be no additional significant predictability of college academic success using the motivational scale in addition to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success. Multiple regression analysis was used to obtain a multiple correlation coefficient between the predictor variables and the criterion (first year GPA). The significance of the multiple correlation was tested by the F ratio. The accepted level of significance was .05. Data for hypothesis five are presented in Tables XIII AND XIV.
### TABLE XIII

MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES--
SCHOLASTIC APTITUDE TEST (SAT), HIGH SCHOOL RANK (HSR), AND MOTIVATION (P5) OF THE STRATIL 
COUNSELING INVENTORY - COLLEGE FORM--
USED TO PREDICT COLLEGE ACADEMIC SUCCESS
(N=148)

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta</th>
<th>R</th>
<th>R²</th>
<th>d/f</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT</td>
<td>0.077</td>
<td>0.096</td>
<td>0.009</td>
<td>1/146</td>
<td>1.35*</td>
</tr>
<tr>
<td>SAT, HSR</td>
<td>0.064</td>
<td>0.096</td>
<td>0.009</td>
<td>2/145</td>
<td>0.68*</td>
</tr>
<tr>
<td>SAT, HSR, P5</td>
<td>0.000</td>
<td>0.097</td>
<td>0.009</td>
<td>3/144</td>
<td>0.45*</td>
</tr>
</tbody>
</table>

* Not significant at the .05 level

### TABLE XIV

MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES--
AMERICAN COLLEGE TESTING PROGRAM (ACT), HIGH 
SCHOOL RANK (HSR), AND MOTIVATION (P5) 
OF THE STRATIL COUNSELING INVENTORY - 
COLLEGE FORM--USED TO PREDICT COLLEGE ACADEMIC SUCCESS
(N=137)

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta</th>
<th>R</th>
<th>R²</th>
<th>d/f</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>0.014</td>
<td>0.017</td>
<td>0.000</td>
<td>1/135</td>
<td>0.04*</td>
</tr>
<tr>
<td>ACT, HSR</td>
<td>0.113</td>
<td>0.100</td>
<td>0.010</td>
<td>2/134</td>
<td>0.68*</td>
</tr>
<tr>
<td>ACT, HSR, P5</td>
<td>-0.118</td>
<td>0.154</td>
<td>0.024</td>
<td>3/133</td>
<td>1.07*</td>
</tr>
</tbody>
</table>

* Not significant at the .05 level
The data presented in Table XIII indicate that the Motivation Scale (P5) of the SCI-C in combination with SAT test scores and high school rank contributed no significant additional predictability of the criterion at the .05 level. The predictor variable P5 did not account for additional explanation of the variance of the criterion. Table XIV records the data for the ACT groups.

The Motivation Scale (P5) of the SCI-C did not contribute additional significance to the prediction of the criterion in combination with ACT test scores and high school rank at the .05 level. R^2 of the motivation variable, however, explained 1.4 percent additional variance of the criterion than did ACT test scores and high school rank alone. Null hypothesis five was retained.

**Hypothesis VI**

Null hypothesis six stated that there would be no additional significant predictability of college academic success using the Responsiveness Scale in addition to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success. Multiple regression analysis was used to obtain a multiple correlation coefficient between the predictor variables and the criterion (first year GPA). The significance of the multiple correlation was tested by the F ratio. The .05 level of significance was used. Tables XV and XVI present the data for hypothesis six.
### TABLE XV

**MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES--**

**SCHOLASTIC APTITUDE TEST (SAT), HIGH SCHOOL RANK (HSR), AND RESPONSIVENESS (P6) OF THE STRATIL COUNSELING INVENTORY - COLLEGE FORM--USED TO PREDICT COLLEGE ACADEMIC SUCCESS**  
*(N=148)*

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta</th>
<th>R</th>
<th>R²</th>
<th>d/f</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT</td>
<td>0.077</td>
<td>0.096</td>
<td>0.009</td>
<td>1/146</td>
<td>1.35*</td>
</tr>
<tr>
<td>SAT, HSR</td>
<td>0.064</td>
<td>0.096</td>
<td>0.009</td>
<td>2/145</td>
<td>0.68*</td>
</tr>
<tr>
<td>SAT, HSR, P6</td>
<td>-0.061</td>
<td>0.113</td>
<td>0.013</td>
<td>3/144</td>
<td>0.63*</td>
</tr>
</tbody>
</table>

* Not significant at the .05 level

---

### TABLE XVI

**MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES--**

**AMERICAN COLLEGE TESTING PROGRAM (ACT), HIGH SCHOOL RANK (HSR), AND RESPONSIVENESS (P6) OF THE STRATIL COUNSELING INVENTORY - COLLEGE FORM--USED TO PREDICT COLLEGE ACADEMIC SUCCESS**  
*(N=137)*

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta</th>
<th>R</th>
<th>R²</th>
<th>d/f</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>0.014</td>
<td>0.017</td>
<td>0.000</td>
<td>1/135</td>
<td>0.04*</td>
</tr>
<tr>
<td>ACT, HSR</td>
<td>0.113</td>
<td>0.100</td>
<td>0.010</td>
<td>2/134</td>
<td>0.68*</td>
</tr>
<tr>
<td>ACT, HSR, P6</td>
<td>0.021</td>
<td>0.103</td>
<td>0.011</td>
<td>3/133</td>
<td>0.47*</td>
</tr>
</tbody>
</table>

* Not significant at the .05 level
The data presented in Table XV shows that the Responsiveness Scale (P6) of the SCI-C in combination with SAT and high school rank provided no significant additional predictability of the criterion at the .05 level. Predictor variable P6 only contributed 0.4 of one percent to the unique variance of the criterion above the 0.9 percent accounted for by SAT and high school rank. For the SAT group, null hypothesis six was retained. Table XVI presents the data for the ACT group.

The data presented in Table XVI indicates that the Responsiveness Scale (P6) of the SCI-C did not add significant predictability at the .05 level to ACT scores and high school rank (HSR) used to predict academic success at Hardin-Simmons University. The responsiveness scale did not account for any significant additional explanation of the variance of the criterion than was contributed by ACT and high school rank. Null hypothesis six was retained for the ACT group.

In summary the findings of hypotheses one through six show that the scales of the SCI-C taken one at a time in combination with SAT or ACT test scores and high school rank do not provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success at Hardin-Simmons University. Furthermore the findings suggest that SAT and ACT test scores and high school rank
also do not provide significant predictability of college academic success, although as Astin (1) has stated, high school grades are the best predictor of college academic success that is used. He contends, however, that high school grades do not explain why students with high grades frequently drop out of school.

Table B in Appendix D also indicates that the SCI-C scales taken one at a time in combination with SAT and SAT equivalent scores for ACT and high school rank (HSR) do not provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank), used to predict college academic success at Hardin-Simmons University.

**Hypothesis VII**

Null hypothesis seven stated that no combination of the six scales of the SCI-C would provide additional predictability of college academic success to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success. Multiple stepwise regression analysis was used to obtain multiple correlation coefficients between the predictor variables and the criterion (first your GPA). The significance of the multiple correlation coefficients was tested with the F ratio. The accepted level of significance was .05. The data relating to hypothesis seven are presented in Table XVII and Table XVIII. Additional findings of the stepwise
regression analysis are presented in Tables XIX and XX.

The data presented in Table XVII indicate that the SCI-C variables entered into the regression equation after SAT test scores and high school rank (current measures of college academic success) were entered provided additional predictability of college academic success. SAT test scores, high school rank and Attitudinal Predictor of GPA contributed 4.2 percent to the unique variance of the criterion. The other SCI-C variables, with the exception of the Psychological Coping Scale which did not meet the statistical requirements to be entered into the equation, contributed an additional .05 percent or less to the explanation of the criterion variance. However, the F ratios calculated to measure the significance of the multiple correlations were not significant at the .05 level.

It should be noted that SAT test scores and high school rank were entered into the equation first because these data are gathered as part of the routine admission process at Hardin-Simmons University, and they have been the traditional predictors used to project student academic success at HSU. The scales of the SCI-C were then entered into the equation by forward (stepwise) inclusion.

