A STUDY OF NON-INTELLECTIVE VARIABLES RELATED TO THE ACADEMIC SUCCESS AND ADJUSTMENT OF COLLEGE FRESHMEN FROM LOW SOCIOECONOMIC BACKGROUNDS

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Submitted to the faculty of the Graduate College
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in partial fulfillment of the requirements
for the Degree of
DOCTOR OF EDUCATION
July, 1970

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PREFACE

This dissertation is concerned with describing freshman students from low socioeconomic backgrounds who participated in the Federal Work-Study Program at Oklahoma State University in the fall of 1969 along a number of non-intellective dimensions. These measures were selected to help differentiate this group of students from those from middle and upper income groups in the general college population.

This study further focused on personality, study habits and attitudes, achievement motivation, and occupational aspirations variables as they relate to academic success.

Although some measure of randomization was achieved in the selection of subjects, the study appears to be limited to the population under consideration.

I would like to take this opportunity to express my appreciation to members of my committee, Dr. Frank McFarland and Dr. James Seals for their assistance and encouragement and to extend my most sincere gratitude to Dr. Harry K. Brobst as chairman of my thesis committee for his patience and assistance in the preparation of this dissertation.

I am indebted to Mr. Larry Thomas for his assistance in evaluating appropriate statistical procedures and interpretation of the results, and to doctoral candidate Mr. Gary Meunier for his assistance in gathering the data used in this study.

Finally, I would like to express my deepest appreciation to my wife, Roberta, and to my sons, Tony, David, Danny, and Mark, for their patience, encouragement and understanding during the entire time spent achieving the doctoral degree.

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CHAPTER I

THE NATURE OF THE PROBLEM

Introduction

As college populations have continued to grow, the needs, goals and backgrounds of the students have become more diverse. Contributing to this diversity has been the gradual increase over the years of participation by the state and federal governments in providing educational opportunities for its citizens particularly those from low socioeconomic backgrounds. Passage of the Economic Opportunity Act of 1964 marked an intensified effort by the federal government to raise the cultural, vocational, and educational levels of economically deprived groups in the United States. Prior to the passage of this act the lack of financial assistance made it very difficult for the majority of students from low socioeconomic groups to attend college.

The Economic Opportunity Act of 1964 consists of a broad collection of programs, one of which is the Work-Study Program which provides funds for colleges and universities for the part-time employment of students.

Title I, Part C -- Work-Study Programs, Section 121 of Public Law 88-452 states:

> The purpose of this part is to stimulate and promote the part-time employment of students in institutions of higher learning who are from low-income families and are in need of the earnings from such employment to pursue courses of study at such institutions.

The law specified criteria for the selection of students under this program. Section 121 also states:

> (c) provided that employment under such Work-Study Program shall be furnished only to a student who (1) is from a low-income family, (2) is in need of the earnings from such employment in order to pursue a course of study at such institution, (3) is capable in the opinion of the institution, of maintaining good standing in such course of study while employed under the program covered by the agreement, and (4) has been accepted for enrollment as a full-time student at the institution or, in the case of a student already enrolled in and attending the institution, is in good standing and in full-time attendance as an undergraduate, graduate, or professional student;
>
> (d) provided that no student be employed under such Work-Study Program for more than fifteen hours in any week in which classes in which he is enrolled are in session.

Subsequent federal legislation, The Higher Education Act of 1965, extended those goals of the Economic Opportunity Act of 1964 and amended parts C and D of Title I, Sec. 121 to read as follows:

> The purpose of this part is to stimulate and promote the part-time employment of students, particularly students from low-income families, in institutions of higher learning who are in need of the earnings of such employment to pursue courses of study at such institutions.

Cremin (21) states that the present period of interest in the education and vocational education of individuals from low socioeconomic backgrounds began in the early 1900's. Studies have been made of students at all educational levels to facilitate the understanding of the variables which relate to vocational and educational accomplishment. Currently, several research studies dealing with levels of motivation and aspirations, needs, and values of students at almost all educational levels are in progress or have been completed; however, studies using college level students from lower socioeconomic backgrounds as subjects are few in number.

Levine (48) contended that since individuals from the lower socioeconomic stratum are different, in various ways and to varying degrees, from those of a somewhat higher socioeconomic background, then those differences must be recognized in order to make the necessary adjustments in thought and actions to facilitate the adjustment and development of the economically deprived.

One result of the studies which have been made has been an increase of interest in the characteristics of the students which seem to be associated with performance in college. The identification of relevant factors associated with academic success presents a difficult challenge for researchers. However, research relating personal characteristics and college performance seems essential for improved procedures at all institutional levels to meet the needs of a diverse student population.

Purpose of the Study

This investigation is concerned with two groups of freshman male and female students at Oklahoma State University. Group I consists of male and female students identified as coming from low socioeconomic backgrounds by their participation in the Federal Work-Study Program. Group II consists of male and female students coming from middle and upper-class backgrounds.

The study will provide information concerning the educational and vocational aspirations, motivations, attitudes, and related personality variables of students entering college from the lower socioeconomic groups and the effects of one semester of college experience on these individuals.

More specifically, the purposes of this investigation are (1) to examine certain non-intellective factors which might differentiate the academically successful freshman students from the unsuccessful ones, (2) to determine if there are significant differences in these differentiating factors between students coming from low socioeconomic backgrounds and those from the middle and upper income groups, and (3) to study the relationship between these factors and the academic success of these two groups.

Need for the Study

Administrators and faculties are understandably concerned about the nature of the student population, particularly those characteristics which might contribute to the students' academic success or failure. They have questioned measures of ability as the sole relevant requisite for success. As a result of this concern and studies of non-academic variables, interest has been generated in characteristics of the students which seem to be associated with performance.

During the last several years a number of studies have been reported in the literature that have attempted to identify non-intellective factors that differentiate the academically successful students from the unsuccessful ones. These studies have utilized such tests as the Minnesota Multi-Phasic Scale, the Rorschach, the Manifest Anxiety Scale, and others. Other variables such as measures of interests, needs, values, adjustment, and socioeconomic factors have also been investigated as they contribute to the understanding of the success and non-success of college students. Significant differences on these variables have been reported by one researcher but are not supported by

another investigator. The differences which have been reported may be accounted for to some extent by the differences of the samples, definitions of success, and the influences of the particular environments of the colleges. In general, researchers agree that non-intellective factors can be utilized as predictors of college success, and that once groups of ability levels are controlled, non-intellective factors account for an increasing degree of prediction.

There is evidence that non-intellective factors contribute to the success or failure of a college student in his academic pursuits. The question arises that if a student has the ability to succeed in college, then what other factors help to determine his success or failure. If these non-intellective variables can be identified and if they do, in fact, identify the successful and non-successful student, they can become beneficial in the advising and counseling of students.

Underlying Assumptions of the Study

A major assumption of this study is that a listed number of non-intellective variables will be associated with academic achievement as herein defined.

A second major assumption is that of those students enrolled as freshmen in the fall of 1969 some will tend to achieve and some will tend to be unsuccessful. More precisely, the tendency to achieve or not to achieve is assumed to be evenly distributed within the populations investigated.

A third major assumption underlying this study is that all students enrolled as freshmen were exposed to comparable conditions.

Institutional factors such as teacher grading criteria and quality of instruction are considered as random variables in this study.

Limitations of the Study

The present study is limited to a group of freshman students participating in the Federal Work-Study Program and a like-sized group from the general college population at Oklahoma State University in the 1969-70 school year.

Only single full-time students who reside on campus were included in the study. Freshman students twenty years of age or older were excluded since they were not considered as representative of the typical freshman male or female. Only students eighteen years of age plus or minus a year were used in this study and are considered as typical of entering freshmen.

The criterion of achievement in each of the groups is limited to the grade point average received at the end of the fall semester in college.

Statement of Hypotheses

Hypothesis I: There are no statistically significant differences on the following measured characteristics among equal ability groups (EM, EF, CM, CF) of freshman students from the low socioeconomic backgrounds and those from the general college population on entry into college.

(a) Personality factors as measured by the 14 scales of the Omnibus Personality Inventory (OPI).

(b) Achievement motivation as measured by the Michigan State University Work Beliefs Check List (WBCL).

(c) Occupational aspirations as measured by the Occupational Aspiration Scale (OAS).

(d) Study habits and attitudes as measured by the Brown-Holtzman Survey of Study Habits and Attitudes (SSHA).

Hypothesis II: There are no statistically significant differences among the groups (EM, EF, CM, CF) on the following measured characteristics after one semester of college experience.

(a) Personality factors as measured by the 14 scales of the Omnibus Personality Inventory (OPI).

(b) Achievement motivation as measured by the Michigan State University Work Beliefs Check List (WBCL).

(c) Occupational aspirations as measured by the Occupational Aspiration Scale (OAS).

(d) Study habits and attitudes as measured by the Brown-Holtzman Survey of Study Habits and Attitudes (SSHA).

Hypothesis III: There is no statistically significant relationship between the following measured characteristics and the grade point average of each group after one semester of college.

(a) Personality factors as measured by the 14 scales of the OPI.

(b) Achievement motivation as measured by the WBCL.

