AN INVESTIGATION OF SELECTED NON-INTELLECTUAL VARIABLES AND THEIR RELATIONSHIP TO COLLEGE ACADEMIC ACHIEVEMENT

Thesis for the Degree of Ph. D.
MICHIGAN STATE UNIVERSITY
MARY ELIZABETH McCLELLAND
1969

This is to certify that the

thesis entitled

AN INVESTIGATION
OF SELECTED NON-INTELLECTUAL VARIABLES
AND THEIR RELATIONSHIP
TO COLLEGE ACADEMIC ACHIEVEMENT

presented by

Mary Elizabeth McClelland

has been accepted towards fulfillment
of the requirements for

Ph. D. degree in Education

Walter F. Johnson
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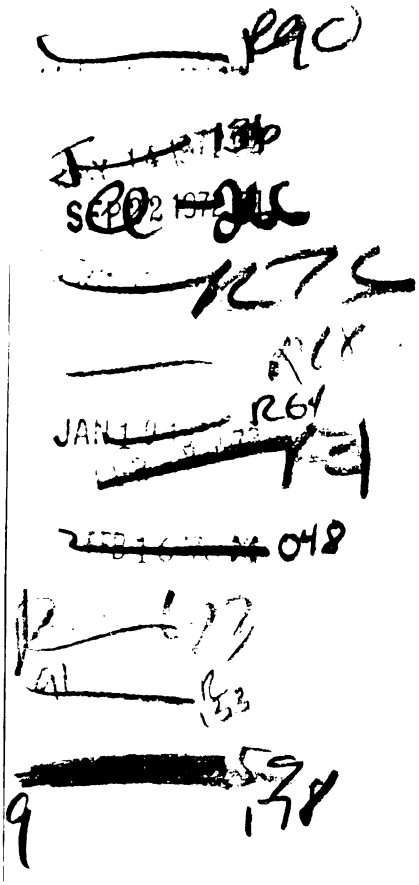
Date May 1, 1969

O-169



ABSTRACT

AN INVESTIGATION
OF SELECTED NON-INTELLECTUAL VARIABLES
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by

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It was the purpose of this study to investigate selected non-intellectual variables and their relationship to college academic achievement. The study was conducted at Tri-State College, Angola, Indiana, with a sample of 233 United States born freshmen male subjects. The sample was confined to freshmen who enrolled in college for the first time in the Fall, 1966, and declared their major in Engineering or Business.

The criterion of academic achievement was the cumulative grade point average of the three consecutive terms during the freshmen year of college.

The design of the study utilized The Edwards Personal Preference Schedule to measure fifteen independent normal personality variables, the Study of Values was administered to determine the basic interests and motivation of the subjects, the socio-economic background of the subjects was analyzed and a structured interview was conducted with each subject in the sample in an attempt to determine his commitment to a goal.

Multiple correlations were derived to determine which variables would emerge as contributors to any increment in prediction of college academic achievement. The statistical analysis revealed that the variable,

Exhibitionism, as measured by the E.P.P.S. differentiated between the academically successful and unsuccessful subject. The academically unsuccessful student scored significantly higher on the variable, Exhibitionism ($t = 2.08$, $p.05$).

Comparisons of the academic achievement and the responses to the Study of Values test yielded no significant differences.

The socio-economic variables provided significant differences in the variables; number of children, amount of education of the mother and degrees held by the mother. The subjects who had assumed a parental role were academically more successful ($t = 1.74$, $p.05$). The amount of education and degrees held by the mother of the academically unsuccessful subject was significantly greater than that of the successful subject ($t = 1.88$, $p.05$; $t = 1.87$, $p.05$).

The X^2 analysis relative to commitment to a goal revealed no significant difference. The subjective interviews, however, provided insight into the underlying motivation and attitude toward the future goals and academic achievement of the subjects in the study.

Appropriate to the prediction of academic achievement at Tri-State College, the study submitted twelve non-intellective variables that would increase reliability from the base of .30 to .56. The inclusion of the selected variables to the rank in high school and the S.C.A.T. total would allow a greater predictive value for the entering freshman in the field of Engineering.

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by

Mary Elizabeth McClelland

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Doctor of Philosophy

School of Education

1969

ACKNOWLEDGEMENTS

Most deeply I am indebted to Dr. Walter Johnson, my advisor, for his suggestions, patience and guidance during this thesis work. Also, I wish to express my appreciation to the other members of my committee, Dr. Willa Norris, Dr. Vandel Johnson and Dr. Orden Smucker for their helpful suggestions and criticisms.

I am further grateful to the faculty, staff and students at Tri-State College, Angola Indiana, who made this study possible by their cooperation and assistance.

I wish to acknowledge my deepest appreciation to my mother and my brother who unfailingly gave me support and encouragement and without whom this thesis would not have been possible.

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CHAPTER I

INTRODUCTION

The trend in recent research studies on college academic achievement appears to be on the investigation of nonintellective variables as important factors in predicting academic achievement. Significant findings have indicated that intellective measures account for 35 to 45 percent of the variation in academic performance. While no other single factor accounts for this much variation, more than half still remains unexplained.

Bloom and Peters (8) have stated in their publication (1961) that although high school grades have been shown to be the best single evidence from which to predict college achievement, it does not alter the fact that the level and precision of predictions from grades have remained consistently low. Feder (14) has stressed that there is ample evidence that college grades are affected by nonintellective factors and that research is needed in this area.

Previous research findings may be substantiated at Tri-State College. Tri-State College is a small, private, predominantly male college granting degrees in Engineering or Business. A comparison made in 1965 of the mean School and College Ability Test (S.C.A.T.) percentile scores made by freshmen students who were dismissed during their freshman year due to inability to achieve scholastically and the mean percentile score of the total freshmen population revealed no significant difference in potential ability.

The faculty and administration at Tri-State College are concerned as to why the student with potential ability is unable to satisfactorily meet the academic requirements. Questions which have remained unanswered are:

Is the environment of the college favorable for the students possessing certain psychological characteristics and values?

Is the socio-economic status of the student reflected in his academic achievement?

Is it essential for the student at Tri-State College to have a commitment to a specific goal?

According to Lavin, (29) recent research investigating academic achievement has assumed a multivariate approach. Attention has been directed toward the measurement of a larger number of variables and the assessment of their interrelations and the dimensions of personality which are independently related to academic achievement.

It seems appropriate to analyze selected nonintellective variables and their relationship to academic achievement in an attempt to contribute further information on the academic achievement of college students. The significance of the study exists in the utilization of a multivariate approach with a sample of freshmen students enrolled in a highly specialized college where the apparent socio-economic background and interests of the students are relatively homogeneous.

Statement of the Problem

The purpose of the study is to examine selected sociological and psychological factors and their interactions that may have an impact on the academic achievement of freshmen students at Tri-State College.

More specifically, an attempt has been made to analyze the relationship of personality characteristics, values, the socio-economic background, and the declared commitment to a goal of freshmen male students at Tri-State College to their academic achievement during their first year of college work.

Importance of the Study

This study provides an analysis of data which may add information to the relevance of the use of nonintellective factors in admission policies and the counseling of college students.

It may also provide Tri-State College and colleges having similar professional emphasis with a concept of the motivating factors which may be essential for the successful academic achievement of their students.

The study also opens possible avenues for further extensive research in the area of psychological needs of a specific student population. It may provide information relative to values and socio-economic background of a comparatively homogeneous student body and the desirability of early commitment to a major.

Hypothesis

The research hypothesis supported by the investigator is that a significant relationship exists between the psychological characteristics, the values and socio-economic background and the commitment to a major of the freshman college student and his academic achievement during his first year in college.

Assumptions

The following assumptions have been made by the investigator:

Psychological characteristics as measured by the Edwards Personal Preference Schedule are related to academic achievement.

Values as measured by the Study of Values are related to academic achievement.

Socio-economic background is a determinent of academic achievement.

The commitment to a specific career goal is related to academic achievement.

Plan of the Study

The introductory chapter includes the need for the study, the statement of the problem, the importance of the study, the research hypothesis and assumptions.

A review of related research is presented in the second chapter followed by a design of the study in chapter three and an analysis of data is in chapter four. The fifth chapter contains a summary of the study, the conclusions and recommendations of the investigator based upon the results of the study.

CHAPTER II

REVIEW OF RELATED RESEARCH

A review of related research provides numerous studies in the area of college academic achievement. In an attempt to improve on college admission policies and in the counseling of college students, considerable emphasis has been placed on the use of intellective factors as predictors of academic performance.

The major emphasis of research in college academic achievement has been the use of achievement test scores, high school grades and high school rank. Representative of the research reported using achievement test scores is the study of Frederickson and Schrader (16) who found that the correlation of the American Council on Education, Psychological Examination, with freshman year college grades ranged from .28 to .61 in homogeneous groups of male college freshmen in twelve colleges. Supporting research also indicates that the correlations average about .50, (38) (41) with a range of .30 to .70.

Of all the measures used in predicting college academic achievement, the one that consistently emerges as the best single predictor is the high school rank. Swenson (46) found that students in the upper two-fifths of their graduating class in high school received significantly higher grades at the end of the first semester of college than students who graduated in the lower three-fifths of their high school class, even though these two groups did not differ on a standard aptitude test.

It appears from a review of recent research that intellective predictors have reached a plateau in forecasting scholastic success in college and that significant findings are being discovered through the use of non-intellective instruments.

It is only within recent years that an attempt has been made to measure personality characteristics and their relationship to academic achievement. Various psychoneurotic and personality inventories, such as the Bernreuter, (39) (47) the Bell Adjustment Inventory, (2) the Minnesota Multiphasic Personality Inventory, (21) (44) and the Downey Will-Temperament Test (42) are examples of instruments used in studies that have investigated the relationship of personality characteristics to academic achievement. Recent studies have made use of the Rorschach, (32) the TAT and Q sorts (15) (31) projective tests.

One of the most thorough and successful studies of personality in relation to academic achievement is that of Gough (19) who developed a 36 item true-false test which correlated from .36 to .58 with grades of students in eight introductory psychology classes.

Apparent in the studies reviewed is that one possible reason for the lack of success of personality test studies, may be that the social desirability values of the items are not controlled. Di Vesta, Woodruff, and Hertel, (12) for example, developed an Orientation Inventory designed to obtain opinion of entering students toward college. Although the questions of this scale should be related to academic achievement, they are also highly loaded with social desirability items and it was possible for the student to obtain a favorable score by answering each question in the socially approved direction.

The Edwards Personal Preference Schedule (EPPS) (13) was developed with the intention of minimizing a subject's tendency to endorse items of a socially desirable nature. The test is composed of 225 pairs of items; each pair is matched on the basis of social desirability scale value, and each item in the pair represents a different need, as derived from Murray's (13) need system. The subject is asked to select the item in each pair with which he is most in agreement. Fifteen scores are obtained on the test representing such normal personality needs as achievement, order, succorance, dominance and aggression. A score is also obtained on consistency of the subject in responding to the items by comparing answers on fifteen pairs repeated throughout the test.

Bendig, (4) investigating the EPPS in relation to success in a course in beginning psychology, discovered that those students obtaining the best grades in the course were those with high achievement and low deference scores on the EPPS. Klett (26) found significant positive correlations between IQ and the following EPPS variables: achievement, exhibitionism, autonomy, dominance, and consistency score. From these findings, it would seem reasonable to suppose that some of the EPPS variables would also be significantly related to achievement as measured by grade point average, and might prove useful included in a predictive battery.

Most of the predictive studies using the Edwards Personal Preference Schedule (13) on college level students have been concerned with single personality variables. Of the four recent studies using the multivariate approach, one study by Demos and Spolyar (11) found no significant differences between different achievement groups within different ability levels. The other three studies showed significant findings. Krug (28) stated that overachievers were higher on needs for affiliation and heterosexuality.