In forward (stepwise) inclusion, independent variables are entered only if they meet specified statistical criteria. The order of inclusion is determined by the
TABLE XVII

STEPWISE MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES USED TO PREDICT COLLEGE ACADEMIC SUCCESS (N=148) SAT GROUP *

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>$R$</th>
<th>$R^2$</th>
<th>d/f</th>
<th>F</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Var 1</td>
<td>.096</td>
<td>.009</td>
<td>1/146</td>
<td>1.20</td>
<td></td>
</tr>
<tr>
<td>Var 1,2</td>
<td>.096</td>
<td>.009</td>
<td>2/145</td>
<td>0.68</td>
<td></td>
</tr>
<tr>
<td>Var 1,2,3</td>
<td>.204</td>
<td>.042</td>
<td>3/144</td>
<td>2.10</td>
<td></td>
</tr>
<tr>
<td>Var 1,2,3,5</td>
<td>.217</td>
<td>.047</td>
<td>4/143</td>
<td>1.76</td>
<td></td>
</tr>
<tr>
<td>Var 1,2,3,5,7</td>
<td>.227</td>
<td>.051</td>
<td>5/142</td>
<td>1.54</td>
<td></td>
</tr>
<tr>
<td>Var 1,2,3,5,7,4</td>
<td>.233</td>
<td>.054</td>
<td>6/141</td>
<td>1.35</td>
<td></td>
</tr>
<tr>
<td>Var 1,2,3,5,7,4,8</td>
<td>.238</td>
<td>.056</td>
<td>7/140</td>
<td>1.20</td>
<td></td>
</tr>
</tbody>
</table>

Var 6 not entered into the equation

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable 1: SAT Score</td>
<td>0.021</td>
</tr>
<tr>
<td>Variable 2: High School Rank</td>
<td>0.031</td>
</tr>
<tr>
<td>Variable 3: Attitudinal GPA **</td>
<td>0.148</td>
</tr>
<tr>
<td>Variable 5: Transfer Proneness</td>
<td>0.090</td>
</tr>
<tr>
<td>Variable 7: Motivation</td>
<td>0.085</td>
</tr>
<tr>
<td>Variable 4: Dropout Proneness</td>
<td>0.093</td>
</tr>
<tr>
<td>Variable 8: Responsiveness</td>
<td>0.047</td>
</tr>
<tr>
<td>Variable 6: Psychological Coping</td>
<td>.....</td>
</tr>
</tbody>
</table>

* The computer program instructed the computer to enter the SAT score into the regression equation first and high school rank second. The other variables were entered by forward (stepwise) inclusion.

** Variables 3-8 are the SCI-C scales.
respective contribution of each variable to explained variance" (9, p.345).

The statistical criteria in the computer program are established in the parameters section of the regression equation which immediately follows the listing of the dependent variable. The first parameter, n, is the maximum number of independent variables that are to be entered into the equation. All variables will be entered into the equation if n is established to equal the total number of independent variables in the study, and if they satisfy the other criteria. Another option for the user is to set n for a specified number of variables to be entered into the equation if the other statistical criteria are met (9).

The second parameter used in the stepwise mode is the F ratio calculated as a test for significance of the multiple correlation coefficient. Accordingly to Kim and Kohout (9, p.346):

At each step in the analysis, F ratios are computed for variables not yet in the equation. The F ratio for a given variable is the value that would be obtained if that variable were brought in on the very next step. The F value is the minimum F that the user is willing to accept for variables that will be included.

Tolerance (T) is the third parameter of statistical criteria. Tolerance is the proportion of the unique variance of the independent variable being considered for inclusion in the stepwise regression equation that is not already explained by independent variables already in the equation. The tolerance index ranges from zero to one
A zero tolerance index indicates that a particular independent variable is in "a perfect linear combination of other independent variables" (9, p. 346). If the tolerance index is 1.0, the specified variable would not be correlated with the other independent variables. If, for example, the tolerance value was 0.5, then 50 percent of the variance for the independent variable being considered for inclusion into the stepwise regression would be unexplained by the independent variables already entered into the equation (9).

In the SPSS computer program the three parameters are optional. The computer has an assigned default value for each parameter to be used if specific values are not assigned in the regression design. The default values, used in this study, are: "n = 80, F = .01, and T = .001" (9, p. 346). According to Kim and Kohout, the SPSS default values should be used only if the user wants a complete output for the stepwise regression and they do not want to reduce the regression equation to the best n predictors (9).

If no hierarchial inclusion order is established, then "the variable that explains the greatest amount of variance in the dependent variable will enter first; the variable that explains the greatest amount of variance in conjunction with the first will enter second, and so on" (9, p. 345). For each step, therefore, the variable that accounts for the greatest amount of variance unexplained by the independent
variables already in the equation is entered. This regression design is known as the standard regression method. The hierarchical method is used if variables are entered into the regression equation in a predetermined order.

Table XVII, previously discussed, and XVIII present the data of the stepwise regression equations that ordered SAT or ACT and high school rank into the equation first. The other independent variables were entered into the equation in the order that accounted for the greatest amount of variance unexplained by the independent variables already in the equation. Tables XIX and XX show the data of the equations entered in stepwise regression by the standard regression method.

Table XVIII shows that the predictor variables, Attitudinal Predictor of GPA (P3), Dropout Proneness (P4), Motivation of GPA (P7), and Responsiveness (P8) for the ACT group provided additional significant predictability (.05 level or less) of college academic success when added to ACT scores and high school rank. The Attitudinal Predictor of GPA (P3) provided an additional 4.8 percent explanation to the criterion variance when it was added to ACT test scores. The addition of the Dropout Proneness Scale (P4) contributed 2.35 percent more to the explanation of the criterion variance for a total of 11.3 percent for the five variables entered in the prediction equation. The Psychological
### TABLE XVIII

**STEPWISE MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES USED TO PREDICT COLLEGE ACADEMIC SUCCESS (N=137) ACT GROUP**

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable 1: ACT Score **</td>
<td>0.003</td>
</tr>
<tr>
<td>Variable 2: High School Rank</td>
<td>0.135</td>
</tr>
<tr>
<td>Variable 6: Psychological Coping</td>
<td>0.218</td>
</tr>
<tr>
<td>Variable 3: Attitudinal GPA</td>
<td>0.406</td>
</tr>
<tr>
<td>Variable 4: Dropout Proneness</td>
<td>0.241</td>
</tr>
<tr>
<td>Variable 7: Motivation</td>
<td>0.036</td>
</tr>
<tr>
<td>Variable 8: Responsiveness</td>
<td>0.014</td>
</tr>
<tr>
<td>Variable 5: Transfer Proneness</td>
<td>.....</td>
</tr>
</tbody>
</table>

**The computer program instructed the computer to enter the ACT score into the regression equation first and high school rank second. The other variables were entered by forward (stepwise) inclusion.**

**Variables 3-8 are the SCI-C scales.**
Coping variable (P6) provided an additional 3.0 percent explanation of variance of the criterion, however, the additional predictability was not significant at the .05 level. As Table XVII indicated that SAT test scores and high school rank provided only 0.9 percent of the explanation of the variance for the criterion, so also were ACT test scores and high school rank poor predictors of the criterion. The ACT test scores and high school rank explained only 1.0 percent of the unique variance of college academic success. Transfer Proneness (P5) was not entered into the regression equation. Null hypothesis seven was retained for the SAT group; however, the null hypothesis was rejected for the ACT group.

When the stepwise multiple regression analysis was computed for the total sample (N = 285) of the SAT group and the SAT equivalent for ACT group, $R^2$ for the variables was 5.7 percent to 5.9 percent (approximately the same as $R^2$ for the SAT group--5.1 to 5.6 percent). There was additional significant predictability of college academic success however, when the SCI-C variables (Attitudinal Predictor GPA, Psychological Coping, Dropout Proneness, Motivation, and Transfer Proneness) were added to SAT and ACT scores and high school rank. The significant difference found in the SAT and SAT equivalent for ACT group is accounted for by the increase in sample size--N = 285, rather than N=137 and N=148 (8). See Appendix D, Table C.
Additional Findings

Table XIX and Table XX and Table D in Appendix D demonstrate the findings of the regular, forward (stepwise) inclusion method of multiple regression. The computer was instructed to first enter the variable that accounted for the greatest amount of variance in the dependent variable (criterion), then the variable that explained the greatest amount of variance in combination with the first, and so on. The results of the stepwise multiple correlation analysis for the SAT group is shown in Table XIX.

The computer entered the Attitudinal Predictor of GPA (P3) into the SAT stepwise regression equation first. Predictor variable P3 explained 3.7 percent of the variance of the criterion and was significant at the .05 level. The next variable entered into the equation was Motivation (P7). Motivation accounted for an additional 0.7 percent of the variance and was significant at the .05 level. The two variables (P3 and P7) together explained 4.4 percent of the variance of the criterion. Although the other variables contributed to the variance of college academic success, the F ratio was not significant at the .05 level or less.

The data for the ACT group are presented in Table XX. The Psychological Coping Scale (P6) was entered into the stepwise multiple regression equation first. The variance of the criterion explained by P6 was 3.6 percent. The F
### TABLE XIX

**STEPWISE MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES USED TO PREDICT COLLEGE ACADEMIC SUCCESS (N=148) SAT GROUP * **

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable 3: Attitudinal GPA**</td>
<td>0.148</td>
</tr>
<tr>
<td>Variable 7: Motivation</td>
<td>0.085</td>
</tr>
<tr>
<td>Variable 5: Transfer Proneness</td>
<td>0.090</td>
</tr>
<tr>
<td>Variable 4: Dropout Proneness</td>
<td>0.093</td>
</tr>
<tr>
<td>Variable 8: Responsiveness</td>
<td>0.047</td>
</tr>
<tr>
<td>Variable 2: High School Rank</td>
<td>0.031</td>
</tr>
<tr>
<td>Variable 1: SAT Score</td>
<td>0.021</td>
</tr>
<tr>
<td>Variable 6: Psychological Coping</td>
<td>.....</td>
</tr>
</tbody>
</table>

* All variables were entered into the regression equation by forward (stepwise) inclusion.