(c) Occupational aspirations as measured by the OAS.

(d) Study habits and attitudes as measured by the SSHA.

Hypothesis IV: There are no statistically significant differences among the Experimental (EM, EF) and the Comparison (CM, CF) groups in grade point average at the end of one semester in college.

Hypothesis V: There are no statistically significant differences in dropout rates among the two groups (Experimental and Control) after one semester of college.

Definition of Terms

Experimental Group (EG) - Fifty students (25 male and 25 female) selected from the approximately 250 freshman students in the Federal Work-Study Program at Oklahoma State University.

EM Group - Experimental male group.

EF Group - Experimental female group.

Comparison Group (CG) - Fifty students (25 male and 25 female) matched to the Experimental Group on factors of sex and mean ACT composite scores and who are not eligible to participate in the Federal Work-Study Program because of family income.

CM Group - Comparison male group.

CF Group - Comparison female group.

Non-intellective Factors (NF) - Variables of personality and environment not measured by previous academic records or aptitude tests which might contribute to the achievement and attrition of a student.

Academically Successful Student (AS) - A freshman student who carries a normal academic load and receives a grade point average of 2.0 or above at the end of the first semester of his freshman year, based on A = 4.00, B = 3.00, C = 2.00, D = 1.00, F = 0.00 grade points.

Academically Unsuccessful Student (AU) - A freshman student who carries a normal academic load (12 to 14 credit hours) and receives a grade point average of 1.99 or below.

GPA - Cumulative grade point average over a defined period of time.

OPI - The Omnibus Personality Inventory.

SSHA - The Brown-Holtzman Survey of Study Habits and Attitudes.

OAS - Occupational Aspiration Scale: A measure of an individual's level of occupational aspiration.

WBCL - The Michigan State University Work Belief Check List; purportedly a measure of achievement motivation.

CHAPTER II

A REVIEW OF RELATED LITERATURE

In this chapter selected studies pertinent to the thesis of this investigation are discussed and summarized. Most of the studies reported herein are concerned with the significance of personality change, study habits and attitudes, motivation, and aspirations and their relationship to the academic achievement and adjustment of freshman students from different socioeconomic backgrounds.

Studies Relevant to Socioeconomic Background and Academic Performance

One of the major problems of our colleges and universities is how to meet the needs of student populations which in recent years have continued to become more diverse. Contributing to this diversity has been the increasing number of students enrolling in college from lower socioeconomic backgrounds. In the past, research has been mostly directed toward children from low socioeconomic strata in the elementary and junior high school age levels. The number of students from the lower socioeconomic levels, who attained the college level in the past, has been relatively small and correspondingly little research has concerned them. The lack of financial assistance has made it extremely difficult for most students from the lower socioeconomic strata to attend college. The influx of these students has necessitated further study into the

effects of socioeconomic status on academic performance and persistence. This becomes increasingly important if our institutions are to develop the intellectual talent of youth from all socioeconomic levels.

Levine (48) describes these individuals from the lower socioeconomic strata as being, in various ways and to varying degrees, different from those of a somewhat higher socioeconomic background. He contends that these differences must be recognized in order to make the necessary adjustments in thought and actions to facilitate the adjustment and development of the poverty stricken.

Austin (7) describes the education system as a middle class institution rewarding those who hold middle class values, while Olsen (60) in light of this statement, holds that children coming from the lower socioeconomic backgrounds do not have the proper attitudes to benefit from their educational experiences.

> The child born and raised in a lower class cultural milieu derives his basic perceptions and values from that milieu ... His ambitions, his hopes, his desires, his attitudes toward authority, education, success in school, his fears, his habits, his hates --- in short, his basic orientations toward life --- are, in many ways, so different from ours that we do not understand him nor does he understand us.

Clayton (20) states that it is well known through the studies of Roper, Stroup, and Havemann that a student's economic status plays a decisive role in determining whether he will attend college. Moreover, the financial resources of a student are important in determining how much free time he has for study. Finally, the economic status of a student as reflected in his family's income has conditioned his pre-college attitude toward education and has done much toward defining what role formal schooling will play in his choice of a vocation.

Berdie (8) pointed out the importance of economic status in making plans to attend college. His study concerning high school seniors indicated that 90 per cent of those whose fathers held high level occupations planned to attend college while only 55 per cent of those whose fathers were factory workers planned to attend.

Another study by the Educational Testing Service (25) found that fewer students from the lower than from the higher socioeconomic levels, who as high school students made plans to attend college, actually enrolled in college.

Washburn (73) chose a state supported institution in the Southwest and a privately endowed college in the Northeast to test his hypothesis that "academic performance would be positively and significantly correlated with the socioeconomic status of families of college students." His socioeconomic status scale was based on the educational level of the father and mother and on the highest occupational level of either parent. The samples consisted of only males and no support for his hypothesis was found at either institution.

In contrast, McQuary (55) studying 174 selected freshman males at the University of Wisconsin (1948-49, 1949-50) reported significant findings between the educational level of both the mother and father and the first semester college grades of their sons. Occupational level of the father did not appear as a significant factor.

A study published by Slocum (67), which included three freshman classes (1951, 1952, 1953) at the State College of Washington, reported significant findings on both the educational and occupational variables of the parents. The higher the educational level of the parents, the more likely the student's chances of survival and father's employment

at the professional, technical, or kindred level was significantly related to the survival rate of the son or daughter.

Magoon and Maxwell (52) at the University of Maryland analyzed the responses of 512 students on 22 demographic and psychometric variables to determine which variables might differentiate between high and low achievers in different colleges within the university. The variable, part-time employment, appeared as a significant one in some of the colleges and differences were reported by sex also. Reported results were:

> Among successful and unsuccessful Engineering students there was no significant difference in the hours of part-time employment ..... Among Arts and Sciences male groups, part-time employment patterns were significantly different (x^2 = 11.652, df = 2,P .01). Low achievers were twice as likely to be working up to ten hours per week than were high achievers. There was no difference in part-time work for Arts and Sciences women, but among Education women high achievers were more likely to be holding part-time jobs than were low achievers.

Anderson's (3) study of employed versus non-employed students showed that college students who worked to obtain necessary money were no poorer in performance than students who did not work; in fact, in some instances, they obtained better grade point averages than did non-working students of matched ability.

Studies of dropouts from college have revealed that students from the middle and lower socioeconomic levels constitute a large percentage of dropouts.

Astin (5), in a study of National Merit Scholars, reported that low socioeconomic background was one factor that identified the entering student of high aptitude who was most likely to drop out. For both sexes, father's education, mother's education, father's occupation, and

number of his peer group attending college predicted potential dropouts within this group at the .01 level of significance.

Caskey's (18) study at Oklahoma State University found that a relatively small percentage of dropouts came from the higher socioeconomic levels of the professions.

Astin (5), in a longitudinal study of 6,660 high ability college dropouts, found that the college student most likely not to complete his degree would be one from the lower socioeconomic classes. Further study of these cases using the California Personality Inventory showed that the average dropout tended to be aloof, self-centered and assertive, and emphasized personal pleasure.

Marsh (56), who reviewed the literature on college dropouts, concluded that although financial reasons is one important factor, personal reasons are at least equally important.

Bradfield (10), studying low-income freshman males, found that they showed personal characteristics similar to those which appeared in studies of college dropouts. He found that one semester of college accentuated these characteristics but found no significant difference between the low-income group and a control group as measured by the grade point average at the end of one semester and no differences in levels of aspiration.

Smith (68) concluded that underachievement and overachievement are not particular to any socioeconomic level, while Ralph and associates (63) reported that students with a history of successful academic achievement tend to come from higher socioeconomic and educational background. However, Lipset and Bendix (49) stated that a number of

investigations agree that intelligence held constant, and college grades showed an inverse relation to economic advantage.

Schroeder and Sledge (65), in their review of factors related to collegiate academic success, felt the results of studies on the effects of socioeconomic status were inconclusive. Their own study suggested that personal or motivational factors may be more important determinants of collegiate achievement than familial factors such as socioeconomic level of the parents.

Studies Relevant to Personality Factors

Personality needs of students have been utilized in the search to identify non-intellective factors that contribute to college success. Until very recently, psychiatrists, psychoanalysts and psychologists have tended to emphasize the fixity of the personality in the college years. They have regarded the years of early adolescence, ages 11 to 16, as the last period in which important personality change takes place.

Freedman (28) feels that very important changes in personality can and often do take place spontaneously during the college years. The situation of the college student, particularly that of the freshman, would appear highly favorable to change.

Stewart (70), however, states that studies on the impact of the college experience on personal characteristics of students have been inconclusive.

Izard (44), in a follow-up study of all male seniors who had been tested as freshmen on the Edwards Personal Preference Schedule (EPPS), found some evidence for a decrease in "other directed" behavior,

decreased feelings of guilt and inferiority, increased capacity to find rewards from governing one's own behavior, increased self-assertiveness, and heterosexuality; in other words, he saw a general development toward social and emotional maturity.