Merrill and Murphy (34) reported that low-ability students whose school performance was adequate were higher on needs for deference, endurance, and dominance, but lower on autonomy, exhibitionism, and affiliation, as compared with low-ability students who were failing. A third study conducted by Gebhart and Hoyt (18) found that overachieving male freshmen were higher than underachievers on the needs for achievement, order, intraception, and change. The findings from these three studies suggest that overachievers are higher on need for achievement, order and endurance and lower on need for affiliation.

One possible general interpretation of the present findings is that personality factors are most important in determining the academic achievement of the average ability college male. Intellectual factors are less predictive of success when used in determining the success or failure of the average ability student.

Another variable that has been hypothesized as relevant to academic achievement is that of socio-economic status (SES).

Lavin (30) provides the following observation:

> Sociological variables are related to academic performance because they symbolize certain uniformities of personality. That is, positions in the social structure such as socio-economic status and sex tend to produce certain similarities in personality among the occupants of these positions. Some of these personality characteristics are, in turn, related to academic achievement.

According to Crowley, (10) Mitchell, (35) and Noll, (37) persons of different economic status face different kinds of life situations, and in adapting to them, they may develop different sets of values and life styles. Studies supporting the thesis that variations in social class are associated with variations in academic achievement have been made by Knief and Stroud (27) and Friedhoff. (17)

The findings of Strodtbeck (45) suggest that the use of achievement values and achievement motivation together may increase the efficiency of predicting academic performance.

A review of recent research indicates that the majority of studies report that socio-economic status is directly related to academic performance.

The higher one's social status, the higher his level of performance. These findings are supported at all educational levels.

The research presented has been primarily limited to public institutions where the upper social class segment has not been adequately sampled. There appears to be some evidence that the upper social class need only to maintain their status level and the academic record they achieve is not as important due to their personality and value differences.

Contrary evidence to the majority of studies reviewed exists in a study by Jones (25) who reported a very low positive correlation was found between socio-economic status and quality point average in the subjects studied at the University of Alabama. He found the lower 10 percent of the population in the variable of socio-economic status was found to be above the mean of the group in the criterion of quality point average. Staton (43) also stated that in his study of freshmen at the University of Oklahoma, he did not find the occupation of the parent to be significantly related to academic success in college. The findings by Jones (25) and Staton (43) may be due to the selection of their sample and motivational drives of the subjects.

The studies reviewed on high school size were inconsistent in the findings. Hoyt (23) found that graduates of smaller high schools tend to receive lower grades in college, even though they were not lower in intelligence. Altman (2) found the size of high school to be unrelated to

college performance. Consideration should be given in the results of these studies to the increase in consolidation of high school in the rural areas.

According to Bernstein, (6) family size is inversely related to academic performance; the larger the number of siblings, the lower the level of school achievement. Hunt (24) suggests that the correlation between family size and intelligence holds within all occupational levels except at the extreme upper level. He maintains that family size is independently related to both intelligence and academic performance. Bernstein (7) and Nesbet (36) suggest that there is an association between family size, intelligence and academic performance. Bernstein (7) and Nesbet (36) suggest that the association between family size and intelligence is due to the negative effects of large families on verbal development.

There is an evident lack of research in the area of values and their relationship to academic achievement. Reported research which has used the Study of Values (1) instrument has provided studies based on college populations. The related studies have primarily emphasized the interest and values of college students relating them to a chosen major or occupation. The apparent need exists in research in the students' values to determine their significance in academic performance. If the Study of Values is composed to some extent of two psychological dimensions; namely, interest and value, then it may be a useful instrument in an analysis of academic achievement of the college student.

Evidence that personality characteristics and socio-economic status influence academic performance is generally accepted. However, contradictory research findings exist when one attempts to determine that the

college student who is committed to a goal will be more successful academically in his academic performance than the student who is indefinite in his future goal.

Holland and Nichols (22) found that the tendency to change educational and vocational plans was associated with achievement and creativity. Such does not appear to be true in the study by Ashley, Wall and Osipow (3) who found that the tentative decision group performed at an average academic level; while the undecided group did very well academically. One explanation for the discrepancy may be that Rolland and Nichols studied National Merit Scholarship finalists while the study by Ashley, Wall and Osipow was composed of a sample from a normal freshman population.

Weitz, Clark and Jones (50) and Marshall and Simpson (33) found definite choice of major to be positively correlated with academic performance. Watley's (49) results seem to be contradictory. He found that students who were certain of their choice of major had lower grade point averages than those who were uncertain of their choice. Differences in type of sample studied and in the procedure may have accounted for apparent contradiction. Watley investigated students attending a technical school and based the grade point average on two semesters of college work while the study by Weitz, Clark and Jones examined subjects enrolled in a liberal arts college and limited their findings to one semester's academic work.

While research findings appear inconsistent on commitment to a major, the inclusion of this subjective variable appears justified as a relevant factor in analyzing academic achievement.

CHAPTER III

DESIGN OF THE STUDY

Sample

Tri-State College, located in Angola, Indiana, is a small, private, predominantly male college granting degrees in Engineering or Business. The College was accredited by the North Central Association in the Spring, 1966.

The sample selected for analysis relative to academic achievement was 233 United States born freshmen men who enrolled in college for the first time in the Fall Quarter of 1966.

The subjects had declared their major either in Engineering or Business. The academic course requirements during the first three terms in college did not differ significantly between the Engineering or Business departments.

Transfer students, foreign born students and women were not included in the study. Students who had enrolled in the nondegree programs of General Education or in Drafting and Design were excluded from the study.

The decision to base the study on the sample of freshmen who had not had prior college experience was largely determined on the basis that the future expected enrollment at Tri-State College will be drawn from students coming to college directly from high school. The transfer students who were classified as freshmen in the Fall Quarter, 1966, did not lend themselves to investigation due to their variance in age, educational and work experience. The foreign student freshmen were not included in the study as the instruments used in the analysis did not seem appropriate in their validity for foreign students. Women students were excluded due to the

small sample size. The limited number of students enrolled in General Education and the apparent lack of commitment to a major was the basis for not including them in the study. The four-term nondegree program of Drafting and Design required the student to complete different academic course requirements than the students who were pursuing a degree in Engineering or Business.

The 233 subjects in the sample were enrolled at Tri-State College for three consecutive terms. The seventeen subjects who withdrew from college or were dismissed for scholastic reasons at any time during their freshman year are included in the statistical analysis of the study.

Instrumentation

The Edwards Personal Preference Schedule (13)

Allen L. Edwards

The instrument is designed to measure fifteen independent normal personality variables.

The statements in the Edwards Personal Preference Schedule and the variables that these statements purport to measure have their origin in a list of manifest needs presented by H. A. Murray and others. The test has an ipsative scale.

The Edwards Personal Preference Schedule was selected as an instrument for the research study as it provided a number of relatively independent normal personality variables. Normative data has been established for male college students. Profile correlations obtained from the college normative group indicated that the average profile correlation was .74. This was based upon the z transformation. With 13 degrees of freedom, a profile correlation of .44 would be significant at the 5 percent level.

Coefficients of internal consistency were determined for the 15 personality variables. The internal consistency coefficients, corrected by the Spearman-Brown formula ranged from .74 to .88.

The validity of the test has been based largely on self-ratings and by evidence supporting correlations with the Taylor Manifest Anxiety Scale and the Guilford-Martin Personnel Inventory.

Edwards has attempted by use of the forced-choice method and systematic comparisons of strengths of needs within the person to avoid some of the difficulties inherent in the simple true-false dichotomy employed by earlier inventories.

Study of Values (1)

Gordon Allport, Philip E. Vernon and Gardiner Lindzey

The instrument is designed to measure the relative prominence of six basic interests or motives in personality. The test has an ipsative scale.

The Study of Values was selected as an instrument in an attempt to explore the relationship of socio-economic status to values and the correlation to academic achievement. It also was selected to measure the existence of any correlation between values and psychological needs as determined by the Edwards Personal Preference Schedule.

The Study of Values was originally published in 1931. It was standardized on a college population. The revised form of 1951 increased the diagnostic power of the items, simplified wording and modernized certain items, revised and shortened the scoring system, provided fresh norms, and, as a whole, increased the reliability of the test.

The split-half reliability ranges from .84 to .95. The mean reliability coefficient, using a z transformation, is .90. The item analysis, carried

out on a group of college students, shows a positive correlation for each item with the total score for its value, significant at the .01 level of confidence.

The validity of the scale was primarily based on prior expectations of values, identifiable by sex. The norms obtained from various groups supported the expected direction that the values would take.

Socio-economic Variables

The following socio-economic variables were obtained from a questionnaire form completed by the student during the Fall, 1966, Orientation program:

Age

Home State

Size of Hometown

Marital Status

If Married, Number of Children

Father's Occupation

Father's Education

Degrees held by Father

Father's Citizenship

Mother's Occupation

Mother's Education

Degrees held by Mother

Mother's Citizenship

Number of Siblings

Research reviewed (10) (35) (37) (27) (17) supports the influence of socio-economic background as an influencing factor in academic achievement.

The relationship of values and the psychological needs of the subject to his academic achievement may provide relevant information on motivational factors.

The occupational level of the mother and/or father was classified according to the United States Bureau of Census. The occupations are divided into: (1) professional; (2) proprietors, managers and officials; (3) clerks and sales; (4) skilled; (5) semi-skilled and (6) unskilled categories and (7) farmers. An eighth classification included those who were retired or had no evidence of following any occupation.

Nine categories of social status were used in the structure with upper, middle and lower classifications.

Past studies conducted by the faculty and staff at Tri-State College have emphasized the homogeneous socio-economic background of its students. It has been stated that they are from the upper-lower social status, the father's occupational level is skilled or semi-skilled and they are the members of the first generation to attend college.

The verification or denial of these findings will be evident in the present study.

Structured Interview

An interview was conducted by the investigator with each student in the sample during his first term in college.

Questions used to elicit attitudes through response:

Why did you decide to attend Tri-State College?

When did you decide on your major?

Why did you select your specific major?

What are your future goals?

What effect will the military service requirement have upon your future plans?

The primary purpose of the structured interview was to determine if the subject indicated a definite commitment to a goal. The response was then categorized as committed or uncommitted to a specific goal.

Immediately after each interview, the general comments made by the subject were recorded by the investigator.

As each subject in the study had declared a major in either Engineering or Business, the objective of the interview was to determine how specific he was in his future plans and how definite he was in his commitment to a major.

Academic Achievement

Satisfactory progress as determined by the requirement at Tri-State College was as follows:

First term enrollment	1.50 or D+ cumulative grade point average
Second term enrollment	1.75 or C- cumulative grade point average
Third term enrollment	2.00 or C cumulative grade point average

Failure to meet the above minimum requirements may result in the student being placed on academic probation for the succeeding term. The student is subject to dismissal after being placed on academic probation for two successive terms.

The following information was included in the analysis of academic achievement:

High School Rank

Entrance Examination Scores (School and College Ability Test)

Grade Point Average of Subjects during their First Three Consecutive Terms in College

The cumulative grade point average based on the first three consecutive quarters in college was selected as the criterion of academic achievement.

This measure has been criticized in that the averaging of grades from a number of heterogeneous courses results in the loss of information useful in studying the specificity of academic achievement and that all students have not taken exactly the same courses.

However, according to Carter, (9) the reliability of grades in a single course may be disputed and a study by Bendig (5) indicated that various faculty members do not assign grades in the same manner.

One might consider the use of the cumulative grade point average, then, to be a measure of a student's ability to achieve on the letter grade scale irrespective of his achievement in terms of learning or specific subject matter.