** Variables 3-8 are the SCI-C scales
TABLE XX

STEPWISE MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES USED TO PREDICT COLLEGE ACADEMIC SUCCESS (N=137) ACT GROUP *

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable 6: Psychological Coping **</td>
<td>0.218</td>
</tr>
<tr>
<td>Variable 3: Attitudinal GPA</td>
<td>0.406</td>
</tr>
<tr>
<td>Variable 4: Dropout Proneness</td>
<td>0.242</td>
</tr>
<tr>
<td>Variable 2: High School Rank</td>
<td>0.136</td>
</tr>
<tr>
<td>Variable 7: Motivation</td>
<td>0.035</td>
</tr>
<tr>
<td>Variable 8: Responsivness</td>
<td>0.015</td>
</tr>
<tr>
<td>Variable 1: ACT Score</td>
<td>.....</td>
</tr>
<tr>
<td>Variable 5: Transfer Proneness</td>
<td>.....</td>
</tr>
</tbody>
</table>

** All variables were entered into the regression equation by forward(stepwise) inclusion.

** Variables 3-8 are the SCI-C scales.
test was significant at the .05 level. Attitudinal Predictor of GPA (P3) was added into the equation next. P3 explained an additional 3.0 percent to the criterion variance. P6 and P3 together accounted for 6.8 percent of the unique variance of the criterion and the F value was significant at the .01 level. The third variable entered into the equation was Dropout Proneness (P4). P4 explained an additional 3.0 percent of the criterion variance. The F value for P6, P3, and P4 was significant at the .01 level. High school rank (P3) was the next variable entered and it explained an additional 1.3 percent of the variance of the criterion. The level of significance was the .01 level. Although the next two variables added very little to the criterion variance already explained, the F values for the fifth equation, P6, P3, P4, P2, and P7 (Motivation) and the sixth equation, P6, P3, P4, P2, P7, and P8 (Responsiveness) were significant at the .01 and .05 levels respectively.

Table D in Appendix D (SAT group and SAT equivalent of ACT group) indicates that the Attitudinal Predictor of GPA (P3) was entered into the stepwise regression equation first. Predictor variable P3 explained only one percent of the variance for the criterion; however, P3 had a higher correlation with the criterion than the other predictor variables. The Psychological Coping variable (P6) was entered into the equation in the second step. P6 provided an additional 2.8 percent of the explanation
of the variance for the criterion, and the F value was significant at the .01 level. The other variables entered into the equation that were significant at the .01 level were in the following order: Dropout proneness, high school rank, motivation, and transfer proneness. The Dropout Proneness Scale (P4) provided 1.35 percent more explanation of the criterion variance than did P3 and P6. High school rank provided an additional 0.55 percent explanation of the variance for the criterion. The other variables of the SCI-C accounted for less than 0.2 percent of the explained variance for the criterion, college academic success. Although the statistical analysis for the SAT and SAT equivalent of ACT group was statistically significant, the SCI-C predictor variables did not provide more than an additional 5.0 percent explanation for the variance of the criterion variable, college academic success.

According to Kerlinger and Pedhazer (8), one of the problems of multiple regression analysis is the order of entry of independent variables in the regression equation. The problem is illustrated in Tables XVII, XVIII, XIX, and XX. When the computer chose which variable to enter into the equation first, it selected P6 (Psychological Coping) for the ACT group and P3 (Attitudinal Predictor of GPA) for the SAT group. SAT test scores were entered into the last regression equation and high school rank was added in the next to last equation. For the ACT group, high school rank
entered equation four, but the ACT test scores did not meet the statistical criteria to be entered. Kerlinger and Pedhazer (8, p. 393) emphasize that "the research problem and the theory behind the problem should determine the order of entry in multiple regression equations."

Although the percentages of explained variance of the criterion contributed by the SCI-C scales are small, these percentages account for more of the unique variance of the criterion than do the current measures (ACT or SAT test scores and high school rank) used to predict college academic success.

**Hypothesis VIII**

Null hypothesis eight stated that there would be no significant increase in the retention rate for first-time, full-time freshmen who planned to return to Hardin-Simmons University for their second year over the retention rates of first-time, full-time students who returned to Hardin-Simmons for the years 1980 - 1984. A z test for difference of proportions of independent samples was utilized to compare the retention rate of the 1984 freshman class with the average rate of retention for the freshmen classes of 1979 to 1980. The .05 level of significance was used.

Data presented in Table XXI indicate that 262 students who were freshmen in 1984 returned to Hardin-Simmons University (HSU) in the fall of 1985 for their second year. This number (262) represents a return rate of 75 percent.
TABLE XXI

z TEST FOR DIFFERENCE OF PROPORTIONS OF INDEPENDENT SAMPLES FOR FIRST-TIME, FULL-TIME FRESHMEN STUDENTS RETAINED FOR THE SECOND YEAR AT HARDIN-SIMMONS UNIVERSITY 1980-1985

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of First-time, Full-time freshmen*</th>
<th>Number and Percent Who Returned for the second year</th>
<th>z Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979-80</td>
<td>340</td>
<td>230</td>
<td>68</td>
</tr>
<tr>
<td>1980-81</td>
<td>350</td>
<td>226</td>
<td>65</td>
</tr>
<tr>
<td>1981-82</td>
<td>325</td>
<td>264</td>
<td>63</td>
</tr>
<tr>
<td>1982-83</td>
<td>322</td>
<td>199</td>
<td>62</td>
</tr>
<tr>
<td>1983-84</td>
<td>295</td>
<td>186</td>
<td>63</td>
</tr>
<tr>
<td>1979-84 Average 326</td>
<td>210</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>1984-85</td>
<td>350</td>
<td>262</td>
<td>75</td>
</tr>
</tbody>
</table>

* Includes first-time, full-time freshmen who enrolled in the summer or fall of the indicated year.

** Significant at the .01 level.

The z score was statistically significant at the .01 level. The z score for the retention rate of the 1984 freshman class at HSU was also practically and meaningfully significant. The increase in retention of the 1984 freshman class was 12 percent more retention of freshman students than in 1983-84, and it was 11 percent more than
the average retention rate of first-time full-time students for the years 1979-1984.

The formula for the test of significance of the difference between two independent proportions is as follows:

\[ z = \frac{p_1 - p_2}{\sqrt{pq (1/n_1 + 1/n_2)}} \]

\[ p = \frac{f_1 + f_2}{n_1 + n_2} \]

\[ q = 1 - p \]

\[ f_1 = \text{frequencies of first group} \]

\[ f_2 = \text{frequencies of second group} \]

\[ n_1 = \text{number in first group} \]

\[ n_2 = \text{number in second group} \]

\[ sp_1 - p_2 = \text{standard error of the difference} \]

Summary

Results of the multiple regression analysis and stepwise multiple regression analysis for hypotheses one through seven and the z test for difference of proportions for independent samples for hypothesis eight were presented in this chapter. General findings of the study relating to purposes of the study--one through three--were also presented. Chapter V includes the summary, conclusions, recommendations, and implications for the study at Hardin-Simmons University.
CHAPTER BIBLIOGRAPHY


CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

INTRODUCTION

The problem of this study was first year retention at a private university. Until recently schools seemed to be more concerned with attrition (why students leave their respective schools) than with student retention (how to retain students already enrolled in school).

The purpose of this study was to identify dropout prone students by use of the Stratil Counseling Inventory - College Form (SCI-C) in order to initiate early intervention strategies such as counseling, advising, and special programs. Intrusive counseling was used early in the semester to facilitate the students' transition from home to campus.

Nielsen and Polishook (7) and Rootman (14) emphasize the importance of early intrusive assistance to enhance student retention, as well as facilitate the development of human potential. Early identification of marginal students is, therefore, important so that effective measures can be taken to help students adjust and develop academically and
socially in the university environment (1, 2, 4, 5, 8, 12, 14, 19).

Summary

The purpose of this retention study was to select students out of the 1984 freshmen class who needed help and provide them with the necessary assistance to enable them to succeed in attaining their academic and personal goals. The goal of the study was to improve the "staying" environment of Hardin-Simmons University and thereby increase the retention rate of students.

The Stratil Counseling Inventory-College Form (SCI-C) was utilized to identify freshmen who were high risk students (dropout prone and/or maladjusted). After these marginal students were identified, intervention strategies were implemented to assist the students in making the transition to Hardin-Simmons University (HSU).

Intervention strategies were identified as specific programs, services, policies, or activities that could be utilized to create a "staying" environment as discussed by Noel (9). Noel (9) argues that unless there is an attitude of serving and caring on a campus, the impact of retention efforts will be negligible. The intervention strategies or support services utilized at HSU included personal counseling; academic advising; providing seminars in study skills, time management, and test taking skills; providing administrative assistance in financial aid,
student employment or other areas of concern to the students; and referring students to their professors for assistance and/or the various skills laboratories provided for the students' use. A major emphasis in providing intervention strategies for students was not only to help them successfully integrate academically to college, but to also facilitate their social integration into campus life.