Plant and Minium (62) studied differential personality changes for low and high aptitude groups. They concluded that there was substantial evidence to suggest that changes in certain personality characteristics do take place in college students. Their findings exhibit a substantial tendency for young adults of higher aptitude to exhibit more non-intellective change over time and in the direction of the trend of college students in general.

Brown (11) found that fairly stable personality structures exist at the time of the college experience, however, from existing studies changes do take place as a function of college attendance.

Gough (31), in a cross-sectional testing program using the California Personality Inventory and the Strong Vocational Interest Blank concluded that the college freshman stands somewhere between the high school freshman and the graduate student on tolerance, flexibility of thinking, and psychological mindedness.

Elton (26) investigated the pattern of change occuring in personality test scores for a sample of 130 college females using the Omnibus Personality Inventory (OPI). Predictions that the degree of change would be related to ability measures, college majors, and original status in personality test scores were not substantiated, however, significant differences were found between the three groups in the degree of change.

Wessell and Flaherty (76) were able to demonstrate changes after one year of college in some personality traits as measured by the California Personality Inventory, namely, increases in capacity for status, social presence, self-acceptance, and achievement of independence. Decreases in sense of well-being and socialization were also found.

Heilbrun (36), using the EPPS, reported that men who achieved in college were likely to score high on Achievement and Endurance and low on Change. The male non-achiever was likely to score high on Nurturance. Women achievers were likely to score high on Exhibition, Autonomy and Aggression.

Norfleet (59), utilizing the California Psychological Inventory (CPI) and the Gough Adjective Check List (ACL) in an investigation of the relationship between personality characteristics and academic achievement in gifted university women, found that several scales of the CPI differentiated achievers from underachievers. ACL results indicated that the underachiever appears to be more immature and less adequately socialized than the achiever.

Lang, Sferra and Seymore (47) reported a study using the 15 need variables of the Edwards Personal Preference Schedule (EPPS) in an attempt to ascertain what relationships existed between psychological needs and academic accomplishment. Their sample consisted of 38 male and 49 female college freshmen at Fairleigh Dickenson Univeristy. Significance was reported at the .01 and .05 levels. These researchers found significant positive relationships between Achievement and Dominance needs and academic achievement and a significant negative

correlation with Nurturance and academic achievement for women. For the male students academic differences correlated positively with Order and negatively with Dominance.

Long (50) utilized the Guilford-Zimmerman Temperament Survey and the Kuder Preference Record as instruments to attempt to find non-academic variables that would contribute to better academic prediction of freshman students at the Norfolk Branch of the College of William and Mary. In this study, Long reported sex differences on non-academic variables. For women the following four variables contributed to the equation for predicting academic success: Inactivity - General Activity, Artistic Interest, Persuasive Interest, and Hostility - Friendliness. For men the predictive variables were Impulsiveness - Restraint, Subjectivity - Objectivity, Scientific Interest, and Hostility - Friendliness. It appeared that interest patterns may be more important for women and that personality factors may be more important to men.

Heilbrun (38) also used a needs scale based on the Gough Adjective Check List in his search to determine if there were any differences on the needs scales between freshmen female college dropouts and those that continued. He reported that those who remained in college were at the college means for Achievement, Endurance and Order but that the dropout group means were below the college means on these three factors. The mean for the Change factor for the dropout group was higher than the college mean. In another study, Heilbrun (37) matched dropouts and non-dropouts in sex and ability level and found that the dropouts were more assertive, less conforming to the demands of the institution, and less task oriented.

A lack of feeling of responsibility appeared as a major feature in several studies. Using the Minnesota Multiphasic Inventory, Grace (32) concluded that dropouts were more dependent, more anxious, and less responsible than non-dropouts.

McConnell and Heist (54) feel that all too little is known statistically or experimentally about the relationship between the personality characteristics students bring to college and their academic achievement, either in the conventional sense of grades and persistence, or in the more subtle sense of independent, critical, and creative intellectual competence (which are seldom reflected in academic marks). Even less is known about the relationship between personality structure and the attainment of personal maturity and effectiveness. But the first step in making these studies is to know the entering student, to know him as an actual or potential scholar, to know him as a person, and to see him against his background and against the college environment and its subcultures.

Studies Relevant to Motivation and Aspirations

The study of achievement motivation has been neglected in the past and only in recent years have efforts been made to evaluate its role in the success or failure of the college student. Colleges for a long time have stressed ability and preparation and, to a less extent, motivation as the most important aspects of readiness for college.

McClelland and his associates (53) in long range research programs have investigated the achievement motive. This motive is identified on the basis of the individual's expectation of success accompanied by involvement. In attempting to measure this characteristic all subjects

were required to be ego involved in the testing situations. Several studies were reported in which the relationship between the Achievement need, as measured by the Thematic Apperception Test (TAT), and college grades was calculated. Contradictory results were obtained since one study found a significant correlation of .51 between Achievement need and college grades (a fairly good relationship) and another study showed a correlation of only .05 between Achievement need and grades (almost no relationship at all). The general conclusion was that this relationship was indefinite and probably a variable one and that the presence of other factors that affect grades would prevent an extremely high relationship.

Blanton and Peck (9), studying a group of freshman women, found that a measure of motivation for academic achievement formed the best predictor of grade point average (GPA) at the end of one semester of college work. Gordon's (30) summary is representative of the theory and meager findings in the area.

> The degree and direction of motivation in socially disadvantaged children are frequently inconsistent with the demands and goals of formal education, although the nature of their aspirations is usually consistent with the childrens' perceptions of availablility of opportunity and reward. On the other hand, symbolic rewards and postponement of gratification appear to be inoperative as positive norms in motivation. Goals for these children tend to be more self-centered, immediate, and utilitarian. There is usually no concern with aesthetics of knowledge, symbolization as an art form, introspection, and competition with self. Drive is present, but its direction and goals may be complementary to academic achievement. These several conclusions are drawn primarily from theoretical discussions of motivational problems in this population; the research is not rich on the subject.

Uhlinger and Stephens (72) studied the relationship between achievement motivation and academic achievement and assessed the relative predictive and convergent validity of measures of achievement

motivation. They used 72 Special Merit Scholarship freshman students, relatively homogeneous in aptitude, past achievement, and socioeconomic status. Generally, high achievers were found to have a greater expectancy for academic success and higher minimal grade goals than did low achievers.

A Study by Brown, Abeles, and Iscoe (14) cites serveral investigations concerned with factors influencing student success and failure in college. The results of the studies cited would emphasize that the student's attitude toward academic life may be as important (maybe even more so) than specific study habits, study aids, tutorial possibilities or native intelligence. They report a series of three studies concerning motivational differences between high and low scholarship students in college. They postulate their findings as follows:

> 1. The poor college student is characterized by activity delay, i.e., a lack of decisiveness of action, a tendency to procrastinate and perhaps an unwillingness to conform to academic requirements, routine and regulations.
>
> 2. This activity delay is not limited to the classroom only but exhibits itself in regard to activities usually regarded as outside the classroom sphere such as voluntary participation in research studies in psychology and university-wide projects such as attitude surveys.
>
> 3. This study pointed toward the assumption that the poor-scholarship student does not necessarily score lower on psychological tests designed to measure intelligence, but that very often factors of interest and motivation are primary con-contributors towards low scholarship.

Competent people who have studied attrition have concluded that lack of motivation with reference to college accounts for a substantial number of dropouts. A review of the literature on college dropouts points up the need for basic research with emphasis on student motivation in the college environment. Summerskill (71) reviewing motivational studies states:

> This is not to deny that motives for dropping out are very much connected with college itself. In most existing studies the largest proportions of dropouts are attributed to 'lack of interest in college', 'lack of interest in studies', etc. Basically the trouble is that we just don't know what kinds of motives do indicate future college success. In fact, we don't know how to discern student motives with much accuracy.

Freedman's (28) study found that a lack of values for education associated with lack of motivation was also a frequent cause of academic failure.

Iffert (43) concluded that we do not know what motivational forces are actually predictive of college success, and we do not know how to accurately assess such motives in students.

Weigand (74) concludes an extensive psychological study of 81 dropouts at the University of Maryland by suggesting that "future studies investigating motivational factors should emphasize actual behavior of the individual."

McConnell and Heist (54) felt that available evidence of objectives, attitudes, and levels of motivation of college students is adequate to justify further research, since the implications of the presently available results are of fundamental significance to higher education.

Summerskill (71) concluded that the largest number of dropouts involve motivational forces -- goals, interests, satisfaction relative to college and other facts of student life. He emphasizes the difficulty of proving or developing this propositon because the motivational psychology of college students is in a vague and crude state.

The study of factors related to the educational and vocational aspirations of adolescents has been an important area of research,

however, studies using college students from different social levels are somewhat limited.

In a pioneer study in the field of aspiration, Chapman and Volkman (19) studied experimentally some possible social determinants of level of aspiration. They reasoned that one way in which social evironment might determine the level of aspiration of a given individual would be through his knowledge of the achievement of groups whose status or ability, relative to his own, he could assess.

Herriott (41), in his studies, assumes the existence of variables which intervene between the social, economic, and intellectual characteristics of an adolescent and his educational plans.