The academic achievement of the subjects was divided into the following categories for purposes of analysis:

3.00 - or more

2.99 - 2.50

2.49 - 2.00

1.99 - 1.50

1.49 - or less

Subjects achieving a 2.00 or better cumulative grade point average were defined as satisfactory in their academic achievement. Those who received less than a 2.00 cumulative grade point average were defined as unsatisfactory in their academic achievement.

Included in the analysis of academic achievement were the subjects' high school rank and the scores obtained on the School and College Ability Test which was administered during the Fall Orientation program.

Hypotheses

Null Hypothesis

There is no significant difference in measured personality characteristics between the freshmen students who maintained satisfactory academic status and the freshmen students who did not maintain a satisfactory academic status during their first three quarters in college.

Alternate Hypothesis

The group mean score on measured personality characteristics of the freshmen students who maintained a satisfactory academic status during their first year in college will differ significantly from the freshmen students who did not maintain a satisfactory academic status during their first year in college.

Null Hypothesis

There is no significant difference in values between the freshmen students who maintained a satisfactory academic status and the freshmen students who did not maintain a satisfactory academic status during their first three quarters in college.

Alternate Hypothesis

The group mean score on measured values of the freshmen students who maintained a satisfactory academic status during their first year in college will differ significantly from the freshmen students who did not maintain a satisfactory academic status during their first year in college.

Null Hypothesis

There is no significant difference in socio-economic background between freshmen students who maintained a satisfactory academic status and the freshmen students who did not maintain a satisfactory academic status during their first three quarters in college.

Alternate Hypothesis

The group mean score on socio-economic variables of the freshmen students who maintained a satisfactory academic status during their first year in college will differ significantly from the freshmen students who did not maintain a satisfactory academic status during their first year in college.

Null Hypothesis

There is no significant difference in commitment to a goal between the freshmen students who maintained a satisfactory academic status and the freshmen students who did not maintain a satisfactory academic status during their first three quarters in college.

Alternate Hypothesis

The freshmen students who maintained a satisfactory academic status during their first year in college declared a commitment to a specific goal while the students who did not maintain a satisfactory academic status were uncommitted to a definite goal.

Analysis

The common problems encountered in designing a research study relating to achievement are the resultant errors of measurement, heterogeneity of the criterion, and the limited scope in the predictors and the impact of varied experiences upon the individual.

Complete freedom from bias and perfect precision is often impossible. The purpose of the study undertaken by the investigator was to determine whether there is any relationship between the selected independent variables and the criterion variable. If a true relationship exists, the presence of the relationship will be revealed in the statistical analysis.

The criterion measure of achievement in the study was the cumulative grade point average of the subjects in the sample. The subjects had declared their major to be in Engineering or in Business. The course requirements for either program are somewhat similar for the first three terms of their college program. The general indications are that the scholastic requirements are similar in both degree programs. An analysis of the cumulative grade point average of seniors graduating in the academic year 1966-67 was as follows:

Senior Average	2.470
Business Major Average	2.479
Engineering Major Average	2.463

The inclusion of socio-economic variables in the study was an attempt to reduce the influence of other determinants in academic achievement. The study was also limited to males, within a comparable age range and having had no previous college or extensive work experience.

The administration of the instruments used in the study was in a group testing situation. The directions were presented by the investigator but no attempt was made to explain the purpose or intent of the research. The subjects were not informed that they were in a research study.

Each subject in the sample was notified by mail during the Fall Term and requested to make an appointment for an interview. The interviews were scheduled for fifteen minutes and structured questions were used by the investigator.

The analysis of the data is an attempt to determine the significant differences as measured by the "t" test of the non-intellective variables and the academic achievement of the subjects in the study.

The dependent criterion is the cumulative grade point average of the subjects in the sample based on three consecutive quarters.

The independent non-intellective variables are the scores obtained on the Edwards Personal Preference Schedule, which has been supported as a determiner of academic achievement in previous research. The scores obtained on the values included in the Study of Values, an instrument that has not been used extensively in research related to academic achievement. The socio-economic background of the subject and his declared commitment or noncommitment to a goal may contribute additional information relevant to the study.

Included in the study are the intellective factors of rank in high school and scores obtained by the subject on the School and College Ability Test.

The sample size of 233 subjects suggests that the investigator may state with confidence the significance of the relationship of the variables in the study. The level of significance has been set at .05.

Partial correlation was undertaken to determine the extent to which each variable made a contribution to achievement and multiple correlation attempted to evaluate the level of prediction that is possible by combining the variables.

Summary

The design of the study was selected to determine if a significant relationship exists between the personality characteristics, values, socio-economic background and commitment to a goal of the freshman male student at Tri-State College and his academic achievement during his first year in college.

The statistical analysis applied to the data was a correlation analysis. The dependent variable in the study was the cumulative grade point average. A regression analysis was also used in an attempt to refine the findings.

The selection of a sample to study was based on meeting the requirements which would increase the precision of the study and reduce the error of measurement.

CHAPTER IV

ANALYSIS OF RESULTS

This chapter presents the analysis of the statistical data as the plan was presented in Chapter III. The hypotheses will be presented operationally, the population defined, and the statistical data will be analyzed utilizing the mean tests of significance between the successful and unsuccessful subjects in the study according to their responses on the E.P.P.S. (13) and the Study of Values. (1) The socio-economic variables will also be analyzed to determine significant differences between the successful and unsuccessful subjects.

A correlational and multiple regression analysis will be presented to evaluate the relationship between academic achievement and significant non-intellective variables.

The findings of the individual interviews will be presented in order to provide factors important to motivation and attitude toward achievement in college.

The problem posed in this study was to examine selected sociological and psychological factors and their interactions that may have an impact on the academic achievement of freshmen students at Tri-State College.

More specifically, an attempt has been made to analyze selected personality characteristics, values, the socio-economic background, and declared commitment to a goal of freshmen male students and their relationship to academic achievement during the first year of college work.

Four major hypotheses to be tested at the five percent level of significance were stated in Chapter III.

Defining the Population

The subjects selected for analysis relative to academic achievement were 233 United States-born freshmen men who enrolled in college for the first time in the Fall Quarter of 1966.

The subjects had declared their major in Engineering or Business. The academic course requirements during the first three terms in college did not differ significantly between the Engineering or Business departments.

The 233 subjects in the sample were enrolled at Tri-State College for three consecutive terms. The seventeen subjects who withdrew from college or were dismissed for scholastic reasons at any time during their freshman year are included in the statistical analysis of the study.

The Edwards Personal Preference Schedule and the Study of Values were administered by the investigator in a group testing situation during the orientation week of the Fall Term of 1966.

The socio-economic variable information was obtained from a questionnaire form completed by the student during the Fall, 1966, Orientation program.

Each subject in the study was requested by mail to make an appointment for an interview with the investigator. Interviews were scheduled for fifteen minutes. Five questions were used in the structured interview to elicit a response from the subject in an attempt to determine their commitment to a goal. Interviews were scheduled and completed during the first six weeks of the Fall Term of 1966. Mid-term grades were issued at the completion of six weeks of the term.

Academic achievement was based on the grade point average of the subjects during their first three consecutive terms in college. Successful subjects earned at least a 2.00 point or C cumulative average. The academic achievement used in analysis was the total average of the three enrolled terms. In the case of the seventeen subjects who withdrew or were dismissed during the academic year, their academic average at the time of leaving the college was used in the statistical data.

Statistical Analysis of the Data

One hundred and twenty nine of the subjects were successful in their academic achievement at the close of the study. One hundred and four subjects failed to meet the minimum requirements of a C average after three terms in college.

Difference Between Academically Successful and Unsuccessful Subjects on the Variables of the E.P.P.S.*

The null hypothesis tested was:

HO_1 There is no significant difference in measured personality characteristics between the freshmen students who did not maintain a satisfactory academic status during their first three quarters in college.

The t-ratio of 2.08 on the variable Exhibitionism indicated differences in the E.P.P.S. mean score that are significant at the .05 percent level; thus, the null hypothesis of no difference between

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*Table 4-I presents the mean scores, standard deviations, and t-ratios for the successful and unsuccessful subjects on the E.P.P.S. variables.

TABLE 4-I

Significant Differences As Measured By The "t" Test Of The E.P.P.S. Variables Of The Academically Successful And Unsuccessful Subjects In The Study

	Freshmen N=233				
	Successful N=129		Unsuccessful N=104		
Variable					
E.P.P.S.	Mean	S.D.	Mean	S.D.	"t" Ratio
Achievement	13.92	4.36	13.26	3.57	0.89
Deference	10.88	3.08	10.16	3.45	1.00
Order	10.23	4.84	9.38	4.14	0.43
Exhibitionism	12.97	3.89	14.42	3.56	2.98*
Autonomy	13.04	4.26	13.81	4.01	1.00
Affiliation	13.64	4.24	13.51	4.67	0.16
Intraception	14.36	4.36	14.12	4.59	0.28
Succorance	11.11	4.53	11.29	4.39	0.20
Dominance	13.38	4.74	13.94	4.66	0.64
Abasement	14.28	5.19	13.97	5.34	0.32
Nurtrance	13.27	4.39	13.36	4.74	0.17
Change	15.88	4.35	17.11	4.43	1.63
Endurance	13.77	5.02	12.21	5.43	1.59
Heterosexuality	20.15	6.37	20.45	6.16	0.26
Aggression	12.72	5.06	13.90	4.81	1.28
Consistency	8.39	3.39	8.17	3.29	0.16

*The corresponding means are significantly different at the five percent level of confidence

measured personality characteristics of freshmen students who maintained satisfactory academic status and the freshmen students who did not maintain a satisfactory academic status was rejected.

The successful subjects were significantly lower on the mean score in the variable of Exhibitionism.

Differences Between Academically Successful and Unsuccessful Subjects on the Variables of the Study of Values*

The null hypothesis tested was:

HO_2 There is no significant difference in values between the freshmen students who maintained a satisfactory academic status and the freshmen students who did not maintain a satisfactory academic status during their first three quarters in college.

There was no significant difference in the mean scores of the Study of Values of the successful and unsuccessful subjects. Therefore, the null hypothesis was accepted as stated.

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*Table 4-II presents the mean scores, standard deviations, and t-ratios for the successful and unsuccessful subjects in the Study of Values variables.

Differences Between Academically Successful and Unsuccessful Subjects on Socio-economic Variable*

The null hypothesis tested was:

HO_3 There is no significant difference in socio-economic background between the freshmen who maintained a satisfactory academic status and the freshmen students who did not maintain a satisfactory academic status during their first three quarters in college.

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*Table 4-III presents mean scores, standard deviations, and t-ratios of certain socio-economic variables. Tables 4-IV and 4-V provide an X^2 analysis of socio-economic variables.

