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THE EFFECTS OF SELECTED VARIABLES ON STUDENT RETENTION IN HIGHER EDUCATION

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THE EFFECTS OF SELECTED VARIABLES ON STUDENT RETENTION IN HIGHER EDUCATION

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

BY

KATRINA H. BRIGHT

Oklahoma City, Oklahoma

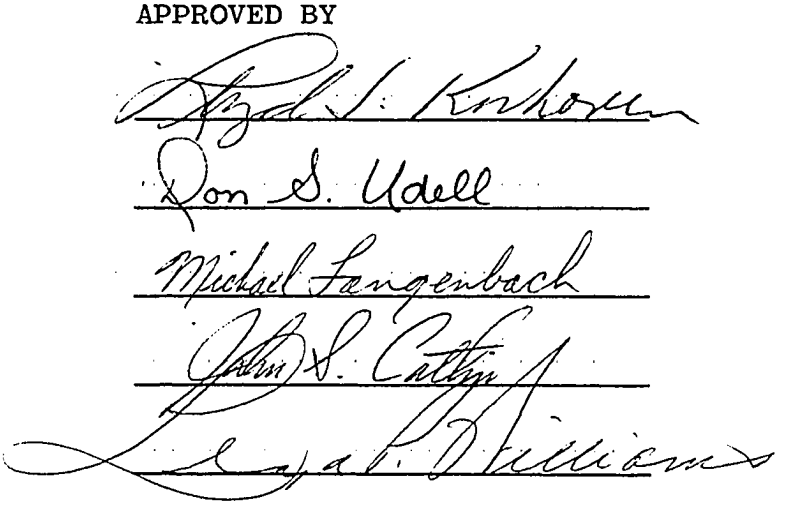
1982

THE EFFECTS OF SELECTED VARIABLES

ON STUDENT RETENTION

IN HIGHER EDUCATION

APPROVED BY



DISSERTATION COMMITTEE

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EFFECTS OF SELECTED VARIABLES ON STUDENT RETENTION IN HIGHER EDUCATION

ABSTRACT

This study investigated the effects of the score of the Survey of Study Habits and Attitudes - Form C (SSHA-Form C) and the composite score of the American College Testing Program (ACT-C) on student retention in higher education. College students entering the freshman classes at Bethany Nazarene College during the Fall semesters of 1978 and 1979 served as participants in the study. Students were divided into two groups, retained or non-retained. Retained students were identified as those students who entered college during the Fall 1978 or 1979 semester and completed an entire academic year. Any freshman student dropping out of college during their first year was identified as non-retained. A sample of 360 freshman students were selected to participate in the study. ACT-C test scores and SSHA-Form C scores were summarized comparing data for retained students to data for non-retained

students. The two-tailed *t* tests demonstrated differences between the two groups on all of the scores. Data for retained students were grouped according to a measure of study orientation, the overall score of the *SSHA-Form C*, and a measure of academic achievement, *ACT-C*. A Pearson product-moment correlation demonstrated a significant relationship for retained students on these two measures. A similar significant correlation was found for non-retained students on the same measures.

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To the students at Bethany Nazarene College and to the staff of the Educational Tutorial Center, I offer my heartfelt thanks for the time and energy given to participate in this study. To my husband, Dennis, and to all other supporters, both human and divine, I express my thanks and appreciation for their support, encouragement and perseverance during this learning process.

K.H.B.

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THE EFFECTS OF SELECTED VARIABLES ON STUDENT RETENTION IN HIGHER EDUCATION

CHAPTER I

INTRODUCTION

Levels of student achievement have long been the focus of educational interest. Success in an educational setting is directly linked to academic achievement by both professional educators and those outside of the educational setting. The student with the high grades and test scores and the high secondary grade point average is expected to be both successful in the collegiate academic setting and to complete a desired course of study.

The knowledge that cognitive variables help to shape success in college is well-known. Studies correlating the predictive ability of selected cognitive measures with actual academic performance fill the literature (Brown and Dubois, 1964; Entwistle and Brennan, 1971; Lin and McKeachie,

1973; Menacker and others, 1971; Merritt, 1972; Munday, 1968; Whitney and Boyd, 1971).

College admissions decisions include the use of test scores, among other measures, in considering prospective enrollees. Informed use of the cognitive data provided college admissions personnel is necessary in order to afford potential enrollees a greater opportunity for admission into the college of their choice.

Isolating student retention characteristics will offer dual benefits. Students will benefit from additional information leading to self-improvement, and colleges will benefit by increasing retention. It is known that non-cognitive variables enter into the achievement and retention levels of college students. That knowledge alone is insufficient to provide improvement in student selection and counseling (De Sena, 1964(a)). The prediction of academic success and retention is a consistent area of interest to educators because even with consistent results, students identified as high-ability do not succeed in college, while some identified as low-ability do succeed (De Sena, 1964(b); Huckabee, 1969; Lin and McKeachie, 1973; McCausland and Stewart; 1974; Mitchell and others, 1975; Wotruba and Price, 1975; Zedeck, 1971; Zimmerman

and others, 1977). Allowing for cultural differences has been cited as a possible rationale for discrepancies in success in the college setting (Dispenzieri and others, 1971).

Measurement experts have tried to ascertain why some students who seem to possess adequate cognitive skills do not complete sufficient college requirements to be considered successful. The persistence and success of students who do not seem to possess adequate cognitive skills for high levels of academic achievement have also been probed by researchers. The trend toward an open admissions policy has changed the format and impact of admissions decisions. Predictive studies in early research were reflecting data gathered at institutions which admitted as few as half of their applicants. Whitney and Boyd (1971, p. 188) reported that traditional predictive measures benefited colleges able to accept only about half of their applicants. Colleges and universities accepting eighty to ninety per cent of their applicants reflect open admissions policies and would benefit from additional research as to student success and retention. The varying and sometimes discrepant findings of academic predictive studies indicate that another avenue exists to assist

college admissions officers, scholarship committee members, and college counselors in the decision-making process they face in dealing with the college student.

Various authors suggest the need for institutional research. Mayhew (1965, p. 43) suggested that institutional research should be assigned to and made a regular part of educational research. A similar suggestion calling for the establishment of a center for institutional research was made by Michael (1965, p. 71). Recognizing differences in student populations, Entwistle and others (1971) developed a specific study skills survey for British students. Even within the same university, discrepant findings resulted between groups of students enrolled in separate colleges (Brown and Dubois, 1964). Centi (1979, p. 457) suggests "factors important to academic success are different from school to school." Considering the above citations, it is reasonable to continue to gather appropriate institutional data.

Further investigation into the predictive validity of the Survey of Study Habits and Attitudes - Form C in conjunction with the American College Testing Service Assessment Program (ACT) will provide more accurate statistical information to be used in

college admissions and retention offices. If this study shows that the SSHA-Form C can be combined with the ACT Composite score to predict student retention, then it would be useful to include these scores in the information obtained before enrollment. If no significance is found, then an indication would be made to forego the time and expense necessary to obtain these data.

The pool of college applicants is affecting freshman class sizes in two significant ways. Freshman class sizes are reduced by both the limited number of 18-year-olds in the pool of applicants and by the number of freshman students who begin a college curriculum and drop out of the process sometime during the first year of college. Inflation has also contributed to retention in colleges. As college and university costs accelerate, and available scholarship money and loan money diminish, the student often chooses the more economic option of the community college. A need exists to provide research information which more accurately describes the persisting college student.

Background of the Problem

The early history of higher education with its establishment of formal recruitment of students

beyond the secondary level is somewhat obscure (Good and Teller, 1969, p. 103). Universities evolved from the progression of professional organizations, the impact of custom, and the work of the individual scholar. Beginning with the earliest European universities of Bologna, Paris, and Oxford in the 12th Century, to the founding of Harvard University in America in 1636, the higher education movement gradually encircled the globe (Good and Teller, 1969, p. 106).

The evolution of American colleges and universities in the 19th and 20th Centuries is described in the following manner (source: Brubacher and Rudy, 1968). The Morrill Act, passed in 1862, established land-grant colleges to offer instruction in agricultural and mechanical courses. The Second Morrill Act was passed in 1890 to increase federal aid to colleges implementing programs in applied sciences and mechanical arts. The College Entrance Examination Board was founded in 1890 to formalize college admission requirements.

From 1900 to 1940 college preparatory courses flourished at the secondary level. The progressive education movement and the work of John Dewey became influential.

During World War II and the decade from 1940

to 1950 degree requirements and curriculum changed to enable servicemen to graduate from college at a faster rate. The GI Bill was established which funded the education of millions of former servicemen.

After the launching of the Russian space satellite, Sputnik, in 1957, colleges and universities centered their attention on improving mathematics and science divisions. A heavy emphasis was placed on the education of the most gifted. In this same decade of 1950 to 1960, the American College Testing Program introduced its Assessment Program, and community colleges spread throughout the United States.

Extensive use of federal funding and social reforms opened colleges and universities to many minority groups from 1960 to 1970. During this decade minority groups previously underrepresented in professional careers made significant advances.

Open admissions policies continued throughout the 1970's with the result of increasing services to the non-traditional learner. Among these were the handicapped, the learning disabled, and the gifted and talented. This decade also produced significant strides in the area of adult education. In 1976, two-thirds of the students enrolled in the

community college system in California were adults. Women outnumbered men in college for the first time since World War II (Maxwell, 1979, p. 22).

The decade from 1980 to 1990 will continue to offer diversity in the areas of college admissions and retention. A need exists to provide those in decision-making positions with other means to predict student retention and success. An effort must be made to provide more adequate data to those in the college setting as they make decisions concerning college entrants. The trend toward an open admissions policy at many American colleges and universities is resulting in a more heterogeneous make-up of the members of the freshman class. "Many colleges and universities are actively seeking students - any students - to fill their classrooms" (Maxwell, 1979, p. 22).

There is a great concern about retaining students in college. The declining birthrate limits the pool of potential applicants for the institutions competing for young high school graduates to fill their classrooms. Although college grades are currently higher than they have ever been, many students continue to drop out of college, and others are taking longer to complete degrees (Maxwell, 1979, p. 7-22).

Statement of the Problem

This study will determine if any of the seven subscores obtained from the Survey of Study Habits and Attitudes - Form C (SSHA - Form C) revised by Brown and Holtzman in 1964 and the Composite Score of the American College Testing Program (ACT-C) can be used as successful predictors of student retention.