The **Stratil Counseling Inventory-College Form (SCI-C)** was designed to collect attrition-related counseling information about incoming freshmen. The instrument was not designed to predict college academic success; however, the attitudes, traits, and characteristics the SCI-C measures are related to academic success (27). Seven hypotheses were proposed, however, to determine if using any one of the SCI-C scales or any combination of the six SCI-C scales (Attitudinal Predictor of Grade Point Average--GPA, Dropout Proneness Scale, Transfer Proneness Scale, Psychological Coping Scale, Motivational Scale, and Responsiveness Scale) with Scholastic Aptitude Test (SAT) scores or American College Testing Program (ACT) scores and high school rank (HSR) could provide greater predictability of college academic success than use of high school rank and SAT or ACT test scores alone.

The rationale for testing the predictor variables (SCI-C scales) was to determine which scales might provide the support staff and faculty with significant information
about the incoming freshmen. If one scale or a particular combination of scales provided more valuable information about the student than another scale, then the focus for screening the students initially could be narrowed and the speed of the process for referring students to institutional resources could be enhanced. Astin and Noel (1, 2) both emphasize the importance of the critical first six weeks for adjusting to college. Noel (2, p. 95) stressed that "it is important that intervention occurs before the needs become acute and the tendency to drop out becomes irreversible."

Hypothesis eight was proposed to determine if intrusive counseling influenced the retention effort at Hardin-Simmons University for students returning to the university for their second year. The 1985 retention rate of students returning to the campus for the second year was compared to the retention rates of students returning to Hardin-Simmons for the years 1980 to 1984.

**Procedures**

The *Stratil Counseling Inventory - College Form (SCI-C)* was administered to all first-time, full-time freshmen students in attendance at Freshman Orientation the week prior to the beginning of the 1984 fall semester. The completed inventory was computer scored by Psychological Configurations and then returned to Hardin-Simmons University within two weeks.
The SCI-C results were categorized according to the intervention code (DMR) on each printout. The intervention code (DMR) range is from one to five on each scale - dropout (D), maladjusted (M), and responsiveness (R). A code of 555, for example, would represent a student who was dropout prone and maladjusted, but who was responsive for help from selected university personnel. One to three on the R code indicates a lack of interest in receiving help for problem areas identified by the SCI-C (10, 16, 17).

Students in the high risk category were those students with a score of four or five on the DM scales. The high risk students were requested to attend a conference with the Associate Dean for Student Development before mid-term of the 1984 fall semester. Other students were counseled or advised as the need arose, or if they requested assistance. Based on the assessment of academic need, emotional and social growth needs, and the interest in support services, as determined by the SCI-C and the initial interview, the students were referred to appropriate personnel to facilitate remediation of problem areas.

The students' academic progress and social integration were monitored throughout the year. The Associate Dean for Student Development contacted the students a minimum of three times after the initial interview. Follow up personal contacts were attempted for each student in the high risk category to maintain contact with the students' progress, to
offer further assistance, and to establish an adult-student friendship outside the classroom. The rationale for establishing an informal adult-student relationship was based on research which asserts that informal faculty-student relationships outside of the academic classroom facilitate student persistence in college (11, 18, 20). The literature also cited research findings indicating the importance of assisting students to become involved with their peers in the social and academic life of their institutions (3, 10, 15, 18, 20).

Findings

Data collected for hypotheses one through seven were analyzed by multiple regression analysis and multiple, stepwise regression analysis. The SPSS software computer package for the Behavioral Sciences was used for the data analysis. A z test for the difference of proportions of independent samples was used to analyze the data of hypothesis eight. The level of significance used for the analysis was .05.

1. Null hypotheses I stated that there will be no additional significant predictability of college academic success using the SCI-C Attitudinal Predictor of GPA in addition to the current measures (SAT or ACT test scores and high school rank) used to predict college academic success.

   a. There was no additional significant predictability of college academic success when the Attitudinal Predictor
of GPA was added to the SAT or ACT test scores and high school rank (HSR) already in the regression equation.

b. The null hypothesis was retained.

2. Null hypothesis II stated that there will be no additional significant predictability of college academic success using the SCI-C Dropout Proneness Scale in addition to the current measures (SAT or ACT test scores and HSR) used to predict college academic success.

a. There was no additional significant predictability of college academic success when the Dropout Proneness Scale was added to the SAT or ACT test scores and HSR already in the regression equation.

b. The null hypothesis was retained.

3. Null hypothesis III stated that there will be no additional significant predictability of college academic success using the SCI-C Transfer Proneness Scale in addition to the current measures (SAT or ACT test scores and HSR) used to predict college academic success.

a. There was no additional significant predictability of college academic success when the Transfer Proneness Scale was added to the SAT or ACT test scores and HSR already in the regression equation.

b. The null hypothesis was retained.

4. Null hypothesis IV stated that there will be no additional significant predictability of college academic success using the SCI-C Psychological Coping Scale in
addition to the current measures (SAT or ACT test scores and HSR) used to predict college academic success.

a. There was no additional significant predictability of college academic success when the Psychological Coping Scale was added to the SAT or ACT test scores and HSR already in the regression equation.

b. The null hypothesis was retained.

5. Null hypothesis V stated that there will be no significant predictability of college academic success using the SCI-C Motivational Scale in addition to the current measures (SAT or ACT test scores and HSR) used to predict college academic success.

a. There was no additional significant predictability of college academic success when the Motivational Scale was added to the SAT or ACT test scores and HSR already in the regression equation.

b. The null hypothesis was retained.

6. Null Hypothesis VI stated that there will be no additional significant predictability of college academic success using the SCI-C Responsiveness Scale in addition to the current measures (SAT or ACT test scores and HSR) used to predict college academic success.

a. There was no additional significant predictability of college academic success when the Responsiveness Scale was added to the SAT or ACT test scores and HSR already in the regression equation.
b. The null hypothesis was retained.

7. Null hypothesis VII stated that there will be no combinations of the six scales of the SCI-C that will provide additional predictability of college academic success to the current measures (SAT or ACT test scores and HSR) used to predict college academic success.

1a. The findings of hypothesis VII for the SAT group as shown in Table XVII of Chapter IV, indicate that the SCI-C variables entered into the multiple regression equation after SAT test scores and HSR (current measures of college academic success) provided additional predictability of college academic success. However, the F ratios calculated to measure the significance of the multiple correlations were not significant at the .05 level. The Attitudinal Predictor of Grade Point Average (GPA) added to the SAT test scores and HSR explained 4.16 percent of the unique variance of the criterion (college academic success as measured by GPA). The addition of the other SCI-C scales each provided only .05 percent or less additional explanation of the variance of the criterion. The Psychological Coping Scale, however, did not meet the statistical requirements to be entered into the multiple regression equation for the SAT group (N=148). In summary, the findings for the SAT group were not significant at the .05 level.
2a. Table XVIII of Chapter IV recorded the findings of hypothesis VII for the ACT group (N=137). Although the Psychological Coping Scale was not entered into the multiple regression equation for the SAT group because it failed to meet the statistical requirements, the Psychological Coping Scale provided 3.0 percent of the explanation of the criterion variance for the ACT group. However, the additional predictability was not significant at the .05 level. The addition of the Attitudinal Predictor of GPA of the SCI-C to ACT test scores, HSR and the Psychological Coping Scale provided 4.8 percent more explanation to the variance of the criterion. The four variables in the equation, therefore, explained 8.96 percent of the unique variance of the criterion and the predictability was significant at the .02 level. Addition of the Dropout Proneness Scale contributed 2.35 percent more to the explanation of the criterion variance for a total of 11.3 percent for the five variables entered in the prediction equation. The F ratio was significant at the .01 level. The Motivation Scale and the Responsiveness scale explained less than .05 percent of the criterion variance; however, the F ratios were significant at the .02 and .05 levels respectively. The Transfer Proneness Scale did not meet the requirements to be entered into the equation. The findings for the ACT group, were significant at the .02 level with four variables in the equation. The equations containing
five, six and seven predictor variables were also significant at the .02 level or less.

3a. Table XIX, Table XX in Chapter IV and Table D in Appendix D demonstrated the findings of the regular, forward (stepwise) inclusion method for the SAT group, the ACT group, and the SAT and SAT equivalent for the ACT group. The Attitudinal Predictor of GPA was entered into the SAT group multiple regression equation first. The Attitudinal Predictor of GPA explained 3.7 percent of the variance of the criterion, and the F ratio was significant at the .05 level. Addition of the Motivation Scale to the Attitudinal Predictor of GPA provided 4.37 percent explanation of the criterion variance which was an increase of .66 percent. The F ratio for the addition of the Motivation Scale to the prediction equation was significant at the .05 level. When the other variables were added to the equation, they accounted for only .03 percent or less of the criterion variance. The F ratios were not significant at the .05 level. In summary, the findings for the SAT group (N=148), analyzed by forward stepwise inclusion, were significant at the .05 level only for the first and second equation. The variable entered in the first equation was the Attitudinal Predictor of GPA. The variable entered next after the Attitudinal Predictor of GPA was the Motivation Scale.