TABLE 4-II

Differences As Measured By The "t" Test Of The Study Of Values Variables Of The Academically Successful And Unsuccessful Subjects In The Study

	Freshmen N=233				
	Successful N=129		Unsuccessful N=104		
Variable					
Study of Values	Mean	S.D.	Mean	S.D.	"t" Ratio
Theoretical	42.50	7.15	44.01	6.15	1.22
Economic	46.20	8.44	44.29	6.79	1.34
Aesthetic	32.53	8.14	34.76	7.33	1.54
Social	34.96	6.68	35.06	6.32	0.08
Political	43.08	7.48	43.98	5.62	0.74
Religious	38.13	8.39	37.34	8.50	0.48

TABLE 4-III

Significant Differences As Measured By The "t" Test Of The Socio-economic Variables Of The Academically Successful And Unsuccessful Subjects In The Study

	Freshmen N=233				
	Successful N=129		Unsuccessful N=104		
Variable					
Socio-economic Variable	Mean	S.D.	Mean	S.D.	"t" Ratio
Age	18.48	2.00	18.07	1.06	1.57
Size of Hometown	2.77	1.39	2.75	1.40	0.08
Marital Status	1.07	0.25	1.04	0.32	0.60
Number of Children	.05	.31	0.00	0.00	1.74*
Father Living	1.04	0.19	1.07	0.26	0.75
Occupation	16.30	13.58	18.30	16.21	0.90
Education	11.72	2.65	11.91	2.07	0.43
Highest Degree	0.11	0.34	0.11	0.37	0.00
Mother Living	1.02	0.17	1.02	0.14	0.00
Occupation	3.26	5.45	3.06	3.10	0.24
Education	11.12	3.09	12.06	2.22	1.88*
Highest Degree	0.04	0.27	0.32	1.13	1.87*
Siblings	2.32	1.75	2.27	1.95	0.14

*The corresponding means are significantly different at the five percent level of confidence.

TABLE 4-IV

A X^2 Analysis Of The Homestate Socio-economic Variable Of The Academically Successful And Unsuccessful Subjects In The Study

	Freshmen N=219	
	Successful N=122	Unsuccessful N=97
Homestate		
Illinois	6	5
Indiana	46	33
Michigan	13	13
New Jersey	4	5
New York	7	4
Ohio	29	20
Pennsylvania	17	17

X^2 equalled 1.896. A X^2 of 12.59 was required for significance at the five percent level of confidence.

TABLE 4-V

A X^2 Analysis Of The Family Attended Tri-State College Socio-economic Variable Of The Academically Successful And Unsuccessful Subjects In The Study

	Freshmen N=233	
	Successful	Unsuccessful
Family Attended Tri-State College	16	9
Family Did Not Attend Tri-State College	113	95

X^2 equalled .845. A X^2 of 3.84 was required for significance at the five percent level of confidence.

The t-ratio of 1.74 obtained on the variable of the number of children of the subject indicated a mean score that was significant at the .05 level. The variable of education of the subjects' mother provided a t-ratio of 1.88 and the highest degree held by the mother, a t-ratio of 1.87, which were held significant at the .05 percent level; thus, the null hypothesis of no difference in socio-economic background was rejected.

Further analysis of the socio-economic variables, homestate and previous attendance of family members at Tri-State College, did not yield a significant difference.

An X^2 analysis yielded 1.896 on homestate while an X^2 of 12.59 was required for significance at the .05 percent level of confidence. Family attendance equalled an X^2 of .845 and 3.84 was required for significance.

Multiple Regression Analysis*

A multiple regression analysis yielded a multiple correlation coefficient (R) of .59. This degree of correlation was significant beyond the .01 percent level of confidence. The partial correlation coefficients were generally non-significant. This indicated the significant variables could be residualized with respect to the non-significant variables without undue shrinkage of the multiple (R).

It was noted that twenty variables could have been deleted without decreasing the multiple (R). In addition, the percentage of the variance

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*Table 4-VI presents the effect of residualization on the percentage of variance controlled and the multiple R. The arrangement in the residual column was according to the amount of variance the variable could account for from the smaller amount to the largest.

TABLE 4-VI

The Effect Of Residualization On The Percentage Of Variance Controlled And The Multiple (R)

Residual Delete	Percentage Of Variance Remaining Under Control	Multiple (R)
Economic	.3535	.59
Intraception	.3535	.59
Mother's Occupation	.3535	.59
Siblings	.3535	.59
Affiliation	.3534	.59
Father's Education	.3534	.59
Aggression	.3533	.59
Social Status	.3532	.59
Succorance	.3530	.59
Endurance	.3529	.59
Abasement	.3525	.59
Aesthetic	.3522	.59
Theoretical	.3517	.59
Consistency	.3512	.59
Size of Hometown	.3506	.59
Heterosexuality	.3501	.59
Religious	.3491	.59
Mother's Degree	.3484	.59
Dominance	.3472	.59
Autonomy	.3462	.59
Order	.3438	.59
Father's Degree	.3411	.58
Social	.3368	.58
Nurtrance	.3322	.58
Deference	.3280	.57
Mother Living	.3228	.57
Marital Status	.3177	.56
Occupational Classification	.3114	.56
Achievement	.3033	.55
Father Living	.2935	.54
Father's Occupation	.2823	.53
Exhibitionism	.2724	.52
Political	.2607	.51
Change	.2448	.49
Age	.2292	.48
Major (Engineering)	.2157	.46
Mother's Education	.1858	.43
SCAT Total	.1500	.38
Rank in Class	.0914	.30

under control would have dropped only one percent. Deletion of seven additional variables for a total of twenty-seven would result in a decrease of .03 percent for the multiple (R) and decrease of four percent in variance controlled. This action would yield twelve variables controlling thirty-one percent of the variance with a multiple (R) of .56.

Tests of significance of the multiple correlations (Table 4-VII) presents multiple correlations significantly larger than the appropriate standard beyond the one percent level of confidence.

The inclusion of S.C.A.T. Total Score and Rank in High School plus seventeen selected non-intellective variables yielded a (R) of .59. Certain intellective variables were excluded for predictive purposes as they would not be accessible at the initial entrance to college.

A zero-order correlation matrix and summary data and tests of significance are presented in Appendix B (Table I and II).

Significant Findings of the Structured Interviews Conducted by the Investigator with the Subjects in the Study

HO_4 There is no significant difference in commitment to a goal between the freshmen who maintained satisfactory academic status and the freshmen students who did not maintain a satisfactory academic status during their first three quarters in college.*

An X^2 analysis equalled 1.51. A 3.84 X^2 was required for significance at the .05 percent level of confidence.

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*An X^2 analysis of commitment to a goal of successful and unsuccessful subjects in the study.

TABLE 4-VII

TESTS OF SIGNIFICANCE OF THE MULTIPLE CORRELATION

N = 233

Value of R	Sum of Squares $1 - R^2$	Degrees of Freedom	Multiple "F"
$R_{Y.1, \ldots, 44} = .9634$	.0718	$\frac{44}{156}$	45.8246**
$R_{Y.1, 37, 38, 40, 41, 44} = .9552$	.0876	$\frac{6}{194}$	336.6029**
$R_{Y.1, \ldots, 37, 39, 43} = .5946$	.6465	$\frac{39}{161}$	2.2573** (30,150)
$R_{Y.1, 2, 6, 7, 9, 10, 11, 12, 19, 20, 26, 27, 28, 31, 32, 34, 37, 39, 43} = .5863$	.6562	$\frac{19}{181}$	4.9909** (16,150)

** Significant at the .01 percent level.
Y = Cumulative H.P.A. at the completion of three quarters.
Identification of variables 1 through 44 - (see Table VIII).

TABLE 4-VIII

Identification Of Variables
Selected For Purposes Of Analysis

1. Age
2. Major
3. Theoretical
4. Economic
5. Aesthetic
6. Social
7. Political
8. Religious
9. Achievement
10. Deference
11. Order
12. Exhibition
13. Autonomy
14. Affiliation
15. Intraception
16. Succorance
17. Dominance
18. Abasement
19. Nurtrance
20. Change
21. Endurance
22. Heterosexuality
23. Aggression
24. Consistency
25. Size of Hometown
26. Marital Status
27. Father Living
28. Father's Occupation
29. Occupational Social Status
30. Father's Educational Level
31. Father's Degrees
32. Mother Living
33. Mother's Occupation
34. Mother's Educational Level
35. Mother's Degrees
36. Number of Siblings
37. Rank in High School
38. First Term Grade Point Average
39. Occupational Classification
40. Second Term Grade Point Average
41. Verbal Score
42. Quantitative Score
43. Total S.C.A.T. Score
44. Third Term Grade Point Average
* 45. Cumulative Three Term Grade Point Average

* 45 = "Y" criterion

TABLE 4-IX

An X^2 Analysis Of Commitment To A Goal Of Successful And Unsuccessful Subjects In The Study

	Freshmen N=233	
	Committed N=118	Non-Committed N=115
Successful	70	59
Non-successful	48	56

In this study, each subject was interviewed by the investigator. A total of 233 interviews were conducted during the first six weeks of the Fall Quarter of 1966. All interviews were completed prior to the subject receiving mid-term grades during their first quarter in college. The interviews were scheduled for a fifteen-minute period; however, in several cases, the interviewee requested an additional appointment to further discuss his future plans. The subjects were requested by mail to make an appointment with the investigator at their convenience.

The interviews were structured and the following questions were asked by the investigator:

1. Why did you decide to attend Tri-State College?
2. When did you decide on your major?
3. Why did you select your specific major?
4. What are your future goals?
5. What effect will the military service requirement have upon your future plans?

The primary purpose of the structured interview was to determine if the subject indicated a firm commitment to a goal. Immediately after the interview, the general comments made by the subject were recorded by the investigator and the attitude was then categorized as committed or uncommitted to a goal.

Typical of the responses made by committed subjects were:

1. I selected Tri-State College because it is a small college and I would not be just a number.
2. I have talked with several fellows who graduated from Tri-State College, and they thought it was a good school and I was impressed with them.
3. There is not much social life here, and I knew I had to study so I felt I wouldn't be distracted.

4. I have always wanted to be an engineer. I can't remember when I decided; it must have been when I was in fifth or sixth grade.

5. When I was a junior in high school, we had to write a paper on what we wanted to do. I wrote on engineering and got real interested in it.

6. I worked on the highway during the summer and talked a lot with engineers. I guess I decided this summer.

7. I have always wanted to be an engineer since even in grade school. It's the only thing I have ever wanted to do.

8. I have worked in a factory during the summers, and I want something better for myself.

9. I like math and enjoy working on machines, especially cars. That is why I would like to become a mechanical engineer.

10. I feel that a degree in Business is broad enough that I could go into a lot of areas.

11. I like to work with my hands and build things. That's why I have chosen civil engineering.

12. After I get through college, I would like to go on and get my master's in Business. I think this would be a good combination with Engineering.

13. I want to be an accountant. I like working with figures; eventually, I would like to be a CPA.

A general trend appeared that the committed subject was aware of his interests and abilities. As he thought in terms of his goal, it was long range and he was apt to discuss his future rather than the immediate. An expression of confidence in himself was present when he talked about himself. There was evidence in his responses that he had a realistic awareness of the requirements of earning a degree.

The comments of the uncommitted were as follows:

1. I selected Tri-State College because it is close to home and I can work on the weekends.

2. My mother read an ad in a magazine and suggested I apply for admission.

3. I wanted to go to Purdue, but my grades were not good enough.

4. I think I will go here a year and transfer to a larger school.

5. I haven't decided what I want to do. I'll see how my grades go.

6. My Dad thought I should go into Engineering and I do O.K. in math.

7. My brother went to Tri-State and he majored in Business. He has a good job.

8. It wasn't until my senior year I thought of going to college. I didn't apply until late summer and was accepted at Tri-State.

9. I haven't decided if college is for me.

10. I just take one day at a time. If I make good grades, I might keep going.

There was an apparent pessimistic trend in the uncommitted subjects' thinking. He did not chose to commit himself to a future goal but preferred to leave the way open for alternatives. Attendance at a college appeared to be motivated by someone other than himself. His expectations of success were not high.

The question asked in the interview regarding the effect the military service requirement would have upon their future plans resulted in common response from the committed and uncommitted subjects. In both groups, there existed an apprehensive attitude toward entering the military service. Eight of the 233 subjects in the study were not eligible for the draft.

The replies to the stated question were as follows:

1. I hope to be able to stay in college until I get a degree. I am undecided as to whether I should go in the service first and then go to college. Maybe it would be best to get it out of the way.