This study was based on the question of the identification of characteristics connected with student retention. Specific questions considered are:

1. Do students who remain in college differ from those students who do not remain in college to complete the freshman year as evidenced by significant differences on the seven subscores of the SSHA-Form C?
2. Is the ACT Composite Score (ACT-C) of retained students significantly different from the score of non-retained students?
3. What is the relationship between the Study Orientation Score of the SSHA-Form C and the Composite Score of the ACT (ACT-C) for retained and non-retained students?

Hypotheses

The hypotheses to be tested in this study were generated from three research questions. Each

research question is followed by its related hypothesis:

1. Are the seven subscores of the SSHA-Form C of retained students significantly different from the scores of non-retained students?

   H_1 There are no significant differences among any of the seven subscores of the SSHA-Form C for students identified as retained and non-retained.

2. Is the ACT Composite Score (ACT-C) of retained students significantly different from the score of non-retained students?

   H_2 There are no significant differences between the ACT Composite Score (ACT-C) for the freshman students identified as retained and non-retained.

3. What is the relationship between the Study Orientation Score (SO) of the SSHA-Form C and the Composite Score of the ACT (ACT-C) for those students identified as retained and non-retained?

   H_3 There are no significant differences between the Study Orientation Score (SO) of the SSHA-Form C and the Composite Score of the ACT (ACT-C) for those students identified as retained and non-retained.

Definition of Terms

The following terms will be used throughout this study and are defined below.

Delay Avoidance Score (DA). This is a measurement from the SSHA which reflects a student's promptness in completing academic assignments, lack of procrastination, and freedom from wasteful delays and distraction (Brown and Holtzman, 1964, p. 17).

Work Methods Score (WM). This is a measurement from the SSHA which reflects a student's use of effective study procedures, efficiency in doing academic assignments, and knowledge of how-to-study skills (Brown and Holtzman, 1964, p. 17).

Study Habits Score (SH). This score from the SSHA combines the DA and the WM scales to provide a measure of academic behavior (Brown and Holtzman, 1964, p. 17).

Teacher Approval Score (TA). This score from the SSHA measures a student's opinion of teachers, their classroom behavior and methods (Brown and Holtzman, 1964, p. 17).

Educational Acceptance Score (EA). This score from the SSHA measures a student's approval of educational objectives, practices, and

requirements (Brown and Holtzman, 1964, p. 17).

Study Attitudes Score (SA). This score from the SSHA combines the TA and EA scales to provide a measure of scholastic beliefs (Brown and Holtzman, 1964, p. 17).

Study Orientation Score (SO). This score from the SSHA combines the SH and the SA scales to provide an overall measure of study habits and attitudes (Brown and Holtzman, 1964, p. 17).

Survey of Study Habits and Attitudes (SSHA). This inventory was developed by William Brown and Wayne Holtzman to be administered to college age students (Form C). It provides the student with a systematic and standardized way to indicate some of his or her feelings and practices regarding schoolwork (Brown and Holtzman, 1964, p. 5).

American College Testing Program (ACT). The American College Testing Program introduced the ACT Assessment Program (ACT) in 1959. These academic tests are a set of four cognitive measures rendering four individual standard scores and one composite score (ACT-C). The composite score is the mean of the four standard scores (Hills, 1978, p. 409).

Open admissions policy. An open admissions policy allows the matriculation of students into colleges and universities who do not present all of the necessary qualifications for regular admission. Since 1960, the concept of open admissions has been adopted by colleges and universities throughout the United States (Maxwell, 1979, p. 12).

Retained student. Operationally defined for this study as any freshman student entering college in the Fall semester who completes that semester and enrolls in the subsequent Spring semester.

Non-retained student. Operationally defined for this study as any freshman student entering college in the Fall semester who drops out of college before the end of the academic term, or who completes the Fall semester but does not enroll for the subsequent Spring semester.

Freshman student. Operationally defined for this study as any student entering college for his or her initial enrollment following the completion of a secondary education program of study.

Assumptions Underlying the Study

1. Student retention is affected by non-cognitive variables as well as cognitive variables.
2. Students at Bethany Nazarene College do not differ significantly from the college population as a whole.
3. Subjects in the two subsample groups at Bethany Nazarene College shared similar collegiate experiences during their initial college enrollments.

CHAPTER II

REVIEW OF THE LITERATURE

The review of the literature will be divided into three major sections. Section I will deal with the American College Testing Program Assessment Services. Section II will present the primary studies contributed to the study skills literature by William F. Brown and Wayne H. Holtzman, authors of the Survey of Study Habits and Attitudes - Form C (SSHA-Form C). Additional information in Section II will consider other research utilizing the SSHA in predicting academic achievement in college and its use in psychological experiments, adult education, study skills centers, and college retention. Section III will state pertinent educational thought on adult learning theory.

The American College Testing Program Assessment Services

The American College Assessment Program is a comprehensive service to educators and students in

the areas of evaluation, guidance, and placement (ACT, 1980, p. 1). To assist in the transition from high school to college, the ACT Assessment Program provides a number of services, among them includes the testing of students on the four academic subtests and the reporting of those scores. The academic tests cover the four major subject matter areas of English, Mathematics, Social Studies, and Natural Sciences. These tests have been constructed to predict a student's general educational development and the completion of college-level work (ACT, 1979, p. 2).

The publishers provide the following descriptions of the characteristics of the four academic tests which are quoted below (ACT, 1979, p. 2):

> The English Test is a 75-item, 40-minute test that measures the student's understanding of the conventions of standard written English and use of. . . punctuation, grammar, sentence structure, diction, style, logic, and organization. The test does not measure the rote recall of rules of grammar, but stresses the analysis of the kind of effective secondary curricula. The test consists of several prose passages with certain portions underlined and numbered. For each underlined portion, four alternative responses are given. The student must decide which alternative is most appropriate in the context of the passage. The Mathematics Usage Test is a 40-item, 50-minute examination that measures the student's mathematical reasoning ability. . . The test emphasizes

> reasoning in a quantitative context, rather than memorization of formulas, knowledge of techniques, or computational skill. The format of the items is a question with five alternative answers, the last of which may be "none of the above." The Social Studies Reading Test is a 52-item, 35-minute test that measures comprehension, analytical and evaluative reasoning, and problem-solving skills required in the social studies. . . All items are multiple choice with four alternatives. The items based on the reading passages require not only reading comprehension skills, but the ability to draw inferences and conclusions. . . and to recognize a writer's bias, style and mode of reasoning. The discreet information items ask the students to apply what they have learned. . . to familiar, new, and analogous problem contexts. The Natural Science Test is a 52-item, 35-minute test that measures interpretation, analysis, evaluation, critical reasoning, and problem-solving skills required in the natural sciences. . . All items are multiple choice with four alternatives. The passages concern a variety of scientific topics and problems; descriptions of scientific experiments and summaries of procedures and outcomes of experiments are the most common formats. . . The discreet information items ask the students to apply what they have learned in the high school science courses, to familiar, new, and analogous problem contexts. They require the understanding of only significant facts and minimal algebraic and arithmetic computations.

Each of the four subtests yields a raw score which is the number of correct responses. Raw scores are converted to standard scores. The range of the English Usage standard score is 1 (low) to 33 (high). The range of the Mathematics standard

score is 1 (low) to 36 (high); Social Studies Reading, 1 (low) to 34 (high); Natural Science Reading, 1 (low) to 35 (high). The average of the four standard scores constitutes the Composite Score. The minimum Composite Score is 1, the maximum Composite Score is 35. The mean Composite Score is approximately 18 for college-bound high school students (ACT, 1979, p. 3).

The publishers have also made data available as to the degree of error in the ACT scores. The standard error of measurement for the five standard scores ranges from 1 (low) to 2 (high). The Composite Score has a standard error of measurement of 1. This means that a Composite Score of 18 should be viewed as falling within the range of 17 to 19. In approximately two out of three attempts, the student's true score will be included in this range (ACT, 1979, p. 3).

The publishers present information as to the adjustment made in the ACT scores "to eliminate any systematic advantages related to educational level and time of year of testing" (ACT, 1979, p. 4). Would a high school senior tested in December have an advantage over a high school junior tested in April? According to the publishers, such corrections to the test design have already been made. "Students

need not delay taking the ACT until they become seniors, complete another semester, or finish a particular course of study" (ACT, 1979, p. 4).

Some efforts have been made by the publishers to link ACT data to retention. By providing a comprehensive data base beyond the five standard scores, student retention information can be facilitated. Early identification of high-risk students can be based on information provided by ACT. ACT provides localized predictions of academic achievement, student self-estimates of college achievement, variability in interest patterns relative to a particular college major field of study, and changes in extracurricular activities and levels of involvement as referenced by the student (ACT, 1979, p. 15).

Since its introduction in 1959, the ACT Assessment Program has been the focus of considerable research. Munday (1968) found ACT scores correlated moderately to highly when related to measures of intelligence, scholastic aptitude, English and reading achievement. ACT scores were relatively independent of study habits (Munday, 1968).

Whitney and Boyd (1971) studied the limitations of test scores, among other criteria, on college admissions. They studied the limitations of the

accuracy, efficiency and decision-making ability arising from the validity of the factors considered and the precision with which they are measured. Menacker and others (1971) dealt with the performance of students admitted to college with discrepant admissions scores. Predicted success was based on high school percentile rank and ACT Composite Score. No non-cognitive variables were included in the study.

Miller (1969) presented a study detailing academic preparation and college grades. Data collected on freshman students over a three-year period substantiated evidence that students were entering the university with better academic preparation as evidenced by a comparison of selected cognitive variables, among them, the ACT Composite Score. Even though this study produced means of standard scores which clearly indicated a better academic preparation among entering freshmen, an analysis of grades the subjects earned did not reflect this preparation.

Keefer (1971) investigated the characteristics of students who make accurate and inaccurate self-predictions of college achievement. It was found that accurate predictors were generally upperclassmen, high achievers, self-acceptant students or

"students who have shown themselves to be successful in achieving their goals and accurate in predicting their achievement" (p. 404).

A study funded by the Office of Research of Delta State College (Merritt, 1972) examined the predictive validity of the ACT for students from low socioeconomic levels. The results of the investigation rendered support to the predictive validity of the ACT toward college grades for students from low socioeconomic backgrounds(p. 444). This finding was consistent with the publisher's contention that the tests of the ACT are "essentially as predictive of college grades for minority or disadvantaged students as they are for middleclass, white students" (ACT, 1979, p. 4).