4a. The forward stepwise, inclusion method for the ACT group entered the Psychological Coping Scale into the
prediction equation first. The Psychological Coping Scale accounted for 3.6 percent of the criterion variance. The F ratio was significant at the .05 level. The Attitudinal Predictor of GPA explained an additional 3.0 percent to the criterion variance. The two variables together contributed 6.8 percent of the unique variance of the criterion, and the F ratio was significant at the .01 level. The third variable entered into the equation, Dropout Proneness, explained an additional 3.0 percent of the criterion variance. The F value for the three variables was significant at the .01 level. High School Rank (HSR) contributed another 1.3 percent explanation to the criterion variance and the F ratio was significant at the .01 level. The addition of the Motivation Scale and the Responsiveness Scale accounted for .05 percent or less of the criterion variance, although the F ratios were significant at the .01 and .05 levels respectively. ACT test scores and the Transfer Proneness Scale did not meet the statistical requirements to be entered into the stepwise multiple regression equation. The findings of the ACT group (N=137), analyzed by forward (stepwise) inclusion, were significant of the .05 level or less.

5a. The findings for the stepwise multiple regression for the SAT group and the SAT equivalent for the ACT group (N=285) were tabulated in table C of Appendix D. The findings were placed in the appendix because the table for
converting ACT scores to SAT scores are approximations rather than actual equivalents. SAT test scores and SAT equivalent scores for the ACT group, as well as HSR did not explain any appreciable percent of the criterion variance nor were the F ratios significant at the .05 level. Addition of the Attitudinal Predictor of GPA explained only 1.8 percent of the criterion variance and the F ratio was not significant at the .05 level. The addition of the Psychological Coping Scale to the other variables already in the equation provided 5.69 percent explanation of the criterion variance and the F ratio was significant at the .01 level. The Dropout Proneness Scale added .98 percent explanation of the criterion variance in addition to the variance already explained by the variables in the equation. The F ratio was significant at the .01 level. The F ratios were significant with the addition of the Motivation Scale to the prediction equation (.01 level) and the addition of the Transfer Scale (.05 level). However they each added only .01 percent of the explained criterion variance. In summary, the findings reported in Table C of Appendix D were significant at the .05 or .01 level with four to seven predictor variables in the stepwise multiple regression equations.

6a. When the computer was permitted to enter the predictor variables by forward (stepwise) inclusion for the SAT and SAT equivalent for the ACT group, the Attitudinal
Predictor was entered first; however, the F ratio was not significant at the .05 level and only one percent of the criterion variance was explained. The addition of the other predictor variables provided additional significant predictability at the .01 level with the exception of SAT test scores and SAT equivalents of the ACT group and the Responsiveness Scale. These two variables did not meet the statistical requirements for inclusion in the stepwise multiple regression equation. The findings of the SAT and the SAT equivalent of the ACT groups, analyzed by forward (stepwise) inclusion, were significant at the .01 level.

1b. The null hypothesis for the SAT group for which the SAT test scores and HSR were entered into the stepwise multiple regression equation first was retained.

2b. The null hypothesis for the ACT group for which the ACT test scores and HSR were entered into the stepwise multiple regression equation before the other variables were permitted to be entered, was rejected.

8. Null hypothesis VIII stated that there will be no significant increase in the retention rate for first-time, full-time freshmen who plan to return to Hardin-Simmons University for their second year and the retention rates of the first-time, full-time students who returned to Hardin-Simmons for the years 1980-1984.

a. There was an 11 percent increase in the number of students who returned to Hardin-Simmons for their
second year over the number of students who returned during
the five year period, 1980-1984. The increase was
significant at the .01 level.

b. The null hypothesis was rejected.

Conclusions

The following conclusions are based on the findings of
this study.

1. The Stratil Counseling Inventory - College Form
(SCI-C) identifies freshmen students who need assistance to
facilitate their academic and social integration.

2. Students value an adult-student relationship
outside of the classroom.

3. Willingness to be accessible to students through
counseling, advising, and out-of-classroom adult/student
interaction create a "staying environment" for students so
that they tend to persist in the university of first
matriculation.

4. Early warning systems enable university personnel
to help students before irreversible academic and social
problems occur; however, frequently students in need of
assistance wait until the problem is almost irrevocable
before they accept the university's invitation for
assistance.

5. There appears to be a relationship between the
assistance given to freshmen students at Hardin-Simmons
University during the 1984-85 school year and their retention at the university for the 1986-87 academic year.

6. The SCI-C scales taken one at a time in combination with SAT or ACT test scores and high school rank (HSR) are inadequate means of predicting college academic success.

7. The SCI-C is an instrument to provide "attrition-related counseling information" (34, p. 1) about first-time freshmen to identify students in need of help rather than an instrument to predict college academic success as measured by GPA.

8. The Stratil Counseling Inventory - College Form (SCI-C) is a valid instrument for Hardin-Simmons University to continue using to facilitate student retention.

Recommendations

The following recommendations are based on the findings of this study.

1. The Stratil Counseling Inventory - College Form (SCI-C) provided valuable information about incoming freshmen to Student Development personnel and other university support staff. It is, therefore, recommended that Hardin-Simmons University continue to use the SCI-C as an early warning system for students who could have difficulty integrating into the social and academic environment of college life.
2. It is recommended that Student Development personnel utilize the information gathered by the SCI-C to assist students in their personal development. Information collected from the SCI-C can provide a beginning point in helping students to improve their self-esteem, learn to cope effectively in stressful situations and learn how their various traits of motivation influence learning.

3. Research utilizing the *Stratil Counseling Inventory - College Form* should be replicated.

4. An experimental study should be conducted with a large sample of students to determine casual relationship between students identified as high risk who are counseled, advised, and/or assisted by other means throughout the year and persistence in the college of first matriculation.

5. Attendance at study skills seminars for students in academic difficulty should be required rather than voluntary.

6. A freshman orientation course for one hour credit should be implemented to assist students in the transition from high school to college. Merit scholars as well as underprepared students would profit from a course teaching them how to improve academic and life skills.

7. Continued progress should be made toward upgrading residence hall facilities, the student center and other buildings on campus to enhance the staying environment of the university, according to student interviews.
8. Professional development should be implemented for faculty and staff that emphasizes the importance of interpersonal relationships and communication skills in relation to students' persistence on the campus. Changes should be made if personnel cannot accomplish their task in an effective and efficient style, so that students do not feel as if no one understands or cares.

9. The importance of faculty/staff interaction with students outside of the classroom should be emphasized as a major factor in the retention of students on a university campus.

10. A well organized academic advising system should be implemented. Advisors should be informed about the various programs of the university, as well as their own, so that they can provide knowledgeable advice to the students. Through professional development, advisors should learn the affect their attitudes about advising have on students. A major complaint of students that came out of the study was that advisors just sign course request forms rather than providing them with counsel.

11. Training for peer group tutors should be provided to upperclassmen interested in assisting freshmen academically. Research studies emphasize the effectiveness of peer advisors; however, specific training for the advisors is essential.
12. A reading skills laboratory should be established for students who want to increase their reading rate and comprehension, and for students who do not read well and have difficulty completing their assignments.

Implications

The following implications are suggested from an analysis of the data in this study.

1. Based on the response of students to the Associate Dean for Student Development and other support staff, after consultation on their results of the SCI-C, it may be implied that rapport with the students was established and student-adult relationships were established. After the initial contact was made, freshmen students tended to use the Student Development Office not only for assistance with problems, but also as a source of information which helped them make the adjustment from home to college.

2. The primary implication of the SCI-C is that it provides a profile of students before personal contact with the students is made. Information obtained from the instrument about a student was directly responsible, in several cases, for helping Student Development personnel assist students to find their niche in the social environment of the campus and, thus, remain at the university. These same students also became integrated academically and posted above average grades during their freshmen year. Several of these students would have left
Hardin-Simmons within the first three weeks of school had there not been a reason SCI-C for their visit to the Associate Dean for Student Development. The implication is that the SCI-C is a valid instrument to use as an early detection system so that intervention strategies can be implemented during the critical first six weeks of school.

3. Provision of support services does not assure students' commitment to the counseling session, study skills lab, or tutoring session. Findings of the study with the high risk group often indicated that the students who needed academic assistance and counseling services, were the students most resistant to keeping appointments, following through with suggestions, changing study habits, or changing personal habits that interfered with their social and academic integration into campus life. An implication of this finding is that a Freshmen Orientation program for credit should be developed and every freshmen should be required to take the course.

4. The findings of the study imply that students who took the ACT for admission to Hardin-Simmons University tended to drop out of the university more than students who took the SAT.

5. The implication of hypotheses I through VII is that SAT test scores, ACT test scores, and high school grades are not significant predictors of college academic success as measured by GPA. In a study by Scannel (15) in
1960, however, high school GPA correlated .67 with freshman GPA and .59 between high school GPA and the four year college GPA. The decline of rigorous academic standards in public education during the sixties and seventies may account for the low correlation of high school grades with college GPA in this study.

6. The findings of hypothesis VII imply that the SCI-C scales provide a nominal amount (5-11 percent) of prediction of college academic success, although it is not significant at the .05 level. The data would seem to imply that students' attitudinal predictor of GPA is a clue to their future academic performance; however, several students who had academic scholarships at the beginning of school lost them at the end of the first semester because of poor academic performance. When the students were interviewed, they indicated that poor study habits were the cause of their inadequate performance along with a lack of time management. A large number of the students in the high risk category indicated they needed help with study skills; therefore, it may be implied that university personnel should pay close attention to students' interests in support services as indicated by the Responsiveness Scale of the SCI-C.