2. I am afraid that I will have forgotten everything I learned by the time I get on the job.

3. If I go into Engineering, I will probably be able to get a job deferment.

4. If I don't make the grades in college, I can always join up and get it over with.

5. Maybe it will all be over by the time I graduate and I won't be drafted.

6. I'd like to go in now, but my parents want me to stay in school as long as I can.

7. I thought I would go for two years and then go in the service. I'd finish up when I get out.

8. I don't have the money to go four years. I could use the veteran's check to pay the rest of my way.

9. I'd get a better break in the service if I had a degree. I'd go to officer's training school.

10. Maybe I would get some experience in the service and decide if I really liked Engineering.

Uppermost in the thoughts of the subjects in the study appeared to be a fatalistic attitude toward going into the service. Only five subjects definitely stated that they were afraid of being drafted into the service. The majority hoped to complete their college degree and then expected to be drafted. There was some evidence that they felt an Engineering degree could provide them with a deferment or would offer them an opportunity to avoid combat duty.

Summary

In testing the difference in mean scores of the E.P.P.S. earned by academically successful and unsuccessful subjects, the t-ratio indicated differences significant at the .05 level in the variable Exhibitionism.

The Study of Values revealed no significant differences in the corresponding mean scores of the academically successful and unsuccessful subjects at the .05 level of confidence.

The statistical analysis of the socio-economic variables revealed that married students with children scored significantly higher in

academic performance. The educational level of the mother also yielded significant differences at the .05 level of confidence.

No significant differences were identified in the X^2 analysis of academically successful and unsuccessful subjects and their commitment or non-commitment to a goal.

The structured interview provided responses that were enlightening in relation to the subjects attitude and motivation toward college. The emphasis of the interview tended to be toward the effect of the military draft and the subject's reluctance to commit himself to a future goal.

The committed subject gave evidence of being confident of his abilities and was realistic in his assessment of his potentials. The uncommitted subject hesitated to acknowledge his abilities but preferred to rationalize his possible failure in achieving a goal.

The multiple regression analysis yielded a multiple correlation coefficient (R) of .59. This degree of correlation was significant beyond the .01 level of significance. The partial correlation coefficients were generally non-significant. This indicated the significant variables could be residualized with respect to the non-significant variables without undue shrinkage of the multiple (R). Deletion of seven additional variables for a total of twenty-seven resulted in a decrease of .03 for the multiple (R) and a decrease of four percent in variance controlled. This action yielded twelve variables controlling thirty-one percent of the variance with a multiple (R) of .56.

CHAPTER V

SUMMARY

The purpose of this study was to investigate selected non-intellective variables and their relationship to academic achievement. The study was undertaken at Tri-State College, a private college in Angola, Indiana.

Two hundred and thirty-three male students comprised the subjects in the study. The sample was confined to United States born male freshmen who were entering college for the first time in the Fall, 1966. They had declared their major in Engineering or Business.

The Edwards Personal Preference Schedule (13) and the Study of Values (1) tests were administered to the subjects in the study to determine if there was a significantly different response between the students who were academically successful and the students who did not achieve academic success during their first year in college.

The socio-economic background of the subjects was also analyzed. Interviews were conducted with each subject in an attempt to gain insight into their attitudes, motivation and commitment to a goal.

The criterion of academic achievement used was the cumulative freshmen year grade point average.

Multiple correlations were derived to determine which variables would emerge as the most important contributors to any increment in prediction of grade point average.

Findings

The results of the various approaches to the objective were as follows:

1. The statistical analysis of The Edwards Personal Preference Schedule (13) indicated a significant difference at the .05 percent level of confidence in the variable, Exhibitionism. The academically unsuccessful subject had a significantly higher score ($t = 2.08$, $p.05$) in the variable, Exhibitionism, defined as a need for attention and a high activity level.
2. Comparisons of the academic achievement and the scores on six basic interests or motives in personality as measured by the Study of Values (1) yielded no significant differences in mean scores.
3. The analysis of the socio-economic background of the subjects in the study provided three variables which were significantly different between the academically successful and unsuccessful subject. The education of the mother ($t = 1.88$, $p.05$) and the degrees held by the mother ($t = 1.87$, $p.05$) of the academically unsuccessful subjects indicated a significant difference academically. Successful subjects who were married and had children provided a significant difference ($t = 1.74$, $p.05$).
4. The hypothesis tested using the X^2 analysis relative to commitment to a goal revealed no significant difference in academic achievement between the committed and uncommitted subjects in the study. The interviews, however, provided insight into the underlying motivation and attitudes toward the future goal and academic achievement of the subjects in the study.

5. The inclusion of the selected non-intellective variables in a correlation matrix from which multiple correlations were derived to predict the cumulative grade point average of freshmen male students at Tri-State College resulted in multiple correlations significantly larger than the correlation of rank in high school and S.C.A.T. total score. The rank in high school and the S.C.A.T. total score revealed fifteen percent of the variance remaining under control with a multiple (R) of .38. The addition of twelve non-intellective variables controlled thirty-one percent of the variance with a multiple (R) of .56. A multiple regression analysis yielded a multiple correlation coefficient (R) of .59. This degree of correlation was significant beyond the .01 percent level of confidence. The partial correlation coefficients were generally non-significant.

Conclusions

The significant finding that the variable, Exhibitionism differentiates between the academically successful and unsuccessful subject suggests that the unsuccessful subject at Tri-State College has a higher activity level and a greater need for attention. The limited range of activities at Tri-State College is primarily due to the location of the college in a small rural town and the predominance of male students. If the need for activity was extremely strong, it would require the student to seek out his own activities, thereby reducing the time available for study. The need for attention could also provide frustrations for the student as the scholarly setting of Tri-State College emphasizes the development of an independent, non-involved professional male. There may be present an

unconscious feeling of male weakness or femininity if the student seeks out attention from his peers or members of the faculty.

The finding of a high score on the variable, Exhibitionism, as being significantly related to unsuccessful academic achievement has not been proposed by other researchers. On the contrary, Klett (26) found significant positive correlations between IQ and the E.P.P.S. variable, Exhibitionism. Merrill and Murphy (34) reported low ability students also low on the need for exhibitionism. The evidence presented in the above studies may be interpreted that the results of their studies were obtained by utilizing the extreme ranges of ability while the present study was composed primarily of average ability students.

A trend existed in the academically unsuccessful subject obtaining a higher mean score in the variables of Change and Agression. The high mean score on the variable Change may support the need for activity and variety of experience while the resultant frustration produced agressive rebellion directed toward the academic environment.

The academically successful subjects tended to score higher on the variable, Endurance, which may indicate a greater conformity and willingness to concentrate on the academic requirements. Although a trend existed in the above variables, the statistical analysis did not find the corresponding means to be significantly different at the .05 percent level of confidence.

The Study of Values (1) an instrument designed to measure basic interests or motives did not provide significant differences between the academically successful and unsuccessful subjects in the study. There existed a trend, however, toward the unsuccessful student obtaining a higher mean score on Theoretical and Aesthetic values. As the emphasis

at Tri-State College is on the practical application of performance, the theoretical student may feel that the education he receives is inadequate for his future goals. The aesthetic variable implies creativity and an interest in cultural pursuits. The environment at Tri-State College is limited in cultural programs and a conformity pattern is encouraged. The unsuccessful student may feel a void in his life due to the lack of cultural activities and may resent the apparent conformity pattern that exists on the campus.

The findings of this study may indicate that students basic interests or motives as measured by the Study of Values have no significant bearing on college academic achievement.

The statistical analysis of the socio-economic variables of the subjects in the study indicated that the students who were married and had children were significantly more successful in their academic work than the student who did not have family responsibilities.

Motivating factors may have been the added responsibility of being a parent and the stability of a family environment. The seriousness of purpose in realizing their goal reflected in the academic achievement of the student who had assumed a parental role.

The student who was unsuccessful in his academic achievement came from a home where the mother had attained a higher amount of education than the mother of the successful student and held degrees beyond the high school diploma. Explanation of this significant finding may be that the role of the mother in the family was more predominant than the father and reflects in her ambitious educational drive for her son. The son may have identified with the mother rather than the father and a conflict resulted in that he unconsciously resented the goals of higher education

set for him by his mother. As the subjects in the study are primarily enrolled in the highly masculine profession of Engineering, a rebellious attitude may exist toward parental domination by the mother.

Supporting research by Staton (43) the occupation of the father was not found to be significantly related to academic success in college. The size of the high school, as concurred by Altman, (2) did not appear to be related to college performance.

Previous research findings seemed to be inconsistent in measuring the academic achievement of the subject and his commitment to a goal; therefore, the inclusion of this subjective variable appeared to be justified as a relevant factor in investigating the academic performance of the subjects in this study. The findings of this investigation support the studies of Waltey (49) and Ashley, Wall and Osipow (3). As stated, commitment to a goal did not prove to be a significant factor in the academic achievement of the subject. Possible explanation for the non-significant findings may be that the young men who composed the sample of study were eligible for the military draft. A feeling of vague uncertainty as to their future pervaded the interviews. Many of the subjects verbally expressed fears concerning their future and hesitated to make concise statements as to future goals. A number of the subjects stated that they would pursue their academic program only as long as they felt they could maintain satisfactory academic records. If their grade point average declined, they would then change their curriculum to enable them to remain in college and avoid being subjected to the military draft.

Some subjects expressed a desire to enlist in the service after completing one year of college as they felt their maturity and experience

would then enable them to make a more positive decision regarding their future goals.

The interview data revealed various attitudinal and motivational factors of the young man in college who is under military draft classification and facing an uncertain future.

The primary purpose of this study was to investigate non-intellective variables and their relationship to academic achievement, however, the study also provided a predictor of academic achievement at Tri-State College. The study submits twelve variables that would increase predictive reliability from the base of .30 to .56. The inclusion of ten additional non-intellective variables to the high school rank and the S.C.A.T. total would allow a greater predictive value for the entering freshman at Tri-State College who is majoring in the field of Engineering. High school rank and the S.C.A.T. are at the present time obtained for admission purposes. The implication derived from this predictor of academic achievement would be the usefulness in a counseling program for freshmen entering Tri-State College.

Recommendations

1. Replication of this study should be repeated at Tri-State College for successive freshmen classes in order to ascertain whether the same findings of non-intellective factors would prevail in academic performance.
2. The subjects in the study should be re-examined in their senior year of college (1970) on the selected non-intellective variables used in the initial study. A comparison of the relationship in their freshmen and senior year and the response to The

Edwards Personal Preference Schedule and the Study of Values instruments may support or reject the findings of this study.

3. In depth interviews with college freshmen male students is needed to investigate students' attitudes and motivation and its relationship to academic performance.