Kahl (45), investigating the attitudes which working class parents instilled in their children, found that those lower class parents who were dissatisfied with their own lives tended to train their sons to view education as a means of class elevation, whereas those parents who did not show dissatisfaction did not instill these values to their sons. The boys of the dissatisfied parents had higher aspirations and appeared more motivated to overcome deterrent factors in getting an education.

Kraus (46) recognized differences in interests and values between middle-class and working-class college students and also noted that many middle-class values and interests are shared by working-class students who enter college. He concludes that this may reflect anticipatory socialization.

Merton (57) and others have pointed out that taking on values and forms of behavior of another group facilitates entry into that group. (The similarities between the college oriented working-class and the college oriented middle-class students are striking in regard to

occupational preference, income expectations, belief in the existence of opportunity, and esthetic interests.)

Weiner and Murray (75) attempted to account for conflicting evidence regarding aspiration levels of parents from different social levels. They suggested that parents at different levels may have the same level of aspiration for their children, but the upper-status groups are more certain that their aspirations may be fulfilled. It was found that most parents and children at lower and upper levels listed professional occupations as goals. However, only 37 per cent of the lower-status children were taking college preparatory courses while 100 per cent of the children from middle-class families were taking college preparatory courses.

Haller (34) found support for the hypothesis that occupational aspiration and occupational achievement are related. However, this hypothesis is not supported with sufficient evidence to merit the extent to which it appears as an assumption in other research.

Empey (27) shows that relative and absolute measures of aspiration level give different results, and that lower-class youth are more likely to aspire to an occupational level above their fathers than are middle-class youth, while their anticipated levels are not significantly below their preferred levels.

Other surveys using large samples have investigated social, economic, and intellectual characteristics of adolescents related to educational plans. Some findings show that boys have higher aspirations than girls; that children of well educated parents have higher aspirations than children of less educated parents; and that children of high income families have higher aspirations than children of low income families.

Studies Relevant to Study Habits and Attitudes

Research on study habits and attitudes as they relate to the academic success of college students from low-income families is not abundant. One can only assume from studies which have been done that students at all economic levels were involved and that differences due to the socioeconomic background of the students have not been emphasized. Much of the available literature centers around the development of an instrument to measure selected variables and their relationship to academic success. The Brown-Holtzman Survey of Study Habits and Attitudes (SSHA) has been the major instrument used for research.

Lum (51), using the Brown-Holtzman Survey of Study Habits and Attitudes (SSHA), equated three groups on scholastic aptitude and other pertinent variables and then administered the SSHA as one of the instruments in her comparison of underachieving and overachieving female college students. One of her conclusions was that overachievers differed significantly from the normal and underachievers on the total score of the SSHA.

Diener (23) at the University of Arkansas reported in his study that overachieving males had better study habits while Brown and DuBois (13) found subscales of the Brown-Holtzman Survey of Study Habits and Attitudes (SSHA) correlated significantly with earned grade point averages of high ability freshman males.

Brown (12) sought to determine if scores on the SSHA taken during summer orientation were related to first quarter grades at Iowa State University. This study confirmed the results of previous studies that study habits and attitudes were positively related to college grades but that this variable contributed little to prediction formulas.

Brown and Holtzman (15) attempted to determine the extent to which study behavior and attitudes toward studying contribute to academic achievement in high school and determine stability of these attitudes during the period of transition from high school to college. Subjects for the study consisted of 228 girls and 227 boys, all high school seniors. The researchers concluded from the study that study habits and attitudes which are developed in high school students play a significant role in both high school and subsequent college achievement. They also concluded that attitudes of high school seniors toward studying remained relatively stable through the period of transition from high school to college.

Seals (66) in a study analyzing sex differences in study habits, study attitudes, and study knowledge of college freshmen concluded differences did exist in scholastic motivation, scholastic behavior, and academic skills. In all cases where significant sex-based differences were identified, females scored higher than males. He found also that study attitudes appear to be somewhat more important than study habits in their influence on the academic achievement of college freshmen.

Anderson and Kuntz (4) analyzed Survey of Study Habits and Attitudes scores of 40 probationer (P) and 40 non-probationer (N) students at Texas Tech for the purpose of determining how well the instrument could identify college students making unsatisfactory achievement. The two groups were not significantly different in terms of scores but both groups did differ significantly from a general population of students on SSHA scores. Seventeen items on the SSHA discriminated significantly between N and P groups. A tentative qualitative generalization

is that probationers are more prone to be defensive and to cover psychological weaknesses than clients who volunteer for counseling.

DeSena (22) indicated that the SSHA was useful in differentiating between academically successful and unsuccessful students in college.

Ahmann, Smith and Glock (2) investigated the usefulness of the SSHA for predicting first semester grade point averages, the ability of individual items to differentiate between over and underachievers, and computed the discriminating powers of the individual items. Freshman students enrolled at Cornell University in the falls of 1955 and 1956 were used in this study. A multiple regression equation was used for the purpose of predicting first semester grade point averages. Raw scores of the SSHA failed to correlate significantly with first semester grade point average and made no appreciable contribution to prediction of these averages when included in a test battery selected for that purpose. In addition, male over and underachievers rarely differed in terms of their responses to individual items included in the instrument, and did not differ significantly in terms of raw score means. Finally, the discriminating power of most of the items was quite satisfactory. It was concluded that the SSHA did not in this instance display predictive validity to any noticeable degree, although the test items did consistently exhibit satisfactory discriminating power.

Brown and Holtzman (16), using high and low scholarship groups matched on relevant variables, attempted to develop a self-rating questionnaire that would measure a student's study habits and attitudes of importance to academic success. They concluded that attitudes toward studying can be measured by objective procedures and play a substantial role in subsequent academic achievement; that performance on the SSHA is

only slightly related to scholastic aptitude as measured by the ACE Psychological Exmaination or similar tests; and that the unique predictive validity of the SSHA is important evidence of its relevance for counseling purposes, diagnostic testing, investigation of the educational process, and as a teaching aid in remedial or how-to-study classes.

Summary

In summarizing this review of the literature one finds that specific studies involving college students from the lower socioeconomic strata are not numerous. Research dealing with the effect on college performance of such factors as personality characterisitcs, attitudes toward education, aspirations, and motivation which students from low socioeconomic levels bring to college has also been minimal. However, from the studies which have been done, it can be concluded that these non-intellective factors determine to some extent the student's success in college.

Most of the studies of socioeconomic background seem to agree that economic status plays a decisive role in determining whether a student will attend college and whether he will remain once he is enrolled. On the other hand, some studies conclude that although financial reasons is one important factor in persistence, personal or motivational factors may be more important determinants of college achievement.

Studies of personality and motivational and attitudinal factors as well as economic factors may suggest that differences exist between students from the lower socioeconomic strata and those from middle and upper income groups, however, this must remain an inference at the

present time since very little research has been conducted at the college level indicating on what dimensions these groups differ or indicating the direction or degree of those differences.

The literature cites attempts to utilize personality characteristics of students as variables contributing to academic success. Although these studies have been inconclusive, some relationship has been shown between personality characteristics and academic success. Positive relationships have been found between academic achievement and such variables as achievement and dominance needs. Negative relationships have been found between academic achievement and other personality variables. Further studies show either positive or negative relationships between a variety of personality variables and academic achievement as well as relationships between these variables and students who do or do not persist in college. There is, however, some disagreement as to the contribution of any specific variable to the academic success and persistence of the student.

Existing literature does not agree on the extent of personality change during the college years, yet, there seems to be substantial evidence to suggest that change does take place. The review of the literature provides examples of the different positions taken in view of research which has been completed. Some researchers see the position of the freshman student as being favorable to change while others postulate that fairly stable personality structure exists during the college years. Personality variables measured in the studies are many and complex, however, in general, studies have shown that changes toward social and emotional maturity do take place, namely, social presence, self-acceptance, and achievement of independence.

Limited research on achievement motivation as it relates to academic success has yielded contradictory results. The motivational psychology of college students is described as being in a vague and crude state. Some studies indicate a "lack of motivation" as a frequent cause of academic failure while others have pointed out difficulties in measuring achievement motivation with accuracy. Other research on the achievement motive has found indefinite and variable relationships to college grades. The available evidence presented in these studies seems adequate to justify further research of the achievement motive.

Educational and vocational aspirations of students have been studied extensively below the college level. In the literature some differences are noted. For the most part, existing studies relate aspirations to demographic factors such as family background, economic status and parents' occupation. Studies using college students as subjects are somewhat limited and the findings are inconclusive, however, some relationships have been found to exist between aspirations and achievement.

Brown and Holtzman (17) have been the primary researchers of the study habits and attitudes of high school and college students. Studies using groups from low-income families as subjects are not found in the literature. Most of the existing research has centered around developing an instrument to measure these non-intellective factors, to determine their effect on academic achievement and persistence, and to evaluate their importance as predictors of academic success.

In this review of the literature a number of the studies of personality, aspirations, motivation, and study habits and attitudes did not include socioeconomic level as a factor under consideration. Since

this variable is unknown in these studies, we can only assume that a representation of students from all socioeconomic levels was included. In view of the increased opportunities provided for students from low-income families to attend college and the number who are now taking advantage of those opportunities, further research using these students as subjects could provide important information for college counselors and related personnel workers to improve advisement procedures and more adequately meet the needs of this group of students.