The findings of hypothesis VII also imply that self-esteem and coping skills are related to academic success. Students who had a good self-concept and who knew how to
cope successfully with stressful situations tended to adjust more rapidly to the college environment than those students with low self-esteem.

Another implication of the findings of hypothesis VII involved self-esteem and motivation. Well adjusted students tended to be more industrious, altruistic, authentic and assert their influence on others. Students who had low scores on the motivation scales, however, demonstrated more constrictive behavior, denied that they had any problems and exhibited a low self-concept, although, they tried to portray to other students that they "had it altogether" and did not have any major concerns. Their problem was lack of self-discipline and motivation to keep up with their assignments and the lack of confidence in themselves to do their work.

It may be implied that the SCI-C is an excellent tool for determining what intervention strategies should be utilized for specific students to facilitate their academic and social integration into the college environment so that they will be successful in college and, therefore, persist until they have achieved their educational goals.

7. The implication of the findings for hypothesis VIII is the importance of a staying environment to the persistence of students in school. It appears that intrusive counseling, the demonstration of care and concern for students, an organized approach to provide students with
academic assistance, and the promotion of interaction between students and faculty/staff outside the classroom had an impact on student retention during the 1984-85 academic year, and on students returning for their second year. There was an 11 percent increase in retention over the average rate of returning students for the second year during the five year period, 1980-1984 and a 12 percent increase in retention over the 1984 retention rate.

8. An important implication of the study is that the SCI-C provides the means to identify students in need of assistance and connect them with available institutional resources before their problems cause them to drop out of the university. Although proactive or intrusive counseling does not guarantee that students will persist in college, the method does provide university personnel the opportunity to direct students to appropriate resources so that professionals may assist the students in achieving their academic and personal goals.
CHAPTER BIBLIOGRAPHY


APPENDIX A

Communications With Psychological Configurations
April 25, 1984

Dear Counselor:

Enclosed are the testing materials you recently ordered. We appreciate your interest in the Stratil Counseling Inventory.

To gain a feeling for the specialized analytical power of this new instrument, you may wish to administer it to two or three students with whom you are highly familiar. This will provide a good basis for intuitively judging its validity. The remaining materials might be administered to several new clients as a test of the instrument's unique capacity to guide the initial phases of college counseling.

We will make every effort to return the results of such exploratory study as quickly as possible so that you can proceed with your planning for this fall. Keep in mind that the SCI-C has been designed to help you reduce attrition and that it will pay for itself many times over.

I will be happy to answer your questions. Remember that we guarantee satisfaction. The specimen set can be returned for a complete refund if you feel that the SCI-C is not everything that we claim. Our goal is to establish a solid, long-term relationship with you and your institution.

Yours very truly,

Sandra S. Hardis
Director of Customer Services
UPDATE ON SCI-C

June 30, 1984

1. We are pleased to report that, as of June 30, nearly 70 schools throughout the country have ordered the Stratll Counseling Inventory--College Form. One counselor in Mississippi has called it a "Gem"!

2. About six weeks ago we purchased a high-speed National Computer Systems "Sentry 3000" optical scanner. This expansion will enable us to handle the large volume of scorings that are expected in the fall.

3. One important task has not yet been completed. As a consequence of the time consumed by our expansion, work on the final version of the SCI-C manual had to be repeatedly deferred, and we have not been able to meet our initial goal of publishing it by "early summer." But now that this phase is behind us, we can guarantee with absolute assurance that the final manual will be shipped before the end of August. Meanwhile, the preliminary manual appears to be satisfactory in meeting the needs of those schools that have already begun using the SCI-C, and we stand ready to answer any questions by telephone or letter. You may call (919) 521-2027.

In light of the enthusiastic response we have received, we feel very confident that the SCI-C will soon be nationally recognized as a powerful new tool for creative and effective program development in college counseling.

Sandra S. Mardis
Director of Customer Services
Dear Counselor:

Enclosed is the final version of the Test Manual for the Stratil Counseling Inventory--College Form, which you ordered some months ago. Please accept my sincerest apologies for any inconvenience that our delay in shipping this product may have caused you; writing the manual required considerably more time than the author had anticipated. It now contains all of the technical information needed to administer and interpret the inventory.

During the next year, Dr. Stratil hopes to expand the manual beyond the scope of most such publications by adding a review of the methods currently available for reducing college attrition and related problems. This review will be presented as Chapter VII of the manual. Because many additional references will have to be included, the final reference section will be shipped with Chapter VII. (If you need a copy of the preliminary references, I will be happy to have one sent at no additional charge.)

We continue to receive very favorable feedback about the SCI-C. If you have not yet used the prepaid answer sheets that came with your specimen set, I urge you to try them with some of your clients. I think you will find the results very interesting.

Yours very truly,

Sandra S. Mardis
Director of Customer Services
Dear Mrs. Bray,

you will find the data disks in the 
enclosed "3½" box. Instructions are attached. 
If you have any questions, let me know.

I have written "Math Program" on the 
top 37 reports (see p.4).

Best wishes with your dissertation!

Sincerely,

Michael T. Smith
Dear Carolyn,

I've finally finished the manual! In addition to the copy you ordered (which is on its way), I'm enclosing a free copy for your own work. If you have any criticisms or suggestions, I'd be happy to hear them. Our discussions have been very helpful.

Sincerely,

Michael J. Smith
DESCRIPTION OF NEW FEATURES IN THE COLLEGE COUNSELING REPORT

Many schools have found the information conveyed through the current College Counseling Report to be very helpful in their retention, counseling, and skill development programs. To increase the ease with which this information can be utilized in campus-wide planning, Psychological Configurations has recently developed a computer program that provides a thorough, consolidated analysis of the most vital information from an entire batch of answer sheets. This supplemental report contains the following three components.

First, it presents the means and standard deviations of all major scales for the batch as whole. This information can help you determine the areas in which your students are especially strong or weak relative to the mainstream of college students in the United States.

The second section of the supplemental report contains alphabetized lists of students with high scores on the three prime intervention indicators—Dropout Proneness, Maladjustment, and Responsiveness. These lists will be very helpful in selecting students for comprehensive intervention programs. In addition, this section provides a list of students with strong tendencies to transfer to other institutions.

The third, and perhaps most important, section of the new report contains separate lists of those students expressing a strong interest in a given category of student service (e.g., personal counseling, help with reading skills, participation in encounter groups). In addition to name, gender, age, and student number, these lists print the students' D-M-R Intervention Code. The result is a very powerful analytical tool that allows staff members to select students on various important criteria simultaneously. Suppose, for example, that 75 students have expressed an interest in developing their study skills, but only 25 can be accommodated with existing resources. One might wish to focus on those students who are both interested in the service and above-average in inclination to drop out, reasoning that such students are the most in need of help. In this way, scarce resources can be channeled into the most productive directions.

The really good news about our supplemental report is that it is available at no additional charge! Every batch of 25 or more prepaid answer sheets will receive this service free.

Psychological Configurations
204 Maynor Street
Pembroke, North Carolina 28372
Telephone (919) 521-2027
APPENDIX B

Communications With Freshmen Students
January 17, 1985

2409 N. Willis #182
Abilene, TX 79603

Dear [Name],

Dr. Ross Johnson, Dr. Paula Windham and I want to congratulate you for your academic achievement this past semester. You are to be commended for finding a balance between work, study, and play.

Sincerely,

Carolyn Bray

Carolyn Bray
January 17, 1985

HSU Box
Abilene, TX 79698

Dear :

The new semester is your opportunity to practice what you learned last semester - college requires more study time than high school. Please permit us to assist you to assure that you have a more successful academic semester this spring. Dr. Paula Windham, Dr. Ray Johnson, Dr. Ross Johnson and I encourage you to visit with us. We will be glad to help you or direct you to someone who can.

Sincerely,

Carolyn Bray

Carolyn Bray
January 25, 1985

W. C
HSU Box
Abilene, TX 79698

Dear Weldon:

A FAILSAFE SEMINAR has been planned for you to assist you in your academic work this semester.

We have scheduled five sessions the first week of February. Please indicate on the form below which session you will attend and then return the form by Friday, February 1, 1985 to Carolyn Bray, HSU Box 801.

Sincerely,
Carolyn Bray

<table>
<thead>
<tr>
<th>FAILSAFE SEMINAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday, February 5, 1985</td>
</tr>
<tr>
<td>3:00 to 4:30 p.m.</td>
</tr>
<tr>
<td>6:00 to 7:30 p.m.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thursday, February 7, 1985</th>
<th>Your Name</th>
<th>HSU Box</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 to 3:00 p.m.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5:30 to 7:00 p.m.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Return this portion to Carolyn Bray, HSU Box 801 by Friday, February 1, 1985.

Record your seminar time here for your reference

-------------------------------

Detach here and return
FAILSAFE SESSIONS

February 5, 6, 7

1. Self-Rating Scale
2. Motivation
3. Planning/Time Management
4. Schedule for other FAILSAFE SESSIONS

Have them check the sessions they plan to attend and the time. If they need an alternate time slot, ask them to write it in for the session in question.