The Survey of Study Habits and Attitudes

William F. Brown and Wayne H. Holtzman developed the original Survey of Study Habits and Attitudes (SSHA) in 1953 to measure a student's attitudes and motivation toward studying as well as his study habits in and of themselves. The 75-item inventory identified students whose study habits and attitudes differed from those students who excelled academically. Based on the results of the inventory, a foundation for aiding students through specialized counseling, study skills courses, and remedial academic assistance can be laid (Deese, 1959).

In a subsequent validity study (Holtzman, Brown and Farquhar, 1954) coefficients of correlations for men varied from .27 to .66 with an average of .42. Coefficients of correlation for women varied from .26 to .65 with an average of .45. In every case, the correlation between SSHA scores and college grades was sufficiently high to prove significant beyond the .01 level (Holtzman, Brown, and Farquhar, 1954).

The inventory is heavily weighted in the direction of assessing motivation for study and attitudes toward academic work (Deese, 1959). Attitudes toward studying can be measured objectively and substantially influence academic achievement (Brown and Holtzman, 1955). The validity of results, however, are directly related to the interest shown by the student and the degree of sincerity used in answering the items (Brown and Holtzman, 1956).

The revised edition of the SSHA (Form C) published in 1964 was developed for the college-age student. It was lengthened to 100 items. The need for separate scoring keys for men and women was eliminated. The inventory was subdivided to yield four subscores, two combined scores, and one overall score (Shay, 1972). The impact of the four subscales can be especially effective in counseling. They can be summed to give general habits and attitudes scores

and the overall scale, Study Orientation (SO) (Brown and Holtzman, 1964).

Three additional studies by the authors present information concerning the use of the data obtained from the SSHA in counseling settings. Brown (1965) found a significantly higher test-retest differential for counseled freshmen on measures of study behavior. Counseled freshmen also earned higher grades than uncounseled freshmen during that same study. Zunker and Brown (1966) concluded that carefully trained and supervised student counselors could effectively share study habits information with freshman counselees and relieve the professionally trained counseling personnel of these routine duties. In a related study (Brown and others, 1971) one-hundred-eleven beginning college freshmen were targeted as potential dropouts. They were provided academic adjustment counseling by peer-counselors. The control group of one-hundred-eleven additional potential dropouts were denied counseling. Pre-post counseling scores on the SSHA were found to be significantly higher for the experimental group.

Two of the earliest validity checks made on the SSHA by researchers other than the authors of the inventory were conducted by Popham (1960) and Popham

and Moore (1960). In both studies obtained correlation coefficients revealed a significantly stronger relationship with variables other than intellectual aptitudes, and, therefore, could aid in the identification of potential academic overachievers and underachievers. Additional research on the first form of the SSHA is described as follows. Ahmann and others (1958) found no significant correlation between raw scores on the SSHA and first semester grade point average. Anderson and Kuntz (1959) found no significant difference between random samples of probation and non-probation students and scores on the SSHA. Lum (1960) contradicted earlier studies by finding that the SSHA did discriminate overachievers from under- and normal-achievers. De Sena (1964)(a) and De Sena (1964)(b) concluded in two separate studies that contradictory findings of these early researchers could be attributed to a lack of a consistency factor in achievement studies. He suggested that studies limited to data collected over a brief period of time and with small sample sizes did not take into account the influence of the behavior of a student who consistently over- or under-achieves. Bray and others (1980) found that the reliabilities of the scales of the SSHA-Form C were marginal as measured by coefficient alpha.

Other research using the SSHA as a predictor of academic success was conducted by Brown and others (1954); Brown (1964); Brown and Dubois (1964); Brown and Scott (1966); and Gardner (1967). These studies contributed additional confusion to the interaction between the SSHA and achievement. Brown and others (1954) conducted three preliminary studies in an attempt to determine what motivational differences were evident between high and low achieving students. Brown (1964) found that students had poorer study habits and more negative attitudes toward school and studying after some college experience. Brown and Dubois (1964) found contradiction in prediction when using the SSHA at the same university, but with students enrolled in different colleges. Significant correlations between SSHA scores and grades were found for engineering students, but not for science or humanities students. Lin and McKeachie (1973) found the SSHA to make an independent contribution beyond the contribution made by intelligence in the prediction of Introductory Psychology course grades for freshman students. The Brown and Scott study of 1966 suggested that the four subscales of the SSHA could not be used as moderator variables. Gardner (1967) found that the SSHA correlated well with academic success but not with scholastic ability.

Research conducted in recent years has been limited to the SSHA-Form C revised in 1964 by Brown and Holtzman. Goldfried and D'Zurilla (1973) correlated the SSHA-C scores to peer ratings of academic effectiveness. This data correlated positively. McCausland and Stewart (1974) suggested that academic aptitude, study skills and attitudes combine to form important but complex components of college success. An investigation of the structure of the SSHA-C was conducted by Khan and Roberts (1975). The results of the study suggested that a priori item classification held for all the subscales except educational acceptance. A validity study (Wen and Liu, 1976) investigated the four subscales of the SSHA-C and specific course examination scores of selected undergraduate students. Zimmerman and others (1977) produced data that showed significant differences between study skills and semester grade point averages for subjects classified as high and low mental ability. Wikoff and Kafka (1981) investigated the predictive ability of the SSHA-C by means of the ACT program English and mathematics subtests. The subtests were found to be good predictors of grade point average, and the SSHA-C subtests accounted for an additional three percent of the variance.

Educational psychologists have contributed an

abundance of literature to the field of study skills and personality variables. Rutkowski and Domino (1975) and Palladino and Domino (1978) undertook studies to determine the relationship of study skills to personality variables. A definite relationship was found between the California Psychological Inventory (CPI) and the SSHA-C in the former study. In the latter study the authors sought to establish differences between counseling center clients and nonclients. No significant differences were found. Heilbrun (p. 1, 1965) considers it "reasonable to expect that personality factors may make a significant independent contribution to student attrition. . ."

Additional research in personality characteristics and study attitudes (Cowell and Entwistle, 1971) showed contrasting patterns between the SSHA-C and Eysenck Personality Inventory. When the variable of anxiety was added to the study habits and attitudes and achievement variables, several interesting conclusions were found. Murphy (1964) established significant differences in anxiety-level among students with high and low levels of self-regard.

In three related studies the relationship between test anxious students and study habits was shown. Desiderato and Koskinen (1969) found differences in levels of academic anxiety were also

related to differences in study habits. These differences, in turn, were related to grade point average. Lin and McKeachie (1970) found that significant differences in academic performance were largely due to ability differences among highly test-anxious subjects. Study habits do contribute to achievement without regard to ability. Test performance was partially influenced by ineffective pre-examination behavior by highly test-anxious students (Wittmaier, 1972).

Locus-of-control as a variable in achievement in conjunction with the SSHA-C served as the basis for four studies. Prociuk and Breen (1974) examined the relationship between locus-of-control and the SSHA-C and college achievement. Results indicated that internal locus-of-control was related positively to effective study habits and attitudes and academic achievement. Study habits were related to two of the measures. Ramanaiah and others (1975) tested Rotter's hypothesis that internals would show more behaviors related to striving for achievement than externals. Significant sex differences were found for the SSHA-C but not on the Internal-External scales. Similar findings were reported in a comparable study by Goldston and others (1977). Rotter's I-E scale was used in a fourth study with the SSHA-C (Keller

and others, 1978). A course offering a personalized system of instruction in introductory psychology was offered to 138 undergraduate students. Results indicate that the I-E scale is related to academic attitudes and that study habits are related to two of the measures.

The use of the SSHA-C as a moderator variable was discussed in two related studies. Zedeck (1971) identified the educational acceptance scale of the SSHA-C as a moderator which indicated that subjects would be more predictable if they had relatively high scores on this scale. The teacher approval scale was also found to be a moderator variable in this study. Zedeck and others (1971) compared the moderator variables of anxiety and study habits according to three different prediction techniques of subgroup analysis, differential prediction of predictability, and moderated regression. Although no joint moderators were found, results did indicate that study habits operate as an independent predictor when comparing moderated regression with linear regression (p. 234-239).

Entwistle and others (1971) and Entwistle and Brennan (1971) investigated the academic performance of students in England. Results of the former study were that a specific scale reporting study habits

and attitudes was developed for use with British students. In the latter study, a cluster analysis procedure was used to analyze data.

Dispenzieri and others (1971) restricted their investigation of college performance to the comparison of disadvantaged students and regular matriculants. Values, attitudes, and behavior were measured by the SSHA-C study habits and study attitudes subscales. The two groups did not differ in their degree of academic motivation.

The information offered by the SSHA-C has been used in the college setting in other ways. Early researchers suggested administering the inventory after some college experience (Garcia and Wigham, 1958). After its revision in 1964, Brown made a similar suggestion for the new Form C (1964). Weigel and others (1971) studied the effects caused by forced participation in an experiment. Results of their study conducted early and late in the term suggested that students with lower SSHA scores waited until late in the term to sign up for the experiment.

The SSHA-C has been used in a variety of ways with study skills courses. Bodden and others (1972) reported that the SSHA-C fulfills a dual role: it serves as a course of feedback to study skills for

students and instructors and as a criterion for assessment of course effectiveness. Tarpey and Harris (1979) investigated the effectiveness of study skills courses on participant grade point averages and SSHA-C scores. Results indicate a significant increase in grade point average and SSHA-C scores for those who took the course. Briggs and others (1971) combines psychological conditioning techniques with study techniques in an effort to effect academic high risk college students. It was hypothesized that subjects exposed to a study skills treatment procedure would demonstrate higher grade point averages than a comparable control group. Their expectation was supported by data gathered during the study. In a similar study of a group for bright, failing, underachievers (Mitchell and others, 1975) desensitization and reeducative training each were applied toward subjects in the study. The findings suggest that systematic desensitization and reeducative training are effective in improving study habits and study skills.

A study limited to the discussion of developmental skills courses for adults returning to the college setting was conducted (Clarke, 1980). Results showed that high SSHA-C scores for adult learners were directly related to the choice to attend a study skills course.

Identification of high-risk students or potential dropouts was a primary goal of early research of the SSHA (Brown and others, 1954) which characterized high-risk students as indecisive, non-conforming and procrastinating. Anderson and Kuntz (1959) suggested that the SSHA could be used to identify students who may exhibit academic adjustment difficulties in a post-secondary setting. Righthand (1965) combined data from the SSHA-C with the mathematics portion of the Engineering Science Aptitude Test and found that the combination pattern effectively identified characteristics of the dropout and the persisting student at a technical institution.