Chapter III will include a discussion of the instruments selected to implement this study, a description of the subjects in question, methodology, and the statistical procedures used for analyzing the data.

CHAPTER III

DESIGN AND METHODOLOGY

This chapter presents a description of the subjects used in the investigation and the instruments used to measure characteristics of the students presumed to be related to their academic success. The methodology used is presented followed by a description of the statistical procedures employed for testing the hypotheses stated on pages 6 through 8 in Chapter I.

Subjects

Subjects for this study were drawn from the freshman population at Oklahoma State University. The experimental groups were drawn from freshman students participating in or approved for participation in the Federal Work-Study Program. Those groups consisted of 25 freshman males and 25 freshman females selected from approximately 250 participating students. These students are defined by Section 121 of Public Law 88-452 of the Economic Opportunity Act of 1964 as coming from low income families. Like-sized comparison groups were drawn from the general college population and were limited to students who could not qualify for the Work-Study Program on the basis of family income. Comparable ability groups in both the experimental and comparison groups were established according to mean ACT scores in order to control the intellective characteristic. All of the subjects were between the ages of 17 and 19,

were unmarried, and all resided in college housing during the fall semester of the 1969-70 school year. Tables I, II and III present the subjects selected for this study.

TABLE I

SUBJECTS USED IN THE STUDY
N = 100

	Number	Chronological Age Range	Chronological Age Mean	Composite ACT Mean
Experimental				
(Male) EM	25	17 - 19	18.04	22.52
(Female) EF	25	17 - 19	17.96	22.12
Comparison				
(Male) CM	25	17 - 19	18.12	22.56
(Female) CF	25	17 - 19	17.84	22.44

The mean chronological age in the four groups ranges from 17.84 to 18.12 and the difference in mean age between the groups is not significant at the .05 level of confidence. This is shown in Table II. Composite ACT means ranged from 22.12 to 22.56 and the difference in ACT means between the groups was not significant at the .05 level. This is shown in Table III.

TABLE II

ANALYSIS OF VARIANCE BETWEEN THE GROUPS ON CHRONOLOGICAL AGE

Source of Variation	d.f.	Sum of Squares	Mean Square	F	P
Between	3	14.8	.40	2.59	ns
Within	96	1.2	.154		
Total	99	16.0			

To be significant at the .05 level of probability for 3 and 96 d.f., an F value of 2.71 is required.

TABLE III

ANALYSIS OF VARIANCE BETWEEN THE GROUPS ON MEAN COMPOSITE ACT SCORES

Source of Variation	d.f.	Sum of Squares	Mean Square	F	P
Between	3	2.99	.997	.098	ns
Within	96	975.20	10.158		
Total	99	978.19			

To be significant at the .05 level of probability for 3 and 96 d.f., an F value of 2.71 is required.

Instruments

The following psychological instruments were used in this study: (1) The Omnibus Personality Inventory (OPI), (2) The Brown-Holtzman Survey of Study Habits and Attitudes (SSHA), (3) The Occupational Aspiration Scale (OAS), (4) The Michigan State University Work Beliefs Check List (WBCL), (5) The American College Test (ACT). All instruments were administered as a part of the experiment except the ACT. Subject scores on this instrument were obtained from college files in the Bureau of Tests and Measurements.

The Omnibus Personality Inventory (see Table IV) was selected as a device for obtaining measures of personality. In its original and revised versions, it was used in a number of investigations at the Center for the Study of Higher Education in Berkeley, California. Forms C and D have also been used in a variety of studies of undergraduate students in various medical schools, institutes of science and technology, and institutes of art. In most of these studies the OPI served three purposes: (1) to furnish certain criterion scores, as independent variables, for the selection of "types" of students, (2) to provide a basis for differentiating among student "types" and groups and describing the composition of incoming student bodies, and (3) to provide a basis for measuring change over one or more years in a number of non-intellective characteristics.

The Omnibus Personality Inventory (OPI)

The general content of this instrument was constructed to assess selected attitudes, values, and interests, chiefly relevant in the areas of normal ego functioning and intellectual activity. Almost all

TABLE IV

SCALES OF THE OMNIBUS PERSONALITY INVENTORY

OPI Thinking Introversion (TI)-43 items: Persons scoring high on this measure are characterized by a liking for reflective thought and academic activities. They express interests in a broad range of ideas found in a variety of areas, such as literature, art, and philosophy. Their thinking is less dominated by immediate conditions and situations, or by commonly accepted ideas, than that of thinking extroverts (low scorers). Most extroverts show a preference for overt action and tend to evaluate ideas on the basis of their practical, immediate application, or to entirely reject or avoid dealing with ideas and abstractions.

OPI Theoretical Orientation (TO)-33 items: This scale measures an interest in, or orientation to, a more restricted range of ideas than is true for TI. High scorers indicate a preference for dealing with theoretical concerns and problems and for using the scientific method in thinking; many are also exhibiting an interest in science and in scientific activities. High scorers are generally logical, analytical, and critical in their approach to problems and situations.

OPI Estheticism (Es)-24 items: High scorers endorse statements indicating diverse interests in artistic matters and activities and a high level of sensitivity and response to esthetic stimulation. The content of the statements in this scale extends beyond painting, sculpture, and music, and includes interests in literature and dramatics.

OPI Comlexity (Co)-32 items: This measure reflects an experimental and flexible orientation rather than a fixed way of viewing and organizing phenomena. High scorers are tolerant of ambiguities and uncertainities; they are fond of novel situations and ideas. Most persons high on this dimension prefer to deal with complexity, as opposed to simplicity, and very high scorers are disposed to seek out and to enjoy diversity and ambiguity.

OPI Autonomy (Au)-43 items: The characteristic measured by this scale is composed of liberal, non-authoritarian thinking and a need for independence. High scorers show a tendency to be independent of authority as traditionally imposed through social institutions. They oppose infringements on the rights of individuals and are tolerant of viewpoints other than their own; they tend to be realistic, intellectually and politically liberal, and much less judgmental than low scorers.

TABLE IV, Continued

OPI Religious Orientation (RO)-26 items: High scorers are skeptical of conventional religious beliefs and practices and tend to reject most of them, especially those that are orthodox or fundamentalistic in nature. Persons scoring around the mean are manifesting a moderate view of religious beliefs and practices; low scorers are manifesting a strong commitment to Judaic-Christian beliefs and tend to be conservative in general and frequently rejecting of other points of view. (The direction of scoring on this scale, with religious orientation indicated by low scores, was based chiefly on the correlation between these items and the first four scales, which measure a general intellectual disposition.)

OPI Social Extroversion (SE)-40 items: This measure reflects a preferred style of relating to people in a social context. High scorers display a strong interest in being with people, and they seek social activities and gain satisfaction from them. The social introvert (low scorer) tends to withdraw from social contacts and responsibilities.

OPI Impulse Expression (IE)-59 items: This scale assesses a general readiness to express impulses and to seek gratification either in conscious thought or in overt action. High scorers have an active imagination, value sensual reactions and feelings; very high scorers have frequent feelings of rebellion and aggression.

OPI Personal Integration (PI)-55 items: The high scorer admits to few attitudes or behaviors that characterize socially alienated or emotionally disturbed persons. Low scorers often intentionally avoid others and experience feelings of hostility and aggression along with feelings of isolation, loneliness and rejection.

OPI Anxiety Level (AL)-20 items: High scorers deny that they have feelings or symptoms of anxiety, and do not admit to being worried nervous. Low scorers describe themselves as tense and high-strung. They may experience some difficulty in adjusting to their social environment, and they tend to have a poor opinion of themselves. (Note the direction of scoring on this scale: a high score indicates a low anxiety level, and vice versa.)

OPI Altruism (Am)-36 items: The high scorer is an affiliative person and trusting and ethical in his relations with others. He has a strong concern for the feelings and welfare of people he meets. Low scorers tend not to consider the feelings and welfare of others and often view people from an impersonal, distant perspective.

OPI Practical Outlook (PO)-30 items: The high scorer on this measure is interested in practical, applied activities and tends to value material possessions and concrete accomplishments. The criterion most used to evaluate ideas and things is one of immediate utility.

TABLE IV, Continued

	Authoritarianism, conservatism, and non-intellectual interests are very frequent personality components of persons scoring above the average.
OPI	Masculinity-Femininity (MF)-56 items: This scale assesses some of the differences in attitudes and interests between college men and women. High scorers (masculine) deny interests in esthetic matters, and they admit to few adjustment problems, feelings of anxiety, or personal inadequacies. They also tend to be somewhat less socially inclined than low scorers and more interested in scientific matters. Low scorers (feminine), besides having stronger esthetic and social inclinations, also admit to greater sensitivity and emotionality.
OPI	Response Bias (RB)-28 items: This measure, composed chiefly of items seemingly unrelated to the concept, represents an approach to assessing the student's test-taking attitude. High scorers are responding in a manner similar to a group of students who were explicitly asked to make a good impression by their response to these items. Low scorers, on the contrary, may be trying to make a bad impression or are indicating a low state of well-being or feelings of depression.

dimensions included in the inventory were chosen either for their particular relevance to academic activity or for their general importance in understanding and differentiating among students in an educational context. The major purposes of the OPI are to provide a meaningful, differentiating description of students and a means of assessing change in non-intellective characteristics rather than a device or instrument for testing a specific personality.