Taking Tacky Tests - Improving Test-Taking Skills
- Monday, February 11 5:30 - 7:00 p.m.
- Tuesday, February 12 1:30 - 3:00 p.m.
- Alternate time

Conquer'n the Crunch - Managing Stress
- Monday, February 18 5:30 - 7:00 p.m.
- Tuesday, February 19 1:30 - 3:00 p.m.
- Monday, April 15 5:30 - 7:00 p.m.
- Alternate time

Midterm Test Week  February 25 - March 1

It's Hard to L'rn w/o Gd Notes - Note-taking and Writing
- Tuesday, March 5 1:30 - 3:00 p.m.
- Monday, March 25 5:30 - 7:00 p.m.
- Alternate time

Smooth'n Rough Reading - Effective Reading Skills
- Monday, March 4 5:30 - 7:00 p.m.
- Tuesday, March 26 1:30 - 3:00 p.m.
- Alternate time
## FAILSAFE SESSIONS

<table>
<thead>
<tr>
<th>Topic</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taking Tacky Tests - Improving Test-Taking Skills</td>
<td>Monday, February 11</td>
<td>5:30 - 7:00 p.m.</td>
</tr>
<tr>
<td></td>
<td>Tuesday, February 12</td>
<td>1:30 - 3:00 p.m.</td>
</tr>
<tr>
<td></td>
<td>Alternate time</td>
<td></td>
</tr>
<tr>
<td>Conquer'n the Crunch - Managing Stress</td>
<td>Monday, February 18</td>
<td>5:30 - 7:00 p.m.</td>
</tr>
<tr>
<td></td>
<td>Tuesday, February 19</td>
<td>1:30 - 3:00 p.m.</td>
</tr>
<tr>
<td></td>
<td>Monday, April 15</td>
<td>5:30 - 7:00 p.m.</td>
</tr>
<tr>
<td></td>
<td>Alternate time</td>
<td></td>
</tr>
<tr>
<td>Midterm Test Week</td>
<td>February 25 - March 1</td>
<td></td>
</tr>
<tr>
<td>It's H'rd to L'rn w/o Gd Notes - Note-Taking and Writing</td>
<td>Tuesday, March 5</td>
<td>1:30 - 3:00 p.m.</td>
</tr>
<tr>
<td></td>
<td>Monday, March 25</td>
<td>5:30 - 7:00 p.m.</td>
</tr>
<tr>
<td></td>
<td>Alternate time</td>
<td></td>
</tr>
<tr>
<td>Smooth'n Rough Reading - Effective Reading Skills</td>
<td>Monday, March 4</td>
<td>5:30 - 7:00 p.m.</td>
</tr>
<tr>
<td></td>
<td>Tuesday, March 26</td>
<td>1:30 - 3:00 p.m.</td>
</tr>
<tr>
<td></td>
<td>Alternate time</td>
<td></td>
</tr>
</tbody>
</table>
April 15, 1985

Dear

Congratulations, you have almost made it through the semester. Papers are due and final exams are coming up. Hang in there! You are better prepared this semester than during the fall, so you know what to expect during finals week.

Come by the office if we can help during the next weeks to get your borderline grades up.

Sincerely,

Carolyn S. Bray

CSB/kb
March 2, 1984

Miss B. G.

Dear B.:

The Financial Aid Office has recently notified me that you may be considering not returning to Hardin-Simmons. I would like to take this opportunity to say that if I can help you regarding any matters that may have influenced your decision, please call on me.

I am aware that at times circumstances that affect our lives seem beyond our control. However, there are times when the old adage "two heads are better than one" really can influence the final outcome of what appears to be a difficult situation. If I can help you by providing "the other head" please know that I will do so.

My commitment to you will be to help you explore other options that might be available to you, both directly and indirectly related to your future.

Sincerely yours,

Barry C. Tyler
BCT/cp
April 26, 1984

Dear

The University recently held pre-registration for fall 1984 classes. A search of the list failed to produce your name as a pre-registrant or candidate for graduation. I am very interested in what decisions you are currently making regarding your enrollment with us. If you are facing a challenge or are unsure of your options, please take the time to talk with me.

My office hours are from 8:00 a.m. to 5:00 p.m., Monday through Friday. My university extension number is 482. If regular office hours are not convenient for you, feel free to call me at home. My home telephone number is 698-0517.

Sincerely,

Barry C. Tyler
June 11, 1984

Dear

I have recently had an opportunity to review the names of students who did not return to Hardin-Simmons in the spring of '84. Your name was among those and a search of my records has indicated that I did not have an exit interview with you. Paul, I would like for you to know that I am interested in you and your future. My goal is not to interfere with your life or try to influence your decisions. However, I do want you to know that I am available to help and advise you if in the future you should want to return to Hardin-Simmons and complete your degree. According to your academic records you have completed 67 hours toward a Bachelors of Business Administration degree. It appears then, that you would need approximately 57 hours to finish the requirements for the BBA.

Again, let me assure you that my intent is not to interfere with your life or your plans, but to make sure that you know that I am ready and willing to help you continue and complete your education at Hardin-Simmons University.

Sincerely,

Barry C. Tyler
August 24, 1984

Dear

It is almost that time of year again. I hope you are as excited about the coming year at Hardin-Simmons University as I am. It has been a while since we last talked about your financial needs. The purpose of this letter is to see if there is anything I can do to help you with any challenges regarding your education you might currently be facing. Enclosed you will find a business card with both my office and home telephone numbers listed. If you need help please call on me at any time. I am looking forward to seeing you in the fall.

Sincerely,

Barry C. Tyler
Dear

The Financial Aid Office has indicated that you will not be attending Hardin-Simmons University in the Spring. My purpose in contacting you is not to interfere with your decision, but to assure you that if there is an obstacle preventing you from returning to continue your education with us, I can help you remove it.

Again, let me say that I would be more than happy to visit with you about your decision. I am interested and I do want to help.

Sincerely,

Barry C. Tyler

BCT/ cp
February 28, 1985

Dear,

Can you believe that the school year is two-thirds over? Well-it is! Spring will soon be upon us; and soon thereafter you will be looking back at your Freshman year at HSU! You heard many things when you came - what a nice looking group you were, how smart you were, and how glad we were to have you here and they are all still true, especially that part about being glad that you are here, because we appreciate you and want you to know it!

My goal in writing this letter is two-fold. The first I have already accomplished by saying that we are pleased you are at Hardin-Simmons. The second involves letting you know that we want you to continue your college career with us and that if there are obstacles in your path, we want to help you eliminate them. The critical factor in this process is communication. That does not mean that we are interested only if you have a problem - we want to hear from you, regardless. We enjoy sharing your accomplishments as well as knowing about the challenges and hard work you face.

Again, I am glad that you are with us and that you chose Hardin-Simmons University. We are looking forward to continuing our relationships with you, not only while you are in college, but for the rest of your life. Our hope is that in some way we have touched your life the way you have touched ours.

Sincerely,

Barry C. Tyler
APPENDIX C

SAT-ACT Equivalent Scores
# TABLE A

## ACT Composite Score Equivalents for SAT Total Scores

<table>
<thead>
<tr>
<th>ACT:C Scores</th>
<th>Equivalent SAT:T Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>450</td>
</tr>
<tr>
<td>4</td>
<td>460</td>
</tr>
<tr>
<td>5</td>
<td>470</td>
</tr>
<tr>
<td>6</td>
<td>480 - 490</td>
</tr>
<tr>
<td>7</td>
<td>500 - 510</td>
</tr>
<tr>
<td>8</td>
<td>520</td>
</tr>
<tr>
<td>9</td>
<td>530 - 550</td>
</tr>
<tr>
<td>10</td>
<td>560 - 570</td>
</tr>
<tr>
<td>11</td>
<td>580 - 590</td>
</tr>
<tr>
<td>12</td>
<td>600 - 620</td>
</tr>
<tr>
<td>13</td>
<td>630 - 660</td>
</tr>
<tr>
<td>14</td>
<td>670 - 690</td>
</tr>
<tr>
<td>15</td>
<td>700 - 710</td>
</tr>
<tr>
<td>16</td>
<td>720 - 740</td>
</tr>
<tr>
<td>17</td>
<td>750 - 770</td>
</tr>
<tr>
<td>18</td>
<td>780 - 800</td>
</tr>
<tr>
<td>19</td>
<td>810 - 830</td>
</tr>
<tr>
<td>20</td>
<td>840 - 860</td>
</tr>
<tr>
<td>21</td>
<td>870 - 900</td>
</tr>
<tr>
<td>22</td>
<td>910 - 930</td>
</tr>
<tr>
<td>23</td>
<td>940 - 970</td>
</tr>
<tr>
<td>24</td>
<td>980 - 1010</td>
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<tr>
<td>25</td>
<td>1020 - 1050</td>
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<td>26</td>
<td>1060 - 1090</td>
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<td>27</td>
<td>1100 - 1140</td>
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<td>1150 - 1190</td>
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<td>1200 - 1250</td>
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<td>30</td>
<td>1260 - 1300</td>
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<td>32</td>
<td>1360 - 1410</td>
</tr>
<tr>
<td>33</td>
<td>1420 - 1470</td>
</tr>
<tr>
<td>34</td>
<td>1480 - 1540</td>
</tr>
</tbody>
</table>