Studies continue to place the national dropout rate to be in the range of 50 to 70 per cent (Marsh, 1966; Samenow, 1967; Kooker and Bellamy, 1969). The data from all sources suggest that the freshman year is the critical year for retention (Marsh, 1966). Kooker and Bellamy (1969) cite published research with regard to SSHA-C and academic achievement, but comment that no investigation linked the SSHA-C to retention.

The literature generally supports the validity and reliability of the SSHA-C to render evidence of study habits and attitudes. A relationship between college academic performance and the SSHA-C has

been established. A logical step forward would be to add a measure of retention to the question of predicting academic success.

Theoretical Framework

The theoretical framework for this study was derived from adult learning theory. When speaking of learning, one usually considers a restrictive learning, such as a mastery of a specific skill or a subject matter. Human life is affected by learning in a much broader sense because human actions of any real consequences are influenced by learning (Anderson, 1969, p. 51). Learning is a process, resulting from practice, that forms new behaviors or alters existing behaviors (Hilgard, 1962, p. 623). This process results in persisting changes which cannot be attributed to growth or maturation of the learner or to temporary changes in the state of the learner.

Dubin and Okun (1973) wrote a review of the major learning theories dividing them into three approaches: 1. behaviorism, 2. neo-behaviorism, and 3. cognitivism (p. 3). Those theorists currently thought of as behaviorists are primarily concerned with the concepts of stimulus and response. Observable behavior, with no speculation about what is happening in the mind is the strict behaviorist's doctrine.

Neo-behaviorists follow all the precepts of the behaviorists and add a consideration for the mediating process between the stimulus and response concepts. Cognitive theorists assume that humans form rules and their cognitive structures form the most important element in learning (p. 4).

McKeachie and Doyle (1970) interpret learning as the storage of relationships. Their theoretical classification of learning includes three broad categories: 1. perceptual learning, 2. motive learning, and 3. habit learning (p. 127). Perceptual learning encompasses classical conditioning, object learning and concept learning. Motive learning is influenced by goals established in instrumental conditioning, ambivalence in behaviors of significant others, and generalizations of the learner to all other common situations. Habit learning is both simple instrumental learning and complex or habit learning (p. 96-127).

Rotter (1954) postulates a social learning theory based on the fact that behaviors are learned in social situations. What one learns is thoroughly contained and ultimately associated with other persons because individual needs cannot be satisfied without the mediation of others (p. 84).

Rohwer and others (1980) define learning as "a more or less permanent mental change that makes it possible for individuals to exhibit observable changes in their behavior" (p. 21). This definition is further qualified by eliminating changes resulting from physical growth and restricting learning to "interaction between the person and the environment" (p. 21).

Albert Bandura (1977) believes that a person can learn, acquire skills, knowledge and attitudes without being directly involved in the learning situation (p. 15-22). Learning through modeling directly or learning through the vicarious experiences of others are options open to people. Giving attention to the situation, perceiving the situation accurately, remembering the situation, and converting the symbolic, vicarious representations into appropriate actions are necessary components of Bandura's learning through modeling (p. 22-29). Because a person will learn in an observational mode, social learning theory presents a theory of modeling which explains "not only how patterned behavior is acquired observationally, but also how frequently and when imitative behavior will be performed, the persons toward whom it is expressed and the social setting in which it is most likely to be exhibited" (p. 33).

The learning processes of the college-age student are complex, varied, and multi-faceted. No one learning theory accounts for all human learning (Anderson, 1969, p. 59; Dubin and Okun, 1973, p. 3). The transition from adolescence to adulthood is often imperceptible, although usually completed by ages eighteen to twenty (Hilgard, 1962, p. 10). Students entering a collegiate environment are surrounded by new and varied experiences forcing adjustment to those new demands. Mouly (1973) defines adjustment "as the process by means of which the individual seeks to maintain physiological and psychological equilibrium and propel himself toward self-enhancement" (p. 443). Adjustment implies harmony. Students entering the college environment for the first time are faced with a multiplicity of demands.

Impellizzeri (1968) states the college age presents itself as a significant period of life with the strongest needs for physical fulfillment, intellectual freedom, for interaction with other adults, and "for competence in significant work"(p. 19). Assistance in meeting these goals is of paramount concern for those in adult and higher education. Gideonse writes that as students meet obstacles in the academic setting, they acquire problems. A course of action has been undertaken, and something

interrupts the process. The student is unclear as to the action that should be taken and "the essence is that the individual's circumstances must be evaluated and a new plan of action formulated" (Gideonse, 1968, p. ix). McDaniel (1966) has long fostered the premise that college student personnel should go back to gathering data about the student as it relates to the specific environment indigenous to the subject (p. 91).

Much of the research pertaining to learning in the collegiate environment has offered explanations of student achievement as being related to adjustment within that learning environment (Hepner, 1973; Shaw and McCuen, 1960; Chilton, 1965; Todd and others, 1962; Blaine and McArthur, 1961; Brown and others, 1971). Hepner states that although study habits are an integral part of achievement, the attitude that the student has toward his college adjustment is also related to achievement (1973, p. 200). Shaw and McCuen (1960) suggested that the basic personality matrix is related to the underachievement of bright students (p. 103-108). Attitudes toward parental authority can be disguised in academic achievement by the capable student whose poor performance is a non-verbal method of venting his anger toward authority which he perceives to be overly restrictive

or unjust (Hepner, 1973, p. 200). Educational attitudes, when defined and measured, can be significant in the counseling of college students. Chilton (1965) suggests that these attitudes can be assessed in several ways. One of the most accessible ways is to be aware that students who register late are often acting out their anger and apathy toward education (p. 77). He found that low academic achievement and the degree of lateness with which a student enrolled were related (p. 78). Todd and others (1962) attempted a study isolating four variables. They found that underachievers were less likely to have firm educational goals, had less of a need for academic achievement, did not perceive a relationship between academic course work and future work experiences, and had a low expectancy for success in academic work (p. 183-190).

The college setting offers the learner unique opportunities for learning in that many college students are experiencing their first taste of life on their own. The differences between college level assignments and high school work are obvious. Many students find themselves in conflict when faced with the reality of setting up their own study schedules, identifying their educational and vocational goals, and learning to live on their own with a group of

people representing values and attitudes different from theirs. The college or university sensitive to these specific needs of the freshman student can make a strong impact on them. Providing modeling toward desired behavior for the new student is producing powerful effects that are just beginning to impact on the collegiate environment (Krumboltz, 1964, p. 123). Initiating systems that provide for vicarious learning and reinforcement offers two primary benefits. The observer (freshman student) is provided with the information concerning the relevant features of the model's performance. He is also provided with the incentive to copy that behavior (Furukawa and Perry, 1980, p. 141). The research of Brown and others (1971) provided an early example of these concepts. They found that potential dropouts (observers) who received counseling by trained students (models) demonstrated a significant positive change in their study orientation and study knowledge (p. 285-289). This same concept of group experience was the basis of the work of Blaine and McArthur ten years earlier than the Brown study of 1971. Students in their study (1961) reported an improvement of their study ability and some showed an increase in grade point average as a presumed result of group experience (p. 244-245).

This study is an attempt to contribute to the knowledge of student behavior and college retention. Professionals in the college admissions and student personnel services are concerned with admitting qualified applicants into the college environment and keeping them there. Positive assistance offered to freshman students in their initial college enrollment would positively influence their adjustment to the collegiate environment, and also increase retention. This study speaks to ways of assisting students in their initial college experience and attempts to provide information salient to the increase of a student's capacity for adjusting. Mouly (1973) suggests that these efforts are made on the premise that students who learn to cope with the problems confronting them today will be better able to deal with the problems of tomorrow (p. 444).

CHAPTER III

METHODOLOGY

Subjects

The study sample consisted of 361 male and female students at Bethany Nazarene College, Bethany, Oklahoma, who enrolled as freshman students during the Fall semester, 1978 and 1979. This group represents approximately one-half of the entire number of freshman students entering the college during those semesters. Selection criteria required that each student in the study have ACT test data and SSHA-Form C data on file. All freshman students meeting the selection criteria were included in the study.

Procedures

Two different instruments were used in the study to assess study orientation and ability. These were the Survey of Study Habits and Attitudes (Form C) and the American College Testing Assessment Program (ACT).

As a regular part of the college admissions procedures, freshman students were asked by the Office of Admissions personnel to take the ACT Assessment Program Tests and forward their scores to Bethany Nazarene College. Students who complied with this request took the test battery at their own expense sometime during their final two years in high school.

Subjects were asked to attend a New Student Orientation Program on the campus at Bethany Nazarene College held two days prior to the opening Fall semesters in August, 1978, and August, 1979. As a part of the agenda for New Student Orientation, students were asked to participate in a testing session. During that session, the SSHA-Form C was administered as well as the Nelson-Denny Reading Test. The testing session was approximately ninety minutes in duration and was conducted under the supervision of this author and one other college faculty member. Four college staff members assisted the professors and served as test monitors during the session.

Survey of Study Habits and Attitudes - Form C

The SSHA-Form C (Brown and Holtzman, 1964) is a 100-item inventory designed to furnish the student with information assessing his study habits and attitudes to serve as a foundation for self-improvement.

a five-point scale is provided for each item, and the student is asked to rate himself on each statement. The student is asked to indicate whether the statement in question refers to him rarely, sometimes, frequently, generally, or almost always. The authors have set up a percentage rating for the scale in order to assist the student (See Appendix A).

Scores are obtained that relate to four basic scales, two subscales, and one total score. The four scores that are directly derived are Delay Avoidance (DA), Work Methods (WM), Teacher Approval (TA), and Educational Acceptance (EA). The Study Habits (SH) score is the sum of the DA and WM scales. The Study Attitudes (SA) score is the sum of the TA and EA scales. The Study Orientation (SO) score is the sum of the four basic scores or the sum of the two subscores (Brown and Holtzman, 1964, p. 7).

The ACT Assessment Program - Composite Score

The ACT Assessment Program is a widely used service of the American College Testing Service. Tests are administered five times a year throughout the United States. Data from the ACT Assessment Program are gathered and scored under the supervision of standardized testing procedures and furnished to colleges at the request of the student by the testing service.