The OPI, Form F, is an instrument containing 385 statements designed to measure the differences among college students with regard to their attitudes, opinions, and feelings on a variety of subjects. Each item belongs to one or more of the 14 scales which make up the

Omnibus Personality Inventory. The student responds to each of the items and marks TRUE if the statement is TRUE or MOSTLY TRUE for him and FALSE if it is FALSE or not usually TRUE as applied to him.

Brief definitons of the 14 scales of the OPI, Form F are presented in Table IV along with the letter symbols and the number of items in each scale. The measured characteristic is generally defined in terms of a description of high scores; the logical opposite of this description would in most cases, characterize low scorers. The point at which any score may be defined as a high score is relative. The only common basis one can use across schools and sections of the country is the normative table. On most scales standard scores of 60 (84 percentile) or above are interpreted as sufficiently high for the essence of the respective definition to apply; persons whose scores fall above a standard score of 70 are seen as very appropriately characterized by the definition.

Reliability of the OPI scales is expressed in terms of three estimates based on different samples. Estimates of internal consistency using the corrected split-half method were obtained from a sample of 7,283 freshmen at 37 colleges and from 400 freshmen at one college. Coefficients obtained from the sample of 7,283 freshmen ranged from .67 to .89. For the 400 freshmen at one college, coefficients ranged from .86 to .93. Estimates or reliability based on test-retest values using a sample of 67 women from three colleges yielded coefficients ranging from .84 to .94. On 71 upperclassmen at one college coefficients ranged from .65 to .91.

Validation data for the OPI are based primarily on correlations with other known, functional scales such as those in the California

Psychological Inventory (CPI), the Allport-Vernon-Lindsey Study of Values (AVL), the Minnesota Multiphasic Personality Inventory (MMPI), etc.

The Survey of Study Habits and Attitudes (SSHA)

The Survey of Study Habits and Attitudes is a 100-item self-rating inventory designed to measure a student's scholastic motivation in terms of his behavior and attitudes. Each item of the SSHA is answered by the student's completing one of five choices on a five point continuum of "rarely" to "almost always". The SSHA yields separate study habit and study attitude scores, as well as two scores for each of these areas. Specific definitions for the individual scales and subscales are given in Table V.

The attitudes and work habits reflected by the SSHA are significantly related to academic success, though only moderately correlated with mental ability or scholastic aptitude. The scores identify those whose habits and attitudes may prevent them from taking full advantage of their educational opportunities.

Reliability for the SSHA is provided through a study of 465 freshmen tested at Southwest Texas State College in the fall of 1960. Reliability coefficients attained for the four basic SSHA subscales range from .87 to .89. Additional evidence of reliability is provided by two test-retest studies using one sample of 144 freshmen with a four-week interval between administrations and one sample of 51 freshmen using a 14-week interval. The test-retest coefficients with a four-week interval were Delay Avoidance, .93; Work Methods, .91; Teacher Approval,

TABLE V

SUBSCALES OF THE SURVEY OF STUDY HABITS AND ATTITUDES

Study Habits
SSHA Delay Avoidance Subscale (DA) measures your promptness in completing academic assignments, your lack of procrastination, your freedom from wasteful delay and distraction.
SSHA Work Methods Subscale (WM) measures your use of effective study procedures, your efficiency in doing academic assignments, your how-to-study skill.
SSHA Study Habits Skill (SH) conbines the two preceding scores to provide an overall measure of your scholastic behavior.
Study Attitudes
SSHA Teacher Approval Subscale (TA) measures your opinion of teachers and their classroom behavior and methods.
SSHA Education Acceptance Subscale (EA) measures your approval of educational objectives, practices, and requirements.
SSHA Study Attitudes Scale (SA) combines the two preceding scores to provide an overall measure of your academic beliefs.
Study Orientation
SSHA Study Orientation Score (SO) combines your scores on the four basic subscales to provide a single measure of your study habits and attitudes.

.88; and Education Acceptance, .90. The corresponding coefficients for the 14-week period were .88, .86, .83, and .85, respectively.

Validation studies conducted in a number of colleges in the United States used one semester grade point average as a criterion. Correlations between SSHA scores and grade point averages reported for 1,756 men and 1,118 women in ten colleges varied from .27 to .66 for men and .26 to .65 for women. The average validity coefficients across the ten colleges were .42 and .45 for men and women respectively. The correlation between the SSHA and the American Council on Education Psychological Examination (ACE), a scholastic aptitude test, was always low. Therefore, it was concluded that scales of the SSHA measured traits which have an important relationship to academic success but are not assessed by a scholastic aptitude test.

The Occupational Aspiration Scale (OAS)

The Occupational Aspiration Scale is an eight item multiple-choice instrument. It includes items permitting responses at both the realistic and the idealistic expression levels of levels of aspiration, each at two goal-periods, called career periods in this context, short-range (end of schooling) and long-range (at age 30). The four possible combinations of these components are each assessed twice, thus giving a total of eight questions. The alternatives for each item consist of ten occupational titles drawn from among the 90 occupations ranked by the National Opinion Research Center. Each occupation is presented as a possible response only once on the form. Alternative responses for each item systematically span the entire range of occupational prestige, and are scored from zero to nine. Operationally, an item score of nine

indicates that the respondent has chosen an occupation from among the eight highest possible prestige occupations on the National Opinion Research Center scale, and an item score of zero indicates that one of the eight lowest prestige occupations has been chosen. Thus, the total possible score for all eight items ranges from zero to 72. This score is used to measure the individual's general level of aspiration. It is designed, not as an absolute measure of level of aspiration, but only as a measure of relative level of aspiration. It is primarily for use with high school students but has been used for college freshmen.

The results of the reliability study of the OAS indicate that several independent analyses exhibit substantial agreement with respect to reliability coefficients and standard error of measurement. It seems reasonably safe to conclude that the reliability of the OAS is about .80 and that the standard error of measurement is close to 5.30. Moreover, the coefficient of stability (.77) measured over a ten-week interval agrees quite well with the coefficients of internal consistency (.75, .82, and .84). It is concluded that the OAS appears to be reliable enough for research purposes.

Validity. The authors, Haller and Miller (35), Miller and Haller (57), assess the concurrent validity of the instrument with the statement that the best possible criterion of the validity of any test, predictive validity, is not as yet available because of the recency of the tests development. Correlating test results on the OAS with the results of another current level of aspiration measure which is known to have slight predictive validity, the concurrent validity is $r = .62$. Construct validity was determined on two bases. First, the pattern of sources was deduced according to level of aspiration theory, and actual

scoring patterns were found to agree adequately with this hypothetical pattern. Second, the test was factor analyzed, and although three factors appeared to be operating, one of these factors accounted for the major portion of the variance, with the other two factors contributing negligibly. Therefore, the authors conclude that one factor, which they view as high versus low level of aspiration, is the major factor operating in the test.

Reliability. Haller and Miller (35) obtained coefficients of internal consistency using parallel halves corrected for attenuation with the Spearman-Brown formula of .75, .82, and .84 in three separate studies. The coefficient of stability was calculated with equivalent forms over an interval of ten weeks and was found to be .77. The calculated standard error of measurement (about 5.3) indicates that the most realistic usage of test scores can be made by grouping individuals into high, medium, and low categories. At present, the test will not allow for finer precision.

Riccio (64) reported that March and Suddeth found, in two unpublished masters theses, that scores on the OAS are positive correlated with intelligence. It is necessary, therefore, in using this instrument to be aware of or in some way control for this factor. In the present study, this was accomplished by establishing equivalent ability groups in the experimental and comparison groups based on an academic ability test (ACT).

Michigan State University Work Beliefs Check List (WBCL)

This unpublished test instrument is made up of six subscales purporting to measure areas relating to achievement motivation. The

Work Beliefs Check List (WBCL) was used in this study to acquire some measure of achievement motivation as it related to potential performance in college.

According to Haller and Miller (35) Subscale I "measures the degree which the individual is expressively versus instrumentally oriented toward work; whether he viewed work as an end or simply as a means for making money. It is called 'expressive versus instrumental orientatin to work'." Subscale 2 "measures the degree to which the individual has a favorable attitude toward having time organized. It is called 'evaluation of structured time' but it might equally well be called 'preference for punctuality'." Subscale 3, 'positive versus negative evaluation of physical mobility,' measures the degree to which the individual is psychologically prepared to move as new occupational opportunities appear." Subscale 4, 'positive versus negative evaluation of change,' measures the degree to which the person likes new experiences and dislikes traditional ways of doing things." Subscale 5, 'belief in internal versus external determination of events,' measures the degree to which the person believes his fate is under his own control rather than under the control of other beings or forces." Subscale 6 appears to tap ability to defer immediate gratification in favor of long range goals, seen especially as an educational versus a vocational orientation (Haller and Miller, pp. 98-99).