**Note:** Fifty or more students had each of the ACT and SAT scores between the two lines shown on this table (except for SAT:T scores of 1400 and 1410 with only 46 and 35 students, respectively). The equivalents between the two lines should be reliable. The equivalents above and below the lines are based on smaller numbers and may be less reliable. (American College Testing Program).
### TABLE B

**CORRELATIONS OF ACT and SAT SCORES**

<table>
<thead>
<tr>
<th></th>
<th>ACT English</th>
<th>ACT Mathematics</th>
<th>ACT Social Studies</th>
<th>ACT Natural Science</th>
<th>ACT Composite</th>
<th>SAT Verbal</th>
<th>SAT Quantitative</th>
<th>SAT Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT:E</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACT:M</td>
<td>.544</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACT:SS</td>
<td>.647</td>
<td>.538</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACT:NS</td>
<td>.586</td>
<td>.628</td>
<td>.701</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACT:C</td>
<td>.802</td>
<td>.819</td>
<td>.864</td>
<td>.865</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT:V</td>
<td>.733</td>
<td>.521</td>
<td>.754</td>
<td>.668</td>
<td>.788</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT:Q</td>
<td>.550</td>
<td>.849</td>
<td>.549</td>
<td>.634</td>
<td>.776</td>
<td>.567</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>SAT:T</td>
<td>.720</td>
<td>.782</td>
<td>.731</td>
<td>.734</td>
<td>.883</td>
<td>.875</td>
<td>.895</td>
<td>1.000</td>
</tr>
</tbody>
</table>

**Note:** All correlations are significant at P<.01.

(American College Testing Program) Sample of 12,014 students was used for these correlations.
APPENDIX D

Summary Tables For SAT Group and SAT Equivalents
For ACT Groups
<table>
<thead>
<tr>
<th>Categories of Freshmen by DMR Code</th>
<th>Number of Freshmen in Each Group**</th>
<th>Mean Dropout Prone Scale (D)</th>
<th>Standard Deviation of D</th>
<th>Mean Psychological Coping Status (Maladjusted Scale - M)</th>
<th>Standard Deviation of M</th>
<th>Mean Responsiveness Scale (R)</th>
<th>Standard Deviation of R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk D Code of 1 to 3</td>
<td>175</td>
<td>38.50</td>
<td>6.55</td>
<td>56.01</td>
<td>4.86</td>
<td>47.48</td>
<td>8.9</td>
</tr>
<tr>
<td>Dropout Prone D Code of 4 or 5</td>
<td>21</td>
<td>55.52</td>
<td>1.60</td>
<td>52.62</td>
<td>3.38</td>
<td>44.86</td>
<td>6.10</td>
</tr>
<tr>
<td>Maladjusted M Code of 4 or 5</td>
<td>56</td>
<td>44.71</td>
<td>5.13</td>
<td>44.23</td>
<td>14.66</td>
<td>50.75</td>
<td>9.06</td>
</tr>
<tr>
<td>Categories of Freshmen by DMR Code</td>
<td>Number of Freshmen in Each Group**</td>
<td>Mean Dropout Prone Scale (D)</td>
<td>Standard Deviation of D</td>
<td>Mean Psychological Coping Status (Maladjusted Scale - M)</td>
<td>Standard Deviation of M</td>
<td>Mean Responsiveness Scale (R)</td>
<td>Standard Deviation of R</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>--------------------------------------------------------</td>
<td>------------------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Dropout Prone and Maladjusted D and M Code of 4 or 5</td>
<td>33</td>
<td>58.88</td>
<td>3.66</td>
<td>42.56</td>
<td>6.78</td>
<td>50.97</td>
<td>10.15</td>
</tr>
<tr>
<td>Total</td>
<td>285</td>
<td>.....</td>
<td>.....</td>
<td>.....</td>
<td>.....</td>
<td>.....</td>
<td>.....</td>
</tr>
</tbody>
</table>

SCI-C Intervention Code Ratings (DMR)
High Risk (Dropout Prone-D)
Maladjusted (Psychological Coping Status-M)
Responsiveness (Interest in Support Services-R)

The Mean Standard is 50
Standard Deviation is 10

DMR Ratings
5 = (very high - highest 20 percent)
4 = (above average - next highest 20 percent)
3 = (average - middle 20 percent)
2 = (below average - next lowest 20 percent)
1 = (very low - lowest 20 percent)
### TABLE B

**SUMMARY OF MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES—SCHOLASTIC APTITUDE TEST SCORES (SAT), SAT EQUIVALENT SCORES FOR THE AMERICAN COLLEGE TESTING PROGRAM (ACT), HIGH SCHOOL RANK (HSR), AND THE SCALES OF THE STRATIL COUNSELING INVENTORY—COLLEGE FORM—USED TO PREDICT COLLEGE ACADEMIC SUCCESS (N=285)**

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta</th>
<th>R</th>
<th>$R^2$</th>
<th>df</th>
<th>F</th>
</tr>
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<tbody>
<tr>
<td>Var 1</td>
<td>0.025</td>
<td>0.025</td>
<td>0.001</td>
<td>1/283</td>
<td>0.178*</td>
</tr>
<tr>
<td>Var 1,2</td>
<td>0.072</td>
<td>0.068</td>
<td>0.005</td>
<td>2/282</td>
<td>0.664*</td>
</tr>
<tr>
<td>Var 1,2,3</td>
<td>0.125</td>
<td>0.134</td>
<td>0.018</td>
<td>3/281</td>
<td>1.724*</td>
</tr>
<tr>
<td>Var 1,2,4</td>
<td>0.029</td>
<td>0.073</td>
<td>0.005</td>
<td>3/281</td>
<td>0.505*</td>
</tr>
<tr>
<td>Var 1,2,5</td>
<td>0.047</td>
<td>0.082</td>
<td>0.007</td>
<td>3/281</td>
<td>0.641*</td>
</tr>
<tr>
<td>Var 1,2,6</td>
<td>-0.076</td>
<td>0.101</td>
<td>0.010</td>
<td>3/281</td>
<td>0.974*</td>
</tr>
<tr>
<td>Var 1,2,7</td>
<td>-0.068</td>
<td>0.095</td>
<td>0.009</td>
<td>3/281</td>
<td>0.850*</td>
</tr>
<tr>
<td>Var 1,2,8</td>
<td>-0.003</td>
<td>0.069</td>
<td>0.005</td>
<td>3/281</td>
<td>0.442*</td>
</tr>
</tbody>
</table>

Variable 1: SAT and SAT equivalent scores of ACT test scores

Variable 2: High School Rank

Variable 3: Attitudinal Predictor of GPA

Variable 4: Dropout Proneness

Variable 5: Transfer Proneness

Variable 6: Psychological Coping

Variable 7: Motivation

Variable 8: Responsiveness

* Not significant at the .05 level
### Table C

**Stepwise Multiple Regression Analysis for Predictor Variables Used to Predict College Academic Success**

SAT Group and SAT Equivalent of ACT Group*  
(N=285)

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable 1: SAT and SAT Equivalent Scores</td>
<td>0.025</td>
<td></td>
</tr>
<tr>
<td>Variable 2: High School Rank</td>
<td>0.072</td>
<td></td>
</tr>
<tr>
<td>Variable 3: Attitudinal GPA**</td>
<td>0.125</td>
<td></td>
</tr>
<tr>
<td>Variable 6: Psychological Coping</td>
<td>-0.209</td>
<td></td>
</tr>
<tr>
<td>Variable 4: Dropout Proneness</td>
<td>0.158</td>
<td></td>
</tr>
<tr>
<td>Variable 7: Motivation</td>
<td>-0.044</td>
<td></td>
</tr>
<tr>
<td>Variable 5: Transfer Proneness</td>
<td>0.025</td>
<td></td>
</tr>
<tr>
<td>Variable 8: Responsiveness</td>
<td>.......</td>
<td></td>
</tr>
</tbody>
</table>

* SAT scores and SAT equivalent scores of ACT were entered into the regression equation first and high school rank second. The other variables were entered by forward (stepwise) inclusion.

** Variables 3-8 are the SCI-C scales.
**TABLE D**

**STEPWISE MULTIPLE REGRESSION ANALYSIS FOR PREDICTOR VARIABLES USED TO PREDICT COLLEGE ACADEMIC SUCCESS SAT GROUP and SAT EQUIVALENTS OF ACT GROUP**

* (N=285)

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Beta Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable 3: Attitudinal GPA**</td>
<td>0.014</td>
</tr>
<tr>
<td>Variable 6: Psychological Coping</td>
<td>-0.200</td>
</tr>
<tr>
<td>Variable 4: Dropout Proneness</td>
<td>0.178</td>
</tr>
<tr>
<td>Variable 2: High School Rank</td>
<td>0.081</td>
</tr>
<tr>
<td>Variable 7: Motivation</td>
<td>-0.045</td>
</tr>
<tr>
<td>Variable 5: Transfer Proneness</td>
<td>0.025</td>
</tr>
<tr>
<td>Variable 1: SAT and SAT Equivalent Scores</td>
<td>......</td>
</tr>
<tr>
<td>Variable 8: Responsiveness</td>
<td>......</td>
</tr>
</tbody>
</table>

* All variables were entered into the regression equation by forward (stepwise) inclusion.

** Variables 3-8 are the SCI-C scales.
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