The four subtests are described as follows; The English Usage Test is a 75-item 40-minute test of the student's understanding of standard written English and English usage. The Mathematics Usage Test is a 40-item 50-minute test of the student's mathematical reasoning ability. The Social Studies Reading Test and the Natural Science Reading Test are both 52-item 35-minute examinations. The former measures reading comprehension and problem-solving skills required in the social studies. The latter measures similar skills required in natural sciences. The composite score is the mean of the four subtests (Hills, 1978, p. 622-624).

Analysis of Data

To test the first hypothesis, the SSHA-Form C scores were grouped according to the seven subscores of the Inventory: delay avoidance, work methods, study habits, teacher approval, educational acceptance, study attitudes and study orientation. Mean scores of those students identified as retained were compared to those identified as non-retained to determine if any statistical significance exists. A t test was utilized to test the strength of association of each of the seven variables on retention (Linton and Gallo, 1975, p. 206).

To test the second hypothesis, the mean ACT composite score of students identified as retained was compared to those identified as non-retained to determine if any statistical significance exists. A t test was utilized to test the strength of association of this variable to retention (Linton and Gallo, 1975, p. 206).

The third hypothesis was tested by correlating a study orientation measure to a measure of achievement to determine the degree of relationship between retained and non-retained students on the two selected measures. The study orientation measure was the SO score of the SSHA-Form C. The achievement measure was the composite score of the ACT. A Pearson product-moment correlation coefficient was computed to test the strength of the relationship between the two variables (Minium, 1978, p. 146-151).

Variables

The first hypothesis utilized the seven independent variables to study orientation to test the relationship to retention, the dependent variable. The hypothesis tested the research question: retained students will obtain significantly different SSHA-Form C scores from non-retained students.

The independent variable of the ACT Composite Score was compared to the dependent variable, retention. The hypothesis tested the research question: retained students will obtain significantly different ACT Composite Scores from non-retained students.

The third hypothesis compared the relationship of a study habits and attitudes measure, the SO score of the SSHA-Form C to a cognitive measure, the ACT-C of the American College Testing Program. The hypothesis tested the research question: There is no significant relationship between the SO score of the SSHA-Form C and the ACT-C of the American College Assessment Program for retained and non-retained students.

Intervening variables which were not controlled for were the student's age, race, religion, marital status, credit hours attempted, living situation on campus, or family income level (See Appendix B).

CHAPTER IV

ANALYSIS OF DATA

Data for the study were processed in three ways. Data from the Survey of Study Habits and Attitudes (Form C) were hand scored. Data from the American College Assessment Program were machine scored and made available by the American College Testing Service. Finally, computer analyses were run for the various scores collected for the students in the study.

The hand scoring of the SSHA (Form C) rendered four subscale scores: Delay Avoidance (DA), Work Methods (WM), Teacher Approval (TA) and Educational Acceptance (EA); two subscores: Study Habits (SH) and Study Attitudes (SA); one overall score: Study Orientation (SO). Raw score data were used in all computations of the SSHA (Form C). Composite scores from the American College Assessment Program (ACT-C) were derived from machine scoring and were provided by the American College Testing Service.

For computer analysis, each student was assigned a number coded by class year. Students entering the freshman class of 1978 were coded Alpha 001 to Alpha

181. Students entering the freshman class of 1979 were coded Beta 001 to Beta 179. Students identified as retained were coded Y, and students identified as non-retained were coded N. Score data were entered for each student as a data file in the Oklahoma State University IBM Computer System.

In the computational stage of data analysis, scores were summarized using the Statistical Package for the Social Sciences (SPSS). Data were grouped as retained and non-retained and summarized for SSHA (Form C) scores and ACT-C scores (See Appendix B).

Retained students were compared with non-retained students for each of the eight inventory measures using a student's t test. The student's t values for each measure, along with group means and standard deviations are presented in Tables 1 through 8.

Pearson product-moment correlations were then computed for the SO score and ACT-C score for retained students and for non-retained students. The r values for the two groups, along with group means and standard deviations are presented in Table 9.

TESTS OF THE HYPOTHESES

Three hypotheses were tested in this study. Each hypothesis was derived from a specific research question. Each hypothesis will be presented in Table

form with its research question and results of its tests.

H_1 There are no significant differences among any of the seven subscores of the SSHA-Form C for students identified as retained and non-retained.

This hypothesis was generated from the following research question: Are the seven subscores of the SSHA-Form C of retained students significantly different from the scores of non-retained students? The hypothesis was tested by comparing the mean of the retained sample with the mean of the non-retained sample on each of the seven subscores of the SSHA-Form C. The t test analyses demonstrated significant differences for all of the seven subscores.

Results of the two-tailed t tests indicate that there is a significant difference between DA scores ($t = 2.04$, $p = .042$), WM scores ($t = 2.19$, $p = .029$), TA scores, ($t = 2.36$, $p = .019$), EA scores, ($t = 2.13$, $p = .034$), SH scores, ($t = 2.29$, $p = .023$), SA scores, ($t = 2.40$, $p = .017$), SO scores, ($t = 2.52$, $p = .012$). These results indicate that the hypothesis should be rejected. The data are presented in Tables 1 - 7.

TABLE 1

DELAY AVOIDANCE

STUDENT'S t TEST BETWEEN SCORES

FOR RETAINED AND NON-RETAINED STUDENTS

GROUP	MEAN	STANDARD DEVIATION
RETAINED STUDENTS N = 313	21.59	9.93
NON-RETAINED STUDENTS N = 44	18.38	8.56

t value		p
2.04	∠	.05 *

* p = .042

TABLE 2

WORK METHODS

STUDENT'S t TEST BETWEEN SCORES

FOR RETAINED AND NON-RETAINED STUDENTS

GROUP	MEAN	STANDARD DEVIATION
RETAINED STUDENTS N = 313	24.30	9.72
NON-RETAINED STUDENTS N = 44	20.90	8.87

t value		p
2.19	∠	.05 *

* p = .029

TABLE 3

TEACHER APPROVAL

STUDENT'S *t* TEST BETWEEN SCORES

FOR RETAINED AND NON-RETAINED STUDENTS

GROUP	MEAN	STANDARD DEVIATION
RETAINED STUDENTS N = 313	30.39	8.74
NON-RETAINED STUDENTS N = 44	27.06	8.86

t value		*p*
2.36	∠	.05 *

* *p* = .019

TABLE 4

EDUCATIONAL ACCEPTANCE

STUDENT'S *t* TEST BETWEEN SCORES

FOR RETAINED AND NON-RETAINED STUDENTS

GROUP	MEAN	STANDARD DEVIATION
RETAINED STUDENTS N = 313	29.12	8.19
NON-RETAINED STUDENTS N = 44	26.36	7.07

t value		*p*
2.13	∠	.05 *

* *p* = .034

TABLE 5

STUDY HABITS

STUDENT'S *t* TEST BETWEEN SCORES

FOR RETAINED AND NON-RETAINED STUDENTS

GROUP	MEAN	STANDARD DEVIATION
RETAINED STUDENTS N = 313	45.90	18.18
NON-RETAINED STUDENTS N = 44	39.29	16.14

t value		*p*
2.29		.05 *

* *p* = .023

TABLE 6

STUDY ATTITUDES

STUDENT'S t TEST BETWEEN SCORES

FOR RETAINED AND NON-RETAINED STUDENTS

GROUP	MEAN	STANDARD DEVIATION
RETAINED STUDENTS N = 313	59.52	15.90
NON-RETAINED STUDENTS N = 44	53.43	14.78

t value	p
2.40	.05 *

* p = .017

TABLE 7

STUDY ORIENTATION

STUDENT'S *t* TEST BETWEEN SCORES

FOR RETAINED AND NON-RETAINED STUDENTS

GROUP	MEAN	STANDARD DEVIATION
RETAINED STUDENTS N = 313	105.42	31.70
NON-RETAINED STUDENTS N = 44	92.72	28.13

t value		*p*
2.52		.05 *

* *p* = .012

H_2 There are no significant differences between the ACT composite score (ACT-C) for the freshman students identified as retained and non-retained.

This hypothesis was derived from the following research question: Is the ACT-C of retained students significantly different from the score of non-retained students? The hypothesis was tested by comparing the mean of the retained sample on the ACT-C. The two-tailed *t* test analysis demonstrated significant differences between the ACT-C scores ($t = 2.91$, $p = .004$). These results indicate that the hypothesis should be rejected. The data are presented in Table 8.

TABLE 8

AMERICAN COLLEGE TEST

STUDENT'S *t* TEST BETWEEN SCORES

FOR RETAINED AND NON-RETAINED STUDENTS

GROUP	MEAN	STANDARD DEVIATION
RETAINED STUDENTS N = 313	18.34	5.56
NON-RETAINED STUDENTS N = 44	15.75	5.31

t value		*p*
2.91	<	.05 *

* *p* = .004

H_3 There are no significant differences between the Study Orientation Score (SO) of the SSHA-Form C and the Composite Score of the ACT (ACT-C) for those students identified as retained and non-retained.

This hypothesis was generated from the following research question: What is the relationship between the SO and the ACT-C for those students identified as retained and non-retained? The hypothesis was tested by correlational procedures using the Pearson product-moment coefficient to determine the strength of relationship between a measure of Study Orientation (SO) and a measure of achievement (ACT-C) for retained and non-retained samples.

Pearson product-moment correlation coefficients were determined for relationships between a measure of study orientation, the SO score of the SSHA (Form C) and a measure of achievement, the ACT-C score of the American College Assessment Program for both retained and non-retained students. Correlations for both groups were positive. For non-retained students the SO score and the ACT-C score were correlated at .56, which is significant. For retained students, a significant positive correlation of .38 was obtained.

The significance of r is determined by using a table to establish a confidence interval for the

population rho. If the obtained r is larger than the table value at the .05 level of significance and the table value at the .01 level of significance, then the null hypothesis is rejected at the .01 level of significance. If it falls between the two tables, the null hypothesis is rejected at the .05 level of significance (Downie and Heath, p. 226). The confidence interval for the non-retained student data was established between .30 to .39. The r of .38 is significant at the .05 level. The confidence interval for the retained students was established between .19 and .25. The r of .56 is significant at the .01 level. The null hypothesis should be rejected. Data are presented in Table 9.

TABLE 9

CORRELATIONS FOR STUDY ORIENTATION

AND ACT C SCORES FOR RETAINED STUDENTS

AND FOR NON-RETAINED STUDENTS

Variables	Group	Mean	St. Dev.	r
SO	NR	110.11	31.53	
				.56
ACT-C	NR	18.06	5.75	
Number of Cases = 44				

Variables	Group	Mean	St. Dev.	r
SO	R	102.97	31.47	
				.38
ACT-C	R	18.02	5.58	
Number of Cases = 313				

The correlation coefficient for the non-retained group is moderately high. For the retained group, it is moderately low.