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APPENDIX A

An Analysis of the E.P.P.S. Study of Values, Socio-economic Variables and Commitment to a Goal Based on Cumulative Grade Point Range

APPENDIX A-TABLE I

MEANS AND STANDARD DEVIATIONS OF THE STUDY OF VALUES AND E.P.P.S. FOR SUBJECTS HAVING A 3.00+ CUMULATIVE GRADE POINT AVERAGE

Variable	FRES MEN N=18	
	MEAN	S.D.
Study of Values		
Theoretical	42.20	7.04
Economic	43.70	7.47
Aesthetic	33.75	8.44
Social	35.90	5.63
Political	41.60	7.77
Religious	42.80	6.81
Edwards Personal Preference Schedule		
Achievement	17.05	3.72
Deference	11.30	3.15
Order	9.70	3.73
Exhibition	12.95	3.32
Autonomy	13.50	4.20
Affiliation	12.90	3.89
Intraception	15.05	4.51
Succorance	12.50	4.61
Dominance	13.65	4.96
Abasement	15.95	5.27
Nurtrance	13.90	5.08
Change	14.45	2.89
Endurance	14.90	4.08
Heterosexuality	17.65	4.08
Aggression	12.30	4.73
Consistency	8.60	3.63

APPENDIX A- TABLE II

MEANS AND STANDARD DEVIATIONS OF THE STUDY OF VALUES AND E.P.P.S. FOR SUBJECTS HAVING A 2.50-2.99 CUMULATIVE GRADE POINT AVERAGE

Variable	FRESHMEN N=35	
	MEAN	S.D.
Study of Values		
Theoretical	43.36	9.89
Economic	45.39	11.53
Aesthetic	32.25	10.40
Social	39.94	8.55
Political	41.63	9.79
Religious	36.08	10.06
E.P.P.S.		
Achievement	13.27	4.37
Deference	10.66	3.33
Order	11.63	5.27
Exhibition	12.47	4.31
Autonomy	12.61	4.18
Affiliation	13.72	4.83
Intraception	14.94	3.92
Succorance	9.80	4.76
Dominance	13.52	5.09
Abasement	13.88	5.65
Nurtrance	13.25	3.63
Change	15.36	4.42
Endurance	14.91	5.75
Heterosexuality	19.86	6.97
Aggression	11.72	4.97
Consistency	7.75	3.26

APPENDIX A-TABLE III

MEANS AND STANDARD DEVIATIONS OF THE STUDY OF VALUES AND E.P.P.S. FOR SUBJECTS HAVING A 2.00-2.49 CUMULATIVE GRADE POINT AVERAGE

Variable	FRESHMEN N=76	
	MEAN	S.D.
Study of Values		
Theoretical	42.33	5.61
Economic	47.28	6.88
Aesthetic	32.53	6.91
Social	34.89	5.71
Political	44.23	5.92
Religious	37.78	8.53
E.P.P.S.		
Achievement	13.25	4.14
Deference	10.79	2.90
Order	9.83	4.77
Exhibition	13.23	3.89
Autonomy	13.12	4.30
Affiliation	13.65	4.02
Intraception	13.80	4.83
Succorance	11.51	4.23
Dominance	13.33	4.62
Abasement	13.92	4.88
Nurtrance	13.03	4.55
Change	16.42	4.60
Endurance	12.88	4.81
Heterosexuality	21.00	6.02
Aggression	13.33	5.06
Consistency	8.69	3.43

APPENDIX A- TABLE IV

MEANS AND STANDARD DEVIATIONS OF THE STUDY OF VALUES AND E.P.P.S. FOR SUBJECTS HAVING A 1.50-1.99 CUMULATIVE GRADE POINT AVERAGE

Variable	FRESHMEN N=62	
	MEAN	S.D.
Study of Values		
Theoretical	44.50	6.16
Economic	44.19	7.06
Aesthetic	35.91	7.37
Social	34.40	6.10
Political	43.40	5.54
Religious	37.22	8.01
Edwards Personal Preference Schedule		
Achievement	13.14	3.59
Deference	10.31	3.68
Order	10.27	4.36
Exhibition	14.43	3.41
Autonomy	13.78	4.08
Affiliation	13.06	4.70
Intraception	14.44	4.68
Succorance	11.65	4.38
Dominance	13.86	4.81
Abasement	14.73	5.33
Nurtrance	12.78	4.60
Change	17.00	4.16
Endurance	13.13	5.65
Heterosexuality	19.55	6.06
Aggression	13.26	4.77
Consistency	8.50	3.27

APPENDIX A-TABLE V

MEANS AND STANDARD DEVIATIONS OF THE STUDY OF VALUES AND E.P.P.S. FOR SUBJECTS HAVING A 1.50 OR LESS CUMULATIVE GRADE POINT AVERAGE

	FRESHMEN N=42	
Variable	MEAN	S.D.
Study of Values		
Theoretical	43.12	6.12
Economic	44.47	6.39
Aesthetic	32.71	6.90
Social	36.24	6.63
Political	45.03	5.71
Religious	37.56	9.43
Edwards Personal Preference Schedule		
Achievement	13.47	3.58
Deference	9.91	3.06
Order	9.18	3.66
Exhibition	14.35	3.86
Autonomy	13.85	3.96
Affiliation	14.29	4.58
Intraception	13.56	4.44
Succorance	10.65	4.41
Dominance	14.09	4.44
Abasement	12.62	5.16
Nurtrance	14.41	4.89
Change	17.32	4.94
Endurance	10.56	4.63
Heterosexuality	22.06	6.12
Aggression	15.06	4.74
Consistency	7.59	3.30

APPENDIX A- TABLE VI

AN ANALYSIS OF THE STUDY OF VALUES, THE E.P.P.S. AND ACADEMIC ACHIEVEMENT OF THE ENTIRE SAMPLE BASED ON MEANS AND S.D.

CUMULATIVE GRADE POINT	N=42 -1.49		N=62 1.50-1.99		N=76 2.00-2.49		N=35 2.50-2.99		N=18 3.00+	
Variable	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Study of Values										
Theoretical	43.12	6.12	44.50	6.16	42.33	5.61	43.36	9.89	42.20	7.04
Economic	44.47	6.39	44.19	7.06	47.28	6.88	45.30	11.53	43.70	7.47
Aesthetic	32.71	6.90	35.91	7.37	32.53	6.91	32.25	10.40	33.75	8.44
Social	36.24	6.63	34.40	6.10	34.89	5.71	33.94	8.55	35.90	5.63
Political	45.03	5.71	43.40	5.54	44.23	5.92	41.63	9.79	41.60	7.77
Religious	37.56	9.43	37.22	8.01	37.78	8.53	36.08	10.06	42.80	6.81
E.P.P.S.										
Achievement	13.47	3.58	13.14	3.59	13.25	4.14	13.97	4.37	17.05	3.72
Deference	9.91	3.05	10.31	3.68	10.79	2.90	10.66	3.33	11.30	3.15
Order	9.16	3.66	10.27	4.36	9.83	4.77	11.63	5.27	9.70	3.73
Exhibition	14.35	3.86	14.45	3.41	13.23	3.89	12.47	4.31	12.95	3.32
Autonomy	13.85	3.96	13.78	4.08	13.12	4.30	12.61	4.18	13.50	4.20
Affiliation	14.29	4.58	13.08	4.70	13.65	4.02	13.72	4.83	12.90	3.89
Intraception	13.56	4.44	14.44	4.68	13.80	4.83	14.94	3.92	15.05	4.51
Succorance	10.65	4.41	11.65	4.38	11.51	4.23	9.80	4.76	12.50	4.61
Dominance	14.09	4.44	13.86	4.81	13.33	4.62	13.52	5.09	13.65	4.96
Abasement	12.62	5.16	14.73	5.33	13.92	4.88	13.88	5.65	15.95	5.27
Nurtrance	14.41	4.89	12.78	4.60	13.03	4.55	13.25	3.63	13.90	5.08
Endurance	10.56	4.63	13.13	5.65	12.88	4.81	14.91	5.75	14.90	4.08
Change	17.32	4.94	17.00	4.16	16.42	4.60	15.36	4.42	14.45	2.89

CUMULATIVE GRADE POINT	N=42 -1.49		N=62 1.50-1.99		N=76 2.00-2.49		N=35 2.50-2.99		N=18 3.00+	
Variable	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
E.P.P.S. (con.)										
Heterosexuality	22.06	6.12	19.55	6.06	21.00	6.02	19.86	6.97	17.65	6.08
Aggression	15.06	4.74	13.26	4.77	13.33	5.06	11.72	4.97	12.30	4.73
Consistency	7.59	3.30	8.50	3.27	8.69	3.43	7.75	3.26	8.60	3.63
S.C.A.T.										
Verbal	29.21	7.20	30.69	8.78	31.92	8.99	33.92	8.60	37.90	11.00
Quantitative	36.09	6.59	39.34	5.92	39.60	6.18	42.44	5.14	42.50	5.06
Total	65.26	11.74	70.03	12.19	71.54	11.42	73.81	15.02	80.40	13.29
Rank in H. S.	463.50	169.15	438.33	157.17	352.42	169.54	347.06	268.51	235.45	170.00
Cum. G.P. Avg.	.920	.467	1.780	.133	2.212	.148	2.720	.131	3.220	.210

APPENDIX A-TABLE VII

AN ANALYSIS OF THE SOCIO-ECONOMIC VARIABLES OF SUBJECTS IN THE STUDY BASED ON CUMULATIVE GRADE POINT AVERAGE

Cumulative Grade Point Average	-1.49	1.50-1.99	2.00-2.49	2.50-2.99	3.00+
I. Age					
Average	18.56	17.96	18.17	18.91	18.16
Range	18-23	17-20	17-24	17-29	16-25
Frequency					
16	0	0	0	0	1
17	0	14	12	5	2
18	12	38	54	21	14
19	2	8	6	1	0
20	1	2	0	0	0
21	0	0	0	2	0
22	0	0	2	2	0
23	1	0	1	1	0
24	0	0	1	1	0
25	0	0	0	0	1
28	0	0	0	1	0
29	0	0	0	1	0
II. Home State					
Washington, D. C.	0	0	1	0	0
Florida	0	0	1	0	0
Illinois	0	3	4	0	2
Indiana	5	17	27	15	4
Maryland	1	0	0	0	0
Michigan	1	9	7	3	3 3
Minesota	0	0	0	0	1
New Jersey	2	3	2	1	1
New York	0	4	5	1	1
Ohio	4	11	16	8	5
Pennsylvania	2	11	11	5	1
Vermont	0	1	2	0	0
Virginia	1	1	0	0	0
Washington	0	0	0	1	0
Wisconsin	0	1	0	1	0
Virgin Islands	0	1	0	0	0
III. Size of Home Town					
Country	2	21	15	12	5
Less than 5,000	2	4	15	6	3
5,000-15,000	2	19	15	6	3
15,000-100,000	5	9	20	8	4
Over 100,000	5	9	11	3	3

Cumulative Grade Point Average	-1.49	1.50-1.99	2.00-2.49	2.50-2.99	3.00+
IV. Marital Status					
Single	16	61	74	30	17
Married	0	1	2	5	1
V. Number of Children					
No Children	16	62	76	32	17
1 Child	0	0	0	1	0
2 Children	0	0	0	2	1
VI. Father Living					
Yes	15	56	75	32	17
No	1	6	1	3	1
VII. Father's Occupational Level					
I Professional	1	5	13	4	4
II Proprietors, Managers, Officials	0	4	8	1	4
III Clerks and Sales	3	16	11	7	4
IV Skilled	7	22	32	14	4
V Semi-Skilled	1	5	5	2	1
VI Unskilled	2	3	3	4	0
VII Retired or no Evidence of an Occupation	2	7	4	3	1
VIII. Father is U.S. Citizen					
Yes	15	62	76	34	18
No	1	0	0	1	0
IX. Father's Education					
Average	11.81	12.06	11.99	11.23	12.11
Range	7-17	8-17	6-17	6-17	10-16
Frequency					
6	0	0	1	1	0
7	2	0	0	0	0
8	0	3	6	3	0
9	1	1	5	1	0
10	0	5	5	3	2
11	1	5	2	0	2
12	8	35	40	17	12
13	0	3	3	1	0
14	3	3	4	2	0
15	0	1	2	1	0
16	0	3	5	3	2
17	1	3	3	1	0
Unanswered	0	0	0	2	0