No reliability data and minimal validity data are reported for this instrument. When correlated with scores on the OAS, correlation coefficients were as follows:

Subscale 1 not related

Subscale 2 $r = .11$

Subscale 3 $r = .20$

Subscale 4 not related

Subscale 5 $r = .28$

Subscale 6 no correlational figure was reported.

American College Testing Program Examination (ACT)

The ACT is a test designed for grade 12 and junior college students preparing to go to a four-year college. The test yields five scores: English usage (80 items), mathematics usage (40 items), social studies reading (52 items), natural science reading (52 items), and a composite score. The ACT Technical Report of 1965 (1) reports that the test was designed to measure as directly as possible the abilities the student will have to apply in his college work. Although factual knowledge is assumed to a certain degree, the test emphasizes use of knowledge, criticism, evaluation, judgment, and organizational ability rather than knowledge of facts per se. The test-retest reliability of the ACT battery ranges from .67 to .84 over a two-year interval. These conclusions are presented in Table VI.

Since a single measure of ability was desired for this study, only the composite score was utilized. The composite score is defined as the mean of the four educational development scores and is viewed as an index of the total educational development of the student. Predictive validity based on the composite score is reported in the ACT Technical Report (1) as .497. This is shown in Table VII.

The method of utilizing these five instruments is presented in the following section.

TABLE VI

ACT TEST-RETEST RESULTS OVER A TWO-YEAR PERIOD
N = 63

	Test		Retest		
	Mean	S.D.	Mean	S.D.	Correlation
English	20.5	4.4	21.9	3.8	.73
Mathematics	19.3	5.0	19.9	5.6	.77
Social Studies	21.3	5.6	24.2	5.0	.67
Natural Sciences	20.8	5.1	22.1	4.9	.70
Composite	20.6	4.0	22.1	3.6	.84

(ACT Technical Report, 1965)
*See manual.

TABLE VII

PREDICTIVE VALUE OF THE FIVE ACT TEST SCORES

Variables	Number of Colleges	Number of Students	Median r
English Test vs. College English GPA	112	54,335	.498
Mathematics Test vs. College Mathematics GPA	91	27,582	.374
Social Studies Test vs. College Social Studies GPA	119	42,990	.466
Natural Sciences Test vs. College Natural Sciences GPA	106	38,030	.374
Composite vs. College Overall GPA	122	59,164	.497

(ACT Technical Report, 1965)
*See manual.

Methodology

At Oklahoma State University a group of male and female students from low socioeconomic backgrounds was obtained by using those students who were eligible for financial assistance under the Federal Work-Study Program which limited the base income of the student's family to no more than $3,000 per year. All freshman students enrolled in the Work-Study Program were invited by letter to take part in the study. A total of 35 males and 45 females responded and this group (the experimental group) was administered the OPI, SSHA, WBCL, and the OAS during the first two weeks of the semester. These tests were readministered after one semester of college to 30 of the males and 35 females who had participated in the initial testing sessions.

From the entering freshman male and female population, who could not qualify for financial assistance under the Federal Work-Study Program, a comparison group was drawn. Students in this group were randomly selected from lists of freshman students who participated in the freshman orientation program. A total of 52 males and 58 females participated in the initial testing phase either during freshman orientation or in the first two weeks of the semester. The OPI, SSHA, WBCL, and the OAS were also administered to the students. In this group, 36 males and 41 females reported for the second testing phase at the beginning of the second semester.

From those work-study students who participated in both test sessions, an experimental group of 25 males and 25 females was selected for the study. From those students in the middle and upper income group who participated in both test sessions, a group of 25 males and 25 females was also selected to be used as a comparison group. These

groups were matched according to mean composite ACT scores in order to establish equal ability groups and control for the intellective variable (see Table III, p. 34).

Thus, at the beginning of the freshman year, the participants were evaluated on personality factors as determined by the Omnibus Personality Inventory, study habits and attitudes as measured by the Brown-Holtzman Survey of Study Habits and Attitudes, achievement motivation as determined by the Michigan State University Work Beliefs Check List, and on occupational aspirations as measured by the Occupational Aspiration Scale. After one semester of college, these instruments were readministered to both the experimental and control groups. All tests were administered by the investigator on the Oklahoma State University campus to groups ranging from 3 to 30.

Grade point average and the number of dropouts were obtained after one semester of college. ACT scores, grade point average, and the number of dropouts were obtained from the Bureau of Tests and Measurements and from the Office of Student Affairs.

Statistical Procedures

For the purposes of testing hypothesis I, a one way classification analysis of variance was used to determine if significant differences existed between the experimental (EM, EF) groups and the comparison (CM, CF) groups on the measured characteristics on entry into college. To test hypothesis II, the analysis of variance was also used to determine if significant differences existed among these groups on the measured characteristics after one semester of college experience. This analysis of variance procedure was also used to determine differences in grade

point average among groups EM, EF, CM, and CF. Correlated t tests were used to determine if significant change had occurred in the measured characteristics during a period of one semester.

When significant F's were found using the analysis of variance, the Newman-Keuls procedure was used to make further comparisons among means as suggested by Snedecor and Cochran (69), i.e., to determine where real differences existed.

A two way classification analysis of variance was used to determine the relationship to the measured characteristics between academically successful and unsuccessful students in both the experimental and comparison groups. Since cell frequencies for academically unsuccessful students in groups EM, EF, CM, and CF were small, the EM and EF groups were combined into one group and the CM and CF groups were combined into one group for further study. A two by two factorial design using two groups and two levels of achievement as described by Popham (61) was employed to determine significant differences and interaction.

In order to determine if significant differences in the number of dropouts existed between the experimental groups (EM, EF) and the comparison groups (CM, CF) Fisher's test for differences between uncorrelated means was used as described by Guilford (33).

Finally, coefficients of correlation were employed to identify relationships which might exist between first semester grade point average and each of the measured characteristics.

In this study, the .05 level of confidence was chosen as the rejection point for tests of statistical signficance. The level of significance represents the amount of difference beyond that of chance or random sampling. If the resulting statistic at the appropriate

degrees of freedom is as large or larger than the tabulated statistic it is said to be significant at the .05 level of confidence.

The results of these statistical procedures are presented in detail in Chapter IV.

CHAPTER IV

RESULTS OF THE INVESTIGATION

The results of this investigation are reported under three divisons as follows: (1) differences in measured characteristics between freshman students from low socioeconomic backgrounds and those from middle and upper income levels on entry into college and after one seemster of college experience; (2) the relationship between these measured characteristics and academic achievement; and (3) comparisons of academic achievement and dropout rates.

Analysis of Differences Among the Four Groups

Comparisons of Personality Variables

To determine if significant differences among the experimental and comparison groups existed on entry into college an analysis of variance was used as described by Snedecor and Cochran (69). For the purposes of this study, the .05 level of significance was required for rejection of the null hypothesis. Thus, the hypothesis that there are no significant differences in personality characteristics among the groups on entry into college was rejected for six of the 14 personality variables under consideration. The mean scores on these personality variables for each group along with the computed F values are shown below pre-test in Table VIII. After one semester of college it was also found that there

TABLE VIII

PRE-TEST AND POST-TEST MEANS FOR GROUPS EM, EF, CM, AND CF ON PERSONALITY VARIABLES OF THE OPI

	EM Group Mean N = 25		EF Group Mean N = 25		CM Group Mean N = 25		CF Group Mean N = 25		F	
VARIABLE	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
TI	21.92	21.24	23.40	24.44	18.92	19.76	19.72	19.48	2.05	2.47
TO	20.44	19.80	16.60	17.36	16.52	15.92	14.48	14.52	6.38*	4.45*
Es	10.24	10.68	12.32	13.44	9.08	9.48	11.80	12.64	2.59	3.50*
Co	16.12	16.40	13.36	14.24	13.40	13.92	13.60	14.24	2.29	1.45
Au	22.60	22.04	20.08	22.56	21.64	21.88	20.28	22.84	.81	.09
RO	12.04	11.52	8.32	9.12	11.20	11.60	10.12	10.88	2.79*	1.59
SE	21.72	21.36	24.28	24.96	23.12	21.84	24.64	24.64	.83	1.82
IE	32.56	31.72	22.00	24.60	31.72	35.36	29.68	32.44	6.55*	5.92*
PI	27.76	28.72	30.76	32.56	23.88	26.72	26.48	25.20	2.28	2.52
AL	11.60	11.32	11.08	12.32	11.24	11.32	11.00	10.48	.12	.96
Am	18.52	17.88	23.36	23.40	17.72	18.32	20.76	21.20	5.15*	5.46*
PO	16.36	17.52	17.12	16.36	18.48	18.80	17.12	17.12	.71	1.11
MF	31.16	32.12	21.84	23.32	30.08	31.64	22.80	23.20	17.72*	20.17*
RB	12.56	13.48	14.00	13.28	9.96	10.68	9.92	9.76	5.74*	4.89*

*Significant at the 5 per cent level of confidence.

a To be significant at the .05 level of confidence for 3 and 96 d.f., an F value of 2.71 is required.

were significant differences on six of the 14 personality variables. The mean scores and computed F values for these variables are shown under post-test in Table VIII.