SUMMARY OF DATA ANALYSIS

The analysis of data tested three hypotheses postulated by this study. All three hypotheses were rejected. Results of the data analyses indicate that there is a difference between the seven subscores of the SSHA-Form C for retained and non-retained students. A difference was found between the ACT-C for retained and non-retained students. A significant relationship between a measure of study orientation (SO) and a measure of achievement (ACT-C) was found for retained and non-retained students.

OTHER FINDINGS

Intervening variables which were not controlled for were the student's age, race, religion, marital status, credit hours attempted, living situation on campus, or family income levels. Data were collected for credit hours attempted, marital status, religion, and living situation on campus for the purpose of additional statistical research. Accurate information concerning the additional intervening variables mentioned was unavailable.

Four Chi-Square analyses were run to determine if the intervening variables of credit hours attempted, marital status, religion and/or living situation on campus had a significant effect upon retention. For

credit hours attempted, the obtained Chi-Square of 22.36 was significant at the .05 level. For the other variables tested, no significant differences were found. Due to cell size, the assumptions of Chi-Square could not be met. The evidence is insufficient to suggest that retention is or is not related to these remaining three variables. Chi-Square data are presented in Tables 10 - 13.

TABLE 10

CREDIT HOURS ATTEMPTED

CHI-SQUARE COMPARISONS OF DISTRIBUTIONS

FOR RETAINED AND NON-RETAINED STUDENTS

STATUS	0-9 hours	10-15 hours	16-20 hours
RETAINED	7	210	95
NON-RETAINED	6	35	3

df	x^2		p
2	22.36	$<$	5.991

One out of 6 (16.7%) of the valid cells have expected frequencies less than 5.

TABLE 11

MARITAL STATUS

CHI-SQUARE COMPARISONS OF DISTRIBUTIONS

FOR RETAINED AND NON-RETAINED STUDENTS

STATUS	SINGLE	MARRIED
RETAINED	309	3
NON-RETAINED	43	1

df	x^2	p
1	.00007	.9932

Two out of four (50%) of the valid cells have expected cell frequency less than 5.

TABLE 12

RELIGION

CHI-SQUARE COMPARISONS OF DISTRIBUTION

FOR RETAINED AND NON-RETAINED STUDENTS

STATUS	NAZARENE	NON-NAZARENE
RETAINED	254	32
NON-RETAINED	30	7

df	x^2	p
1	1.187	> .2758

One out of four (25%) of the valid cells have expected cell frequency less than 5.

TABLE 13

LIVING SITUATION ON CAMPUS

CHI-SQUARE COMPARISONS OF DISTRIBUTIONS

FOR RETAINED AND NON-RETAINED STUDENTS

STATUS	ON-CAMPUS	OFF-CAMPUS
RETAINED	291	21
NON-RETAINED	38	6

df	x^2	p
1	1.73	.1883

One out of four (25%) of the valid cells have expected frequency less than 5.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Isolating student retention characteristics has been the focus of official research and unofficial speculation. It has been thought that if the variables entering into a student's choice to withdraw from college could be identified, then efforts could be made to counsel students more appropriately. On-campus personnel could offer students identified as most likely to drop out of college a specialized counseling program. This program could assist students to identify their academic needs, and then systematically plan a method to meet those needs.

Admissions and recruitment personnel could also benefit from accurate retention information. During the recruitment process, students demonstrating an interest in attending college could be made more aware of other options available to the student. It would be better if recruitment personnel were making these options available to prospective students now. With national college drop-out rates

hovering at the 60 per cent level, it is obvious that many students are leaving baccalaureate degree granting institutions before completing their programs of study.

SUMMARY

This study was designed to investigate the effects of selected variables on student retention in higher education. The researcher attempted to determine if students identified as non-retained differed significantly from those identified as retained. It was expected that statistical examination of study orientation inventory scores would support the existence of differences between the two groups. It was also expected that statistical examination of a measure of academic achievement would support the existence of differences between the two groups.

A sample of 360 freshman students, male and female, were selected to participate in the study. Selection criteria required that all participants in the study submit ACT scores from the American College Testing Program and SSHA-Form C scores. As part of the new student orientation process, freshmen were administered the SSHA-Form C during the first week of the fall semester. Participants were members of the freshman classes of 1978 and 1979.

Data were analyzed in two levels. In the first level of data analysis, individual scores for the SSHA-Form C were scored by hand. Raw score categories were determined for each subject on DA, WM, EA, TA, SH, SA, and SO scales. The ACT-C score was provided by the American College Testing Service for each participant.

In the second level of data analysis, test and inventory scores were summarized utilizing the Statistical Package for the Social Sciences (SPSS). Data for retained students were compared with data for non-retained students. The two-tailed t tests demonstrated significant differences between the two groups on all of the eight measures tested. Data for retained students were grouped according to a measure of study orientation, SO of the SSHA-Form C, and a measure of achievement, ACT-C. A Pearson product-moment correlation coefficient demonstrated a significant relationship for retained students on these two measures. A similar significant correlation coefficient was found for the non-retained students on the same measures.

DISCUSSION AND CONCLUSIONS

Centering on the theoretical framework of adult learning theory, it was suggested that students

entering a collegiate environment would be surrounded by new and varied experiences. The student would be forced to adjust to these new demands. It was expected that this study would support the concept that students who complete their first year in college possess study habits, study attitudes and achievement levels significantly different from those students who do not complete their first year in college. Results of this study did support this expectation.

Several factors may be related to these findings. All students in the study were required to submit ACT scores for data analysis. In order to do this, each student must fill out an application for ACT testing, submit a testing fee, and participate in the testing at a time and place chosen by the American College Testing Service. Even though not tested in this study, it is reasonable to assume that the students taking the ACT were serious, college-bound students. Significant differences found in this study between the ACT-C scores earned by these two groups of students would reinforce the fact that achievement levels between retained and non-retained students are indeed different.

Three-hundred-sixty students representing two freshman classes numbering over 700 were found to be eligible to participate in the study. Voluntary

participation in the SSHA-Form C inventory was required of all students in the study. This inventory was administered during the new student orientation process. These 360 freshmen chose to participate in the new student orientation and testing process. Significant differences found in this study between the retained and non-retained groups on every score rendered from the SSHA-Form C would also reinforce the fact that measures of study habits and attitudes differ for students who stay in school. These findings are consistent with earlier investigations using the SSHA-Form C as a tool to identify high-risk students.

The expectation that measures of study orientation would be related to measures of achievement was supported in this study. This finding was not consistent with earlier research that suggests that the correlation between SSHA-Form C scores and measures of achievement are moderate to low.

RECOMMENDATIONS

There is a need for more investigation into the factors related to student retention in the college setting. Some specific areas of investigation suggested by this study that impact student retention are:

1. The participation by students in the ACT program serves as an influence in retention.
2. The participation by students in the SSHA-Form C inventory serves as an influence in retention.
3. The participation by students in the new student orientation process at the beginning of each Fall semester serves as an influence in retention.
4. The retention statistics of the freshman students outside of the study are unknown.

The rather startling fact that only 44 of 360 students who participated in this study failed to complete their freshman year leads to additional research questions. Are retention figures influenced for students who take the ACT and/or the SSHA-Form C? Are retention figures influenced by students who participate in a college-run orientation program? These possibilities should be examined more closely.

While this study's findings do not conclusively show that the SSHA-Form C can be used as a predictor for retention, further research areas remain open. The possibility that scores from this inventory could be used in advising new students remains open. Use of the SSHA-Form C in a test-retest study for freshmen and sophomores could offer additional research areas. Would a multiple regression analysis of the SSHA-Form C offer more accurate predictive data to assist in the identification of potential dropouts? The concept of utilizing the SSHA-Form C as a tool for further exploration and investigation into the area of retention needs more study.

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APPENDIX A

PLEASE NOTE:

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These consist of pages:

Survey of Study Habits and Attitudes (Appendix A Pages 85-87)

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APPENDIX B

	RAW DATA						CHI-SQUARE DATA			
ID NUMBER	DA	WM	TA	EA	ACT C	R	CRD. HRS.	MARITAL	HOUSING	RELIGION
A001	09	11	19	21	13	1	12	1	1	1
A002	18	15	15	13	08	2	6	1	2	1
A003	36	22	32	38	12	1	13	1	1	1
A004	39	36	36	34	17	2	6	1	1	1
A005	17	28	30	21	14	1	14	1	1	1
A006	03	09	23	20	12	1	15	1	1	1
A007	21	22	33	28	25	1	12	1	1	1
A008	18	17	35	22	13	1	18	1	1	1
A009	24	33	37	37	26	1	6	1	2	1
A010	25	27	43	38	20	1	17	1	1	1
A011	18	26	38	26	22	1	12	1	1	1
A012	26	23	29	34	25	1	15	1	1	1
A013	38	37	39	37	23	1	14	1	1	1
A014	22	29	36	26	19	2	15	1	1	1
A015	25	29	22	34	18	2	16	1	1	1
A016	20	34	36	31	25	1	19	1	1	1
A017	27	25	32	29	15	2	6	1	1	1
A018	15	17	23	22	08	1	8	1	1	0
A020	23	30	46	38	25	1	16	1	2	2
A023	28	35	47	41	21	1	16	1	1	1
A025	05	22	33	23	15	1	16	1	1	1
A026	17	16	26	24	24	2	15	1	1	1
A027	43	43	45	42	21	1	16	1	1	1
A028	22	24	36	32	19	1	17	1	1	1
A030	16	24	25	19	18	1	15	1	1	1
A033	41	41	44	40	21	1	16	1	1	1
A034	16	23	28	18	22	1	15	1	1	1
A035	28	23	25	29	27	1	17	1	1	1
A036	37	30	33	38	20	2	13	1	1	1
A036	24	42	35	33	17	1	12	1	1	1