Cumulative Grade Point Average	-1.49	1.50-1.99	2.00-2.49	2.50-2.99	3.00+
X. Highest Degree Held by Father					
H.S. Diploma	11	41	48	21	12
College Degree	0	5	7	4	2
Masters Degree	1	2	2	0	0
XI. Mother Living					
Yes	16	62	75	32	18
No	0	0	1	3	0
XII. Mother's Occupational Level					
I Professional	2	4	2	3	0
II Proprietors, Managers, Officials	0	0	3	0	0
III Clerks and Sales	5	12	13	7	0
IV Skilled	0	2	0	0	0
V Semi-Skilled	0	0	0	1	0
VI Unskilled	0	0	7	4	2
VII Retired or no Evidence of an Occupation	0	0	1	3	0
Housewife	9	44	50	17	16
XIII. Mother is U.S. Citizen					
Yes	15	62	76	34	18
No	1	0	0	1	0
XIV. Mother's Education					
Average	12.13	12.22	11.81	11.71	11.60
Range	7-16	8-16	8-18	4-17	8-14
Frequency					
4	0	0	0	1	0
7	1	0	0	0	0
8	0	3	6	2	1
9	1	2	1	0	1
10	1	4	5	3	1
11	0	3	1	0	0
12	7	35	52	25	12
13	2	0	2	1	0
14	1	8	8	1	1
15	0	1	0	0	0
16	2	6	0	1	0
17	0	0	0	1	0
18	0	0	1	0	0
Unanswered	1	0	0	0	2

Cumulative Grade Point Average	-1.49	1.50-1.99	2.00-2.49	2.50-2.99	3.00+
XV. Highest Degree Held by Mother					
H.S. Diploma	10	43	62	27	13
College Degree	2	7	0	1	0
Masters Degree	0	0	1	1	0
XVI. Siblings					
Average	1.63	2.35	2.09	2.37	2.44
Range	0-6	0-14	0-5	0-5	0-10
Frequency					
0	4	4	10	3	1
1	5	19	19	5	7
2	3	19	19	14	4
3	2	11	16	6	2
4	1	4	6	3	2
5	0	2	6	4	1
6	1	0	0	0	0
7	0	1	0	0	0
9	0	1	0	0	0
10	0	0	0	0	1
14	0	1	0	0	0
XVII. Family Attended Tri-State					
Yes	0	7	8	5	3
No	16	55	68	30	15
If Yes					
Brother		4	2	3	0
Brother-in-law		0	0	0	1
Father		1	4	0	2
Uncle		2	2	2	0

APPENDIX A-TABLE VIII

SUBJECTS STATED MOTHERS' OCCUPATION

Beautician
Cashier
City Treasurer
Clerk
Cook
Factory Worker
Housewife
Nurse
Office Worker
Real Estate Broker
Self Employed
Teacher
Telephone Operator
Waitress

APPENDIX A-TABLE IX

SUBJECTS STATED FATHERS' OCCUPATION

Architectural Engineer
Auditor
Bacteriologist
Bank Teller
Broadcaster
Butcher
City Health Officer
Civil Service Employer
Claim Adjuster
Clerk
Construction Worker
Crane Operator
Die Setter
Draftsman
Electrical Engineer
Farmer
Field Representative
Fireman
Floor Layer
Golf Pro
Heating Contractor
IBM Programmer
Insurance Salesman
Laboratory Technician
Laborer
Lathe Operator
Mechanic
Meter Reader
Military Man
Milk Driver
Mill Worker
Night Club Owner
Office Worker
Painter
Patternmaker
Plant Inspector
Plant Supervisor
Plastic Molder
Plumber
Postal Clerk
Purchasing Agent
Railroad Clerk
Real Estate Broker
Repairman
Restaurant Manager
Retired
Sales Engineer
Security Guard
Self Employed
Teacher
Tool and Die Maker
Trucker
Unemployed
Warehouse Employee
Welder
Yard Master

APPENDIX A-TABLE X

AN ANALYSIS OF ACADEMIC ACHIEVEMENT OF SUBJECTS IN THE STUDY BASED ON THEIR DECLARED COMMITMENT TO A GOAL

	Freshmen N=233	
	Committed N=118	Non-Committed N=115
Successful		
Academic Achievement	Number	Number
3.00+	7	11
2.99 - 2.50	21	14
2.49 - 2.00	42	34
Total	70	59
Unsuccessful		
Academic Achievement	Number	Number
1.99 - 1.50	30	32
1.49 -	18	24
Total	48	56

APPENDIX B

E.P.P.S. Intercorrelation Tables

APPENDIX B-TABLE I

MEANS, STANDARD DEVIATIONS AND ZERO-ORDER CORRELATION MATRIX OF 233 FRESHMEN MALE COLLEGE STUDENTS' ACADEMIC ACHIEVEMENT AND THE RELATIONSHIP TO SELECTED NON-INTELLECTUAL VARIABLES

	Variables	$\bar{X}$	S.D.	1	2	3	4
1	Total H.P.A.	2.1943	0.5245	---	.1371	.1093	.0783
2	Age	18.3085	1.6292		---	.0471	.1988**
3	Major	4.9701	2.3977			---	-.0569
4	Theoretical						---
5	Economic						
6	Aesthetic						
7	Social						
8	Political						
9	Religious						
10	Achievement						
11	Deference						
12	Order						
13	Exhibition						
14	Autonomy						
15	Affiliation						
16	Intraception						
17	Succorance						
18	Dominance						
19	Abasement						
20	Nurtrance						
21	Change						
22	Endurance						
23	Hetrosexuality						
24	Aggression						
25	Consistency						
26	Hometown Size						
27	Marital Status						
28	Father Living						
29	Father's Occ.						
30	Social Status						
31	Education						
32	Degrees Held						
33	Mother Living						
34	Mother's Occ.						
35	Education						
36	Degrees Held						
37	Siblings						
38	Rank in H.S.						
39	Grade Point (1)						
40	Occ. Class.						
41	Grade Point (2)						
42	Verbal						
43	Quantitative						
44	Total SCAT						
45	Grade Point (3)						

* r of .138 is significant at .05 with 200 df.
** r of .181 is significant at .01 with 200 df.

5	6	7	8	9	10	11	12
.0163	-.0904	.0061	-.1689	.0839	.1359	.0856	.0177
.0093	.0631	-.1525*	.0854	-.1120	.1738*	.1161	.1732*
.0841	-.0329	-.1171	.1737*	-.0703	.0740	.0096	-.1253
.1352	.1581*	-.0912	.1010	-.1912**	.2462**	.0139	.1026
---	-.1667*	-.0288	.1778*	-.0898	.1363	.1055	.0909
	---	.0028	-.0528	-.2360**	.0135	.0066	-.0127
		---	-.0953	.1843**	-.0777	.0511	.0055
			---	-.0559	.1268	.0131	.0288
				---	-.0434	.1370	.1406
					---	.1634*	.1096
						---	.3748**

13	14	15	16	17	18	19	20
-.2100**	-.0836	-.0134	.0631	.0161	-.0387	.0458	-.0111
-.2096**	-.0346	-.1594*	.1722*	-.2227**	-.0197	-.1669*	-.1005
.0413	-.0240	.0180	-.0035	.0347	.0752	-.0949	-.0469
.0628	.0860	-.0949	.0662	-.1549*	.0572	-.1858*	-.1852**
.0122	.0284	-.1162	-.1515*	-.0652	.0529	-.0049	-.1007
.1203	.1818**	.0458	.0395	-.0058	-.0518	-.0196	.0641
.0117	-.0931	.1057	.0104	.2777**	-.0198	.1985*	.2304**
.0203	-.0888	-.1531*	-.0561	-.1081	.2977**	-.1639*	-.2821**
-.0789	-.1496*	.0648	-.0483	.1008	-.0555	.2627**	.0935
.1073	.1430*	-.3096	-.0683	.0046	.2294**	-.2084**	-.2595**
.0197	-.2293**	-.0676	-.0394	-.0215	-.0849	.0244	.0115
-.1250	-.1471*	-.2581**	-.1470*	.0342	-.1193	.0861	-.1947**
---	.2362**	-.0830	-.0292	.0715	.1538*	-.1423*	-.1696*
	---	-.1935**	.0239	-.0320	.1007	-.2375**	-.2259**
		---	-.1170	.0445	-.2097**	.0931	.5663**
			---	-.1498	.0067	.1090	-.0114
				---	-.1615*	.0356	.1558*
					---	-.1830*	-.3156**
						---	.2545**

21	22	23	24	25	26	27	28
-.1653*	.1265	-.0484	-.0972	.0196	-.0516	.0999	-.0309
.0514	.1436*	-.0525	-.1458*	-.0971	.0438	.4937**	.1976**
-.0617	-.2089**	.0353	.1018	.1438*	.0173	.0734	-.0495
.0503	.0844	.0166	.0630	-.0243	.0604	.0955	.1545*
-.0171	.1281	.0482	.1479*	.1252	.0109	.1647*	.0898
.1799*	-.1107	.0751	.0607	.0269	-.1157	-.0348	.0356
-.0942	-.0799	-.0600	-.2177**	-.0677	-.0193	-.1013	-.0496
-.0710	-.0670	.0144	.2130**	-.0361	.1552*	-.0064	.0131
-.2262**	.2032**	-.2158**	-.1176	.0524	.0974	-.0563	-.1250
-.0738	.1898**	-.1224	.0614	.0601	.0553	.1408*	-.0283
.0340	.2864**	-.0932	-.0817	-.0139	.0602	.0890	-.0364
-.1274	.3419**	-.0417	-.1023	-.0526	-.0879	.1490*	.1022
.1661*	-.1884**	.1790*	.2463**	.1644*	.1101	-.1552*	-.0647
.1527*	-.0976	.0297	.4334**	.0874	.0081	-.0274	-.0488
.1239	-.1487*	.0205	-.2199**	.0737	-.0554	-.1888**	.0092
.0124	-.0688	-.1675*	-.0805	-.0530	.0281	.0273	-.0543
-.1357	-.2048**	.0808	.0450	.0077	-.0980	-.1895**	-.0632
.0228	.0485	-.0264	.2319**	.0188	.1169	.0344	.0029
-.1852**	.1039	-.1131	-.1432*	-.0222	-.0487	-.1567*	-.1489*
-.0148	-.1316	-.0968	-.2328**	-.0247	-.1552*	-.0775	.0097
---	-.0990	.0165	-.0348	.0987	-.0213	-.0773	.0351
	---	-.1503*	-.0271	-.0292	-.0693	.1518*	.0145
		---	.2106**	.1920**	.1083	-.0738	.1374
			---	.0991	.0942	-.0778	-.0097
				---	-.0347	-.0824	-.0453
					---	-.0570	.0472
						---	.0919