	RAW DATA						CHI-SQUARE DATA			
ID NUMBER	DA	WM	TA	EA	ACT C	R	CRD. HRS.	MARITAL	HOUSING	RELIGION
A038	23	22	21	23	15	1	15	1	1	1
A039	23	39	40	45	25	1	16	1	1	1
A040	25	17	28	33	21	1	15	1	1	1
A041	10	19	36	29	18	1	17	1	1	1
A042	15	10	35	23	10	2	12	1	1	1
A043	05	16	37	31	15	1	12	1	2	1
A044	40	39	34	34	26	1	13	1	1	1
A045	49	45	42	45	24	1	16	1	1	1
A046	20	20	33	33	23	1	16	1	1	0
A047	17	29	23	24	19	1	15	1	1	1
A048	30	45	40	47	23	1	16	1	1	1
A049	14	21	23	21	14	1	15	1	2	1
A050	06	07	06	14	09	2	12	1	1	0
A051	28	18	17	22	06	1	17	1	1	1
A052	11	16	20	18	11	1	15	1	2	2
A054	30	23	36	32	20	1	14	2	2	1
A055	18	30	38	35	23	1	13	1	1	0
A056	30	24	39	41	17	1	14	1	1	1
A057	35	27	35	38	07	1	16	1	1	1
A058	22	19	38	35	12	1	17	1	1	1
A059	08	09	21	19	11	1	11	1	1	0
A060	45	39	44	37	13	1	15	1	1	1
A061	20	09	28	19	10	1	15	1	1	0
A062	37	41	31	29	12	1	16	1	1	1
A063	22	32	44	41	23	1	14	1	1	1
A064	11	14	15	15	08	1	12	1	1	1
A065	20	41	30	35	24	1	15	1	1	1
A066	11	06	10	15	14	1	15	1	1	1
A067	09	08	07	13	19	1	15	1	1	1
A068	29	34	35	35	29	1	16	1	1	1

	RAW DATA						CHI-SQUARE DATA			
ID NUMBER	DA	WM	TA	EA	ACT C	R	CRD. HRS.	MARITAL	HOUSING	RELIGION
A069	22	21	37	36	21	1	14	1	1	1
A070	18	23	36	42	12	1	0	1	1	1
A071	22	27	33	28	21	1	16	1	1	1
A072	26	17	16	24	11	1	16	1	1	1
A074	08	09	22	13	09	1	18	1	1	1
A075	33	28	39	35	18	1	14	1	1	1
A076	16	15	20	23	19	1	14	1	1	1
A077	29	36	26	32	20	1	14	1	1	1
A078	30	31	37	41	25	1	18	1	1	1
A079	10	12	21	18	12	1	15	1	1	1
A080	07	15	20	15	18	1	12	1	1	0
A081	15	26	19	19	17	1	0	1	1	1
A084	17	29	34	30	20	1	16	1	1	1
A085	28	25	29	32	22	1	9	1	1	2
A086	23	14	22	29	15	1	12	1	1	0
A087	19	24	12	15	12	1	17	1	1	0
A088	07	17	27	22	16	1	16	1	1	1
A089	30	25	32	30	26	1	13	1	1	1
A090	28	22	30	32	13	1	14	1	1	0
A091	07	31	27	28	26	2	3	1	2	1
A092	22	34	35	36	17	1	15	1	1	1
A093	30	20	32	33	09	1	17	1	1	1
A094	03	06	25	12	16	1	12	1	1	0
A095	19	34	32	33	23	1	16	1	1	1
A096	08	08	18	18	13	1	18	1	1	1
A097	18	19	35	38	21	1	16	1	1	1
A098	08	08	09	16	18	1	15	1	1	1
A100	22	30	34	31	13	2	14	1	1	1
A101	17	22	34	24	19	1	19	1	1	1
A102	35	34	31	35	15	1	14	1	1	1

	RAW DATA						CHI-SQUARE DATA			
ID NUMBER	DA	WM	TA	EA	ACT C	R	CRD. HRS.	MARITAL	HOUSING	RELIGION
A103	16	18	19	18	15	1	14	1	1	0
A104	26	10	15	18	21	1	14	1	1	2
A105	27	36	36	43	25	1	17	1	1	0
A106	27	29	27	22	22	1	16	1	1	1
A107	34	45	34	38	17	1	15	1	1	1
A108	0	05	16	08	15	1	14	1	1	1
A109	26	18	33	31	07	1	12	1	1	1
A110	31	32	40	29	16	1	15	1	1	1
A111	12	24	37	28	18	1	20	1	1	1
A112	24	35	39	34	15	1	15	1	1	1
A113	06	12	09	16	17	1	13	1	1	1
A114	42	38	37	40	11	1	14	1	1	2
A115	09	10	19	28	14	2	15	1	1	1
A116	07	08	26	15	19	2	3	1	2	1
A117	22	26	36	31	18	1	19	1	1	1
A118	26	32	28	30	19	1	14	1	1	1
A119	39	44	44	41	18	1	13	1	1	1
A120	19	16	24	28	09	2	15	1	1	0
A121	05	05	23	13	19	1	18	1	1	1
A122	25	37	38	21	22	1	14	1	1	1
A123	42	28	23	36	28	1	16	1	2	1
A125	12	22	22	15	09	1	13	1	1	1
A126	27	27	30	33	18	1	18	1	1	1
A127	31	34	35	36	23	1	15	1	1	1
A130	21	38	23	28	25	1	13	1	1	1
A131	26	28	19	18	11	1	12	1	1	1
A132	21	37	25	24	22	1	13	1	1	1
A133	31	28	40	28	12	2	12	1	1	0
A134	16	18	24	35	21	1	17	1	1	1
A135	29	35	47	33	20	1	17	1	1	1

	RAW DATA					CHI-SQUARE DATA				
ID NUMBER	DA	WM	TA	EA	ACT C	R	CRD. HRS.	MARITAL	HOUSING	RELIGION
A136	10	16	30	21	16	1	13	1	1	0
A137	13	18	26	24	15	1	14	1	1	0
A138	35	35	35	39	27	1	17	1	1	0
A139	22	28	30	37	15	1	15	1	1	1
A140	12	12	24	27	12	1	15	1	1	1
A141	13	31	33	25	15	1	12	1	1	1
A142	17	23	17	29	09	1	13	1	1	1
A143	34	45	44	36	21	1	13	1	1	1
A144	12	12	27	23	13	2	15	1	1	2
A145	21	25	34	38	14	1	15	1	1	1
A147	22	30	25	29	17	2	13	1	1	1
A148	32	34	34	35	27	1	15	1	1	2
A149	14	28	39	32	19	1	12	1	1	1
A150	39	38	43	41	19	1	17	1	1	0
A151	08	20	36	36	17	1	16	1	1	1
A153	17	13	27	27	15	2	13	1	1	0
A154	28	22	37	37	13	1	15	1	1	1
A157	16	13	27	30	14	1	12	1	1	1
A158	20	16	36	31	11	1	12	1	1	1
A159	16	28	29	27	12	1	15	1	1	1
A160	19	24	22	27	16	1	14	1	1	1
A161	17	18	23	21	12	1	14	1	1	1
A162	32	21	39	38	18	1	16	1	1	1
A163	40	40	39	38	21	1	15	1	1	1
A164	36	45	43	38	24	1	15	1	1	1
A167	15	13	32	38	20	1	16	1	1	1
A168	30	19	34	32	13	1	14	1	1	1
A169	19	17	08	17	10	1	13	1	1	1
A170	35	36	38	39	27	2	12	1	1	1
A171	21	26	26	34	13	1	18	1	1	1

	RAW DATA					CHI-SQUARE DATA				
ID NUMBER	DA	WM	TA	EA	ACT C	R	CRD. HRS.	MARITAL	HOUSING	RELIGION
A171	21	26	26	34	13	1	18	1	1	1
A175	39	40	30	36	15	1	12	1	1	0
A173	23	33	22	31	23	1	19	1	2	1
A174	21	21	11	20	24	1	16	1	1	1
A175	21	26	27	21	27	1	15	1	1	1
A176	23	30	40	39	26	1	16	1	1	1
A177	14	12	34	22	15	1	14	1	1	1
A178	07	23	26	29	20	1	15	1	1	2
A179	32	24	39	38	22	1	14	1	1	0
A180	11	15	19	19	13	2	15	1	1	1
A181	26	24	34	29	16	1	17	1	1	1
A182	19	35	33	32	24	1	16	1	1	0
A183	27	26	25	26	14	1	16	1	1	1
A184	24	31	27	34	26	1	15	1	1	1
A185	14	25	19	36	22	1	15	1	1	0
A186	18	31	32	30	22	1	19	1	1	1
A187	38	32	28	33	19	1	17	1	1	1
A189	26	25	29	32	20	1	14	1	1	0
A190	22	34	32	34	21	1	15	1	1	1
A191	19	25	23	31	10	1	12	1	1	1
A192	42	41	45	40	16	1	16	1	1	1
A193	16	17	31	28	10	1	13	1	1	2
A194	25	22	35	36	23	1	15	1	1	1
A195	06	09	17	21	20	1	15	1	1	1
A196	36	38	29	28	22	2	13	1	1	2
A197	21	36	36	36	26	1	19	1	1	2
A198	39	36	26	36	09	1	09	1	2	1
A199	23	26	38	23	18	1	14	1	1	1
A201	18	21	16	17	25	1	17	1	1	1
A202	24	36	33	40	29	1	15	1	1	1

	RAW DATA						CHI-SQUARE DATA			
ID NUMBER	DA	WM	TA	EA	ACT C	R	CRD. HRS.	MARITAL	HOUSING	RELIGION
B001	31	21	34	34	15	1	12	1	1	1
B002	16	32	27	22	25	1	17	1	1	1
B004	16	30	14	21	22	1	14	1	1	1
B005	15	9	20	15	12	1	12	1	1	1
B006	27	32	31	36	19	1	16	1	1	1
B007	13	9	22	21	19	1	15	1	1	1
B008	1	17	28	14	21	1	15	1	1	1
B009	11	25	30	34	16	1	18	1	1	1
B010	31	28	59	34	16	1	13	1	2	2
B012	17	26	27	24	16	2	14	1	1	1
B013	20	33	27	33	21	1	13	1	1	1
B014	19	22	31	25	23	1	15	1	1	1
B015	13	13	32	22	21	1	13	1	1	1
B016	32	24	31	34	20	2	13	1	1	1
B017	30	39	43	44	19	1	16	1	1	1
B019	25	24	22	27	17	1	13	1	1	1
B021	22	23	34	29	16	1	12	1	2	1
B022	24	37	29	35	12	1	13	1	1	1
B024	14	12	41	35	9	1	15	1	1	1
B025	25	19	42	33	18	1	16	2	2	1
B027	12	12	30	22	13	1	13	1	1	1
B028	22	24	30	30	10	1	14	1	1	1
B029	10	16	32	26	24	1	15	1	1	1
B030	24	25	33	39	22	1	16	1	1	1
B031	30	29	25	25	23	1	15	1	1	1
B032	12	18	20	17	18	1	13	1	1	1
B034	23	24	31	25	16	1	9	1	1	1
B035	20	23	27	26	21	1	19	1	1	1
B037	8	23	25	28	24	1	15	1	1	1
B038	10	13	15	19	17	1	14	1	1	1