29	30	31	32	33	34	35	36
-.1304	-.0064	-.1001	-.0292	.1075	-.0636	-.1913**	-.1463*
-.0488	-.1376*	-.2820**	-.0535	.1702*	.1077	-.2307**	.0059
.0978	.0267	.1403*	.0757	.0166	-.0435	.0307	.0559
-.1320	-.1380*	-.0066	.0379	-.0016	-.0057	.0370	.1179
-.1023	-.1351	-.0531	-.0516	-.0106	.0318	-.0289	-.0427
.0139	.0292	.0318	.1419*	-.1267	.1208	.0382	-.0666
.0311	.0984	-.0574	.0030	-.0620	.0132	.0043	-.0694
-.0570	.0264	.0761	-.0636	.0911	-.1147	-.0903	.0382
.0351	.0652	-.0006	.0111	-.0067	.0014	-.0367	.0520
.0120	-.0108	-.0384	-.0187	.0662	-.0617	-.1299	.0012
.0538	.0265	-.0738	.0793	.0010	.0194	-.0437	-.1458*
.0538	-.0507	-.1321	.0532	.0759	-.0421	-.1678*	-.0879
.0209	.1277	.2143**	.0723	-.0867	.0935	.1842**	.0509
-.0752	.0534	.1234	.0691	-.1030	.0450	.1485	.1122
-.0295	-.0337	-.0265	-.0748	.0078	.0397	-.0178	-.2071**
-.0261	-.0040	.0069	-.0443	-.0832	-.0717	-.0002	.0828
.0524	.0023	.1729*	.0767	.0315	-.0317	.1097	-.0555
-.0152	-.0529	.1118	-.0003	-.0831	-.0193	.0260	.1335
-.0252	.0855	.0709	.0268	-.0587	-.0885	.0117	-.1537*
-.0389	-.0000	-.0647	-.0264	-.0178	.0468	-.0079	-.1074
.0141	-.0372	-.0234	-.0107	-.0157	.1038	.1604*	.1084
.0173	-.0251	-.1699*	-.0342	.0515	-.0219	-.1541*	-.0844
.0238	-.0500	.0384	.0615	.0073	.1177	-.0311	-.0167
-.0509	.0008	.1773*	.1492*	-.0562	.0374	.1068	.1050
.0099	-.0332	.1150	.0772	-.0898	.0722	-.0553	.0791
.0041	-.1112	.1559*	.1226	-.0065	.1486*	.0609	.0457
-.1312	-.2298**	-.1483*	-.0669	.0924	-.0393	-.1076	.0034
-.2775**	-.6937**	-.0972	.0378	-.0359	.0127	-.0963	.0325
---	.2710**	.0055	.0048	-.0374	.1873**	.1177	.2036**
	---	.0129	-.1572*	.0767	.0451	-.0019	-.0703
		---	.5717**	.0084	.0766	.2510**	.1035
			---	-.0468	.2062**	.1380	.0087
				---	-.0946	-.0502	-.0296
					---	.0873	.1442*
						---	.2824**

37	38	39	40	41	42	43	44
.0305	-.3023**	.7044	-.0643	.6765**	.2850**	.2607**	.2825**
-.0691	.0236	.0214	.0011	-.0384	.0163	-.1686*	-.0820
-.0843	.0882	.0084	-.0427	.2003**	-.0461	-.2387**	-.1293
.0821	.1541	-.0996	.0817	-.0703	-.0239	.0610	.0133
.0040	.0109	-.0564	-.0799	.0676	.0534	.0498	.0901
.0005	.1000	-.0335	.0514	-.1352	.0150	-.1537*	-.0503
.0858	-.0351	-.0400	.1309	.0102	-.1023	-.0701	-.1163
-.0971	.2319**	-.1546*	-.0860	-.0719	-.0853	-.1476*	-.1734*
-.0661	-.1547*	.0764	.0302	.1001	-.1056	-.0017	-.0766
-.0529	.0281	.0498	-.0124	.0683	.0696	.0618	.0586
-.0236	-.0261	.0738	-.0711	.1107	-.1244	-.0824	-.0865
.0395	-.0158	-.0836	-.0977	.0425	-.1897**	.0104	-.0891
-.1182	.0781	-.1918**	-.0373	-.1976**	-.0293	-.0516	-.0484
-.0620	.0167	-.0848	.0213	-.1090	.1905**	.0782	.1911*
-.0116	-.0877	.0517	.1435*	-.0655	-.0750	.0271	-.0125
-.0271	.0629	.1088	.0438	.0277	.1653*	.0144	.1657
-.0583	-.0416	-.0120	-.0519	.0512	-.1054	.0669	-.0093
-.0785	.0260	-.0074	-.0135	-.0016	.0746	-.0852	-.0641
.0058	.0188	.0723	-.1070	.0413	-.1149	.0430	-.0662
.0564	-.0949	.0133	.1412	-.0464	-.0396	-.0005	-.0029
-.0073	.0205	-.1092	-.0040	-.0902	.0529	-.1334	-.0220
.0498	-.1999**	.0744	-.0433	.1118	.0606	.1492*	.0403
-.0000	.0503	-.0756	-.0967	-.1160	.0291	-.0647	-.0490
-.1479*	.0417	-.1067	-.0502	-.0484	.1016	-.0026	.0556
-.0175	-.0668	-.0011	-.0600	-.0767	.0910	.0300	.0826
-.2327**	.1309	-.0079	-.0231	-.0348	.0314	-.0719	.0342
-.0354	-.0889	.0414	.0521	.0291	.0673	-.0481	.0324
.0156	-.0048	-.0128	-.2984**	-.0239	.0308	.0412	.0498
-.1166	-.0113	-.1544*	.2741**	-.0000	-.1205	-.1143	-.1344
.0916	-.0147	-.1019	.4452**	.0040	-.1857*	-.0346	-.1392*
-.0874	.0601	-.0726	-.2172**	-.0844	.0380	-.1009	.0358
-.0254	-.0378	-.0127	-.2509**	-.1009	.0189	-.0004	.0246
.0827	.0869	.0825	-.1070	.0502	.0316	-.0140	.0208
-.0948	-.0448	-.0674	.0511	-.1196	.0101	-.1151	-.0305
-.1701*	.0645	-.0690	.0034	-.2006**	.0396	-.0279	.0585
.0416	.1500*	-.1048	.0886	-.0804	.1195	-.0621	.0629
---	-.0079	.0002	-.0578	.0412	-.0997	.0623	-.0573
	---	-.2145**	-.0702	-.2026**	-.0740	-.2758**	-.1426*
		---	-.0742	.4932**	.2515**	.2815**	.2640**
			---	-.0867	-.0479	.0797	-.0059
				---	.1135	.1207	.1333
					---	.2951**	.7655**
						---	.6225**

45
.8237**
.1580*
.1458*
-.0175
.0310
-.0766
.0544
-.0876
-.0073
.1498*
.0368
.0119
-.1026
-.0169
.0198
.0002
-.0023
.0032
-.0292
-.0053
-.1829**
.0635
.0619
-.0852
.0639
-.1177
.1414*
-.0524
-.1025
.0820
-.1053
-.0649
.1378*
-.0519
-.2172**
-.1470*
.0156
-.2117**
.3710**
.0071
.4253**
.2166**
.2075**
.2018**

APPENDIX B-TABLE II

SUMMARY DATA AND TESTS OF SIGNIFICANCE USED IN THE PREDICTION OF ACADEMIC ACHIEVEMENT OF 233 MALE FRESHMEN STUDENTS AT TRI-STATE COLLEGE

			$R_{Y.1, \ldots, 44} = .96$ F = 45.82**		$R_{Y.1, 37, 38, 40, 44} = .95$ F = 336.60**		$R_{Y.1, \ldots, 37, 39, 43} = .59$ F = 2.26**		$R_{Y.1, 2, 6, 7, 9, 10, 11, 12, 19, 20, 26, 27, 28, 31, 32, 34, 37, 39, 43} = .59$ F = 4.99**	
Variable	Mean	Standard Deviation	Coeff. "b"	F	Coeff. "b"	F	Coeff. "b"	F	Coeff. "b"	F
1 Age	18.31	1.63	.0293	7.72**	.0167	5.71**	.0518	2.99	.0491	3.93**
2 Major	4.97	2.40	-.0044	.60			.0426	7.37**	.0427	9.26**
3 Theoretical	43.33	6.95	-.0024	1.49			-.0016	.08		
4 Econimic	45.59	7.96	.0009	.30			-.0001	.00		
5 Aesthetic	33.37	8.02	.0008	.20			.0013	.07		
6 Social	34.90	6.67	-.0015	.62			.0056	.98	.0060	1.38
7 Political	43.30	6.97	-.0024	1.34			-.0137	5.34*	-.0141	7.74**
8 Religious	37.66	8.74	.0018	1.21			.0024	.27		
9 Achievement	13.62	4.05	.0046	1.73			.0125	1.50	.0102	1.43
10 Deference	10.73	3.30	-.0040	.88			.0148	1.43	.0163	2.29**

Variable	Mean	Standard Deviation	Coeff. "b"	F	Coeff. "b"	F	Coeff. "b"	F	Coeff. "b"	F
11 Order	10.30	4.61	.0030	.84			-.0073	.62	-.0070	.74
12 Exhibition	13.56	3.80	-.0028	.60			-.0215	4.19*	-.0217	5.66**
13 Autonomy	13.32	4.26	-.0063	3.36			-.0058	.33		
14 Affiliation	13.50	4.51	-.0020	.29			.0014	.02		
15 Intraception	14.39	4.54	.0004	.02			.0005	.00		
16 Succorance	11.27	4.42	.0009	.09			.0022	.06		
17 Dominance	13.53	4.77	-.0052	3.33			.0057	.46		
18 Abasement	14.36	5.14	.0014	.24			.0028	.12		
19 Nurtrance	13.32	4.58	-.0012	.12			-.0137	1.75	-.0115	2.06**
20 Change	16.23	4.34	.0014	.21			-.0119	1.78	-.0145	3.52**
21 Endurance	13.37	5.22	.0001	.00			-.0018	.05		
22 Hetrosexuality	20.18	6.26	-.0026	1.41			.0036	.33		
23 Aggression	12.94	4.93	.0051	2.89			-.0014	.03		
24 Consistency	8.35	3.34	.0002	.00			-.0036	.10		
25 Size of Home Town	2.82	1.43	.0151	2.65			-.0076	.08		
26 Marital Status	1.06	.29	-.1028	4.02*			-.1573	1.09	-.1835	2.03**
27 Father Living	1.06	.24	-.0183	.06			-.2024	.85	-.2502	2.82*

Variable	Mean	Standard Deviation	Coeff. "b"	F	Coeff. "b"	F	Coeff. "b"	F	Coeff. "b"	F
28 Father's Occupation	16.79	14.44	-.0008	.77			-.0047	2.91	-.0046	3.61**
29 Social Status	24.86	7.72	-.0004	.02			.0020	.07		
30 Education	11.86	2.44	.0034	.24			-.0035	.03		
31 Degrees Held	.11	.35	.0203	.19			-.0729	.30	-.1006	1.09
32 Mother Living	1.02	.14	-.1151	1.63			.2820	1.15	.3000	1.63*
33 Mother's Occupation	3.17	4.79	-.0001	.00			-.0006	.01		
34 Education	11.50	2.85	.0066	1.84			-.0191	1.88	-.0219	3.27**
35 Degrees	.15	.74	-.0037	.04			-.0199	.13		
36 Siblings	2.22	1.77	.0115	2.54			-.0021	.01		
37 Rank in Class	378.86	194.60	-.0001	4.46*	-.0002	6.45**	-.0007	11.74**	-.0007	16.45**
38 Grade Point	2.32	.71	.2484	135.30**	.2655	200.93**				
39 Occupational Classification	3.27	2.70	-.0009	.02			-.0184	1.22	-.0196	2.09**
40 Grade Point	2.09	.82	.1570	66.90**	.1599	92.52**				
41 Verbal	32.21	9.21	.0024	1.04						
42 Quantitative	40.09	6.06	-.0020	.41						

Variable	Mean	Standard Deviation	Coeff. "b"	F	Coeff. "b"	F	Coeff. "b"	F	Coeff. "b"	F
43 Total	71.85	13.01	.0005	.08			.0111	13.81**	.0099	14.50**
44 Grade Point	2.06	.69	.4496	432.56**	.4395	546.92**				
45 Cumulative Grade Point	2.19	.52	.1935		.3991		1.6365		2.0342	
			3.89 required at .05 6.76 required at .01 (1,200 df)		1.54 required at .05 1.83 required at .01 (30,150 df)		3.89 required at .05 6.76 required at .01 (1,200 df)		1.54 required at .05 1.83 required at .01 (30,150 df)	

* Significant at the .05 percent level.
** Significant at the .01 percent level.
Y = Cumulative H.P.A. at the completion of three quarters.