	RAW DATA						CHI-SQUARE DATA			
ID NUMBER	DA	WM	TA	EA	ACT C	R	CRD. HRS.	MARITAL	HOUSING	RELIGION
B039	21	15	23	19	25	1	15	1	1	1
B042	12	10	24	27	29	1	15	1	1	1
B043	7	12	31	29	17	1	12	1	1	1
B045	22	31	38	39	24	1	14	1	1	1
B046	7	11	29	24	23	1	15	1	1	1
B047	35	39	43	40	28	1	15	1	1	1
B049	8	18	22	29	12	1	12	1	1	1
B050	16	8	23	25	16	2	12	1	1	1
B053	40	39	42	39	24	1	15	1	2	1
B055	19	28	44	34	20	1	15	1	1	1
B056	28	35	33	31	29	1	16	1	1	1
B058	17	26	33	31	20	1	15	1	1	1
B059	18	25	28	24	20	1	15	1	1	1
B060	11	12	11	16	12	2	15	1	2	1
B062	25	11	34	34	14	1	15	1	1	1
B063	22	15	34	37	23	1	14	1	1	1
B064	13	9	28	27	23	1	15	1	1	1
B066	7	21	22	31	22	1	15	1	1	1
B068	17	24	19	18	20	1	13	1	1	1
B069	10	16	22	17	23	1	13	1	1	1
B070	21	15	27	31	26	1	15	1	1	1
B071	27	29	32	38	17	1	18	1	1	1
B072	49	50	49	49	31	1	16	1	2	2
B073	12	20	42	32	29	1	16	1	1	1
B074	18	30	34	35	23	1	13	1	1	1
B075	4	9	13	16	9	1	12	1	1	1
B076	24	26	46	39	23	1	15	1	1	1
B077	45	28	40	41	18	1	15	1	1	1
B078	8	5	30	24	22	1	13	1	1	1
B079	8	11	28	23	15	1	15	1	1	1

	RAW DATA						CHI-SQUARE DATA			
ID NUMBER	DA	WM	TA	EA	ACT C	R	CRD. HRS.	MARITAL	HOUSING	RELIGION
B080	23	24	35	32	16	1	13	1	1	1
B083	33	33	45	41	25	1	15	1	1	1
B084	14	21	34	33	16	1	13	1	1	1
B085	23	21	28	26	18	1	18	1	1	1
B086	33	41	42	39	23	1	14	1	1	1
B087	22	36	45	35	23	1	15	1	2	1
B088	23	17	33	26	11	1	15	1	1	1
B089	16	15	26	19	23	1	10	1	1	1
B090	12	13	10	15	14	1	15	1	1	1
B092	10	15	24	26	17	2	10	1	1	1
B093	17	31	19	17	24	1	14	1	1	1
B094	8	25	39	26	23	1	12	1	1	1
B095	20	16	27	25	11	1	15	1	1	1
B096	24	37	33	27	23	1	15	1	1	1
B097	33	29	32	36	19	1	14	1	1	1
B098	37	28	43	37	17	1	15	1	1	1
B099	26	33	40	40	20	2	16	1	1	2
B100	28	21	35	32	11	1	13	1	1	1
B101	11	12	19	14	10	2	13	1	1	1
B102	16	10	26	12	8	1	12	1	1	1
B103	17	35	22	24	24	1	16	1	1	1
B104	16	15	29	23	28	1	15	1	1	1
B107	8	18	19	18	20	2	12	1	1	1
B108	34	39	41	32	13	1	14	1	2	2
B109	18	19	36	32	23	1	16	1	1	1
B110	18	23	37	39	15	1	18	1	1	1
B111	28	21	26	33	18	1	16	1	2	1
B112	24	28	21	30	33	1	15	1	1	1
B113	24	32	35	32	26	1	17	1	1	1
B114	9	11	19	22	9	1	16	1	1	1

	RAW DATA						CHI-SQUARE DATA			
ID NUMBER	DA	WM	TA	EA	ACT C	R	CRD. HRS.	MARITAL	HOUSING	RELIGION
B115	47	46	46	44	28	1	14	1	1	1
B116	17	13	32	26	19	1	12	1	1	2
B117	21	28	41	33	26	2	14	1	1	1
B118	9	17	15	23	20	1	16	1	1	1
B119	38	35	41	37	26	1	15	1	1	1
B121	30	24	42	35	18	1	16	1	1	1
B122	16	32	32	38	20	1	12	1	1	1
B123	32	19	31	32	13	1	12	1	1	1
B124	39	14	29	28	11	1	15	1	2	2
B125	27	25	37	34	8	2	14	1	1	1
B126	17	28	18	25	26	2	15	1	1	1
B127	10	16	36	33	19	1	13	1	1	1
B128	20	22	41	27	14	1	13	1	1	1
B129	28	23	32	29	25	1	15	1	1	2
B131	26	24	45	31	19	1	14	1	1	1
B132	15	28	33	33	17	2	13	2	2	2
B133	31	40	33	36	30	1	14	1	1	1
B134	12	10	32	19	12	1	16	1	1	1
B135	30	28	31	28	26	1	15	1	1	1
B136	25	23	36	30	22	1	17	1	1	1
B138	13	15	21	25	12	1	15	1	1	1
B139	22	20	23	25	15	1	16	1	1	1
B140	3	3	5	11	16	1	16	1	1	1
B141	25	30	42	33	26	1	15	1	1	2
B142	29	22	33	34	10	1	10	1	1	1
B143	24	30	28	34	16	1	15	1	1	1
B146	27	25	31	29	20	1	16	1	1	2
B147	9	14	27	25	10	1	16	1	1	1
B148	16	30	38	26	23	1	14	1	1	1
B149	22	32	33	24	23	1	14	1	1	2

	RAW DATA						CHI-SQUARE DATA			
ID NUMBER	DA	WM	TA	EA	ACT C	R	CRD. HRS.	MARITAL	HOUSING	RELIGION
B150	9	33	26	24	21	1	9	1	1	1
B151	14	15	22	15	15	1	15	1	1	2
B152	28	30	43	38	14	1	12	1	1	1
B153	12	15	30	30	14	2	15	1	1	1
B156	27	22	32	29	18	1	11	1	1	2
B157	10	8	17	20	8	1	12	2	2	2
B158	19	13	30	32	7	1	19	1	1	1
B159	30	31	40	32	29	1	16	1	1	1
B160	7	13	20	29	15	1	15	1	1	1
B161	37	40	40	37	16	1	15	1	1	1
B163	32	21	36	35	16	1	12	1	1	1
B164	24	14	19	14	13	1	15	1	1	1
B165	6	18	27	23	13	1	12	1	1	1
B166	20	16	34	31	13	1	12	1	1	1
B170	34	31	41	38	30	1	17	1	1	1
B171	12	25	22	19	10	1	12	1	1	1
B172	16	5	32	30	11	2	12	1	1	2
B173	17	15	15	25	13	1	12	1	1	1
B175	15	22	34	30	18	1	18	1	1	2
B176	30	35	25	35	26	1	15	1	1	1
B177	14	21	35	19	26	1	15	1	1	1
B178	17	22	34	26	9	2	11	1	2	1
B179	16	16	19	15	13	2	14	1	1	1
B180	4	7	11	14	13	1	13	1	1	2
B184	23	26	27	28	10	1	16	1	1	1
B185	39	37	42	43	12	1	13	1	1	1
B186	11	17	32	26	17	1	16	1	1	1
B187	20	11	21	26	10	1	14	1	1	1
B188	7	10	14	14	9	2	7	1	1	1
B189	8	14	18	14	16	1	12	1	1	2

	RAW DATA						CHI-SQUARE DATA			
ID NUMBER	DA	WM	TA	EA	ACT C	R	CRD. HRS.	MARITAL	HOUSING	RELIGION
B190	4	8	4	6	13	1	9	1	1	2
B191	9	11	22	19	12	1	15	1	1	1
B192	6	8	34	15	10	1	15	1	1	2
B193	14	19	24	18	10	1	12	1	1	1
B194	22	27	31	32	17	1	13	1	2	2
B195	24	26	28	31	16	1	15	1	1	2
B196	17	30	33	16	13	1	14	1	1	2
B197	13	22	22	20	18	1	13	1	1	1
B198	16	22	39	33	16	2	12	1	1	2
B199	36	38	37	34	29	1	16	1	1	1
B200	19	17	35	25	11	1	15	1	1	1
B201	14	16	22	24	15	1	15	1	1	1
B202	23	38	32	33	24	1	17	1	1	2
B203	29	22	33	30	13	1	15	1	1	1
B204	40	37	46	43	28	1	15	1	1	1
B205	26	24	42	36	20	1	15	1	1	1
B206	23	14	19	29	13	1	13	1	1	1
B207	20	28	39	32	26	1	15	1	1	2
B208	25	27	25	27	12	1	15	1	1	1
B209	26	24	30	32	23	1	15	1	1	1
B210	33	35	31	31	27	2	15	1	1	2
B211	33	35	33	40	17	1	16	1	1	1
B212	24	30	32	36	17	1	16	1	1	1
B213	11	29	34	30	18	1	15	1	1	2
B214	35	33	38	34	17	1	16	1	1	1
B215	20	20	27	22	22	1	16	1	1	1
B216	36	33	43	38	23	1	15	1	1	1
B218	12	16	14	19	15	2	13	1	1	1
B219	22	26	36	30	2	2	12	1	1	1

LEGEND

APPENDIX B

ID Number	=	Student Identification Number
		A = 1978 Freshmen B = 1979 Freshmen
DA	=	Delay Avoidance Score
WM	=	Work Methods Score
EA	=	Educational Acceptance Score
TA	=	Teacher Approval Score
ACT-C	=	ACT Composite Score
R	=	Retained = 1; Non-Retained = 2
CR. HR.	=	Credit Hours Attempted
M	=	Marital Status: Single = 1 Married = 2
		Unknown = 0
H	=	Housing: Dorm = 1; Off-Campus = 2
R	=	Religion: Nazarene = 1; Non-Nazarene = 2
		Unknown = 0