Where a significant F value was found, the Newman-Keuls procedure (69) was used to examine the differences among group means. Table IX shows the results obtained when examining group means on the Theoretical Orientation scale of the OPI.

TABLE IX

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM, EF, CM, AND CF ON THE OPI THEORETICAL ORIENTATION SCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EM Group, CF Group	5.96	5.28	3.75	4.06	.05*	.05*
EF Group, CF Group	2.12	2.84	3.41	3.70	ns	ns
EM Group, CM Group	3.92	3.88	3.41	3.70	.05*	.05*
EM Group, EF Group	3.84	2.44	2.84	3.08	.05*	ns
EF Group, CM Group	.08	1.44	2.84	3.08	ns	ns
CM Group, CF Group	2.04	1.40	2.84	3.08	ns	ns

*Significant at the 5 per cent level of confidence.

The EM group with a pre-test mean score of 20.44 differs significantly on entry into college from the CF group (raw score mean = 14.48)

and the CM group (raw score mean = 16.52). The EM group also differs significantly from the EF group (raw score mean = 16.60). No other significant differences were found among the groups on entry into college. After one semester of college the EM group with a post-test mean score of 19.80 was found to differ significantly from the CM group (raw score mean = 14.92). All other differences were not significant at the .05 level of confidence. According to these results, the EM students seem to indicate a greater preference for dealing with theoretical concerns and problems, a higher interest in science, and a generally more logical approach to problems and situations than do students in the other three groups.

Table X shows the results obtained when the means of the groups on the Impulse Expression scale were compared. It was found that on entry into college the EF group (raw score mean = 22.00) differed significantly from the EM group (raw score mean = 32.56) and from the CM group (raw score mean = 31.72). The EF group also differed significantly from the CF group (raw score mean = 29.68). No significant differences were found between the EM group and the CM group, between the EM group and the CF group, or between the CM group and the CF group. Significant differences which were found between the groups on entry into college were also found to exist between the same groups after one semester of college.

According to these results, the EF students, when compared to the remaining three groups, appear less ready to express impulses and seek gratification either in conscious thought or in overt action.

TABLE X

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM, EF, CM, AND CF ON THE OPI IMPULSE EXPRESSION SCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EM Group, EF Group	10.56	7.12	7.12	5.38	.05*	.05*
EM Group, CF Group	2.88	.72	6.49	5.38	ns	ns
EF Group, CM Group	9.72	10.76	6.49	7.10	.05*	.05*
EM Group, CM Group	.84	3.64	5.39	6.47	ns	ns
CM Group, CF Group	2.04	2.92	5.39	5.38	ns	ns
EF Group, CF Group	7.68	7.84	5.39	6.47	.05*	.05*

*Significant at the 5 per cent level of confidence.

Table XI shows the results obtained when the means of the groups on the Altruism scale of the OPI were compared. On entry into college the EF group, with a raw score mean of 23.36, scored significantly higher than the EM group (raw score mean = 18.52) and the CM group (raw score mean = 17.72). No other significant differences were noted for pre-test means on this variable. Post-test means after one semester of college experience also showed a significantly higher mean for the EF group (raw score mean = 23.40) when compared with the EM group (raw score mean = 17.88) and to the CM group (raw score mean = 18.32) but no significant differences were found when making other comparisons.

TABLE XI

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM, EF, CM, AND CF ON THE OPI ALTRUISM SCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EF Group, CM Group	5.64	5.08	4.21	3.82	.05*	.05*
EF Group, EM Group	4.84	5.52	3.84	4.19	.05*	.05*
CF Group, CM Group	3.04	2.88	3.84	3.18	ns	ns
EF Group, CF Group	2.60	2.20	3.19	3.18	ns	ns
CF Group, EM Group	2.24	3.32	3.19	3.82	ns	ns
EM Group, CM Group	.80	.44	3.19	3.18	ns	ns

*Significant at the 5 per cent level of confidence.

The results of this analysis seem to show the EF group, when compared to the EM and CM groups, as being more affiliative and ethical with others and more concerned about people.

Table XII shows the results obtained when the Newman-Keuls procedure was used to compare the means of the groups on the Response Bias scale of the OPI. A significant difference was found between the two female groups on entry into college and also after one semester of college. The raw score mean for the EF group on entry into college was 14.00 which was significantly higher than that of the CF group (raw score mean = 9.96). Post-test differences between the EF group (raw score mean = 13.28) and the CF group (raw score mean = 9.76) were also

significant at the .05 level of confidence. Significance at the .05 level was found on entry into college between the EF group (raw score mean = 14.00) and the CM group (raw score mean = 9.92). This difference was still present after one semester of college when the EF group had a raw score mean of 13.28 which is significantly higher than the mean for the CM group (raw score mean = 10.68).

TABLE XII

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM, EF, CM, AND CF ON THE OPI RESPONSE BIAS SCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EF Group, CF Group	4.08	3.52	3.19	2.91	.05*	.05*
EF Group, CM Group	4.04	2.60	2.90	2.42	.05*	.05*
EM Group, CF Group	2.64	3.72	2.90	3.19	ns	.05*
EM Group, EF Group	1.44	.20	2.41	2.42	ns	ns
EM Group, CM Group	2.60	2.80	2.41	2.91	.05*	ns
CM Group, CF Group	.04	.92	2.41	2.42	ns	ns

*Significant at the 5 per cent level of confidence.

Although no significant difference was found on entry between the EM group and the CF group, significance between means for the EM group

(raw score mean = 13.48) and the CF group (raw score mean = 9.76) was found at the .05 level after one semester of college. On entry, the EM group (raw score mean = 12.56) was significantly higher than the CM group (raw score mean = 9.92), but no statistically significant difference was found between these groups after one semester of college.

According to these results the test taking attitude of both the CF and CM groups was poorer than the attitude of the EF and EM groups; however, the EF and EM groups did not seem more than normally concerned about making a good impression on the tests.

Table XIII shows the results obtained when the means of the groups on the OPI Religious Orientation scale were compared and Table XIV shows the results obtained when the group means on the OPI Estheticism scale are compared. On the Religious Orientation scale a significant difference was found between the EM group (raw score mean = 12.04) and the CF group (raw score mean = 8.32) on entry into college, however, no other significant differences were found either on entry or after one semester of college when making further comparisons. No differences were found among the groups on the Estheticism scale on entry into college. A significant difference was found only between the EF group (raw score mean = 13.44) and the CM group (raw score mean = 9.48) using post-test scores. An analysis of the results of the RO scale indicates that on entry into college the EM group seems to manifest a slightly more moderate view of religious beliefs and practices than the EF group, however, this difference was not significant after one semester of college. According to the results of the Es scale, on entry into college, homogenity exists between all groups considered, however, after one semester

TABLE XIII

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM, EF, CM, AND CF ON THE OPI RELIGIOUS ORIENTATION SCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EM Group, CF Group	1.92	ns	3.32	ns	ns	ns
EF Group, CF Group	1.80	ns	2.76	ns	ns	ns
EM Group, CM Group	.84	ns	2.76	ns	ns	ns
EM Group, EF Group	3.72	ns	3.64	ns	.05*	ns
EF Group, CM Group	2.88	ns	3.32	ns	ns	ns
CM Group, CF Group	1.08	ns	2.76	ns	ns	ns

*Significant at the 5 per cent level of confidence.

a A significant F value was not found for post-test means and no further comparisons were made.

the EF group seems to demonstrate more diverse interests in artistic matters and activities than does the CM group.

Table XV shows the results obtained when comparing mean differences between the EM group and the CM group and comparing mean differences between the EF group and the CF group on the Masculinity-Femininity scale of the OPI. No significant differences were found to exist between the two male groups nor between the two female groups.

In summary, the analysis of the OPI results seem to indicate that sex differences are more predominant than differences between the male

TABLE XIV

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM, EF, CM, AND CF ON THE OPI ESTHETICISM SCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EF Group, CM Group	ns	3.96	ns	3.66	ns	.05*
EF Group, EM Group	ns	2.58	ns	3.33	ns	ns
CF Group, CM Group	ns	3.16	ns	3.33	ns	ns
EF Group, CF Group	ns	.80	ns	2.77	ns	ns
CF Group, EM Group	ns	1.78	ns	2.77	ns	ns
EM Group, CM Group	ns	1.20	ns	2.77	ns	ns

a A significant F value was not found for pre-test means and no further comparisons were made.

TABLE XV

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM AND CM, EF AND CF ON THE OPI MASCULINITY-FEMININITY SCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EM Group, CM Group	1.08	.48	3.29	3.18	ns	ns
EF Group, CF Group	.96	.12	3.29	3.18	ns	ns

a No other comparisons were made in this study on the Masculinity-Femininity scale.

groups (EM and CM) and between the female groups (EF and CF). Differences between the two male groups were found only on the Theoretical Orientation scale and the Response Bias scale while differences between the female groups were found on the Response Bias scale and the Impulse Expression scale. Although these results suggest differences among the male groups as well as between the female groups, when the analysis of all factors are considered it appears that the two male groups are quite homogeneous in personality variables as measured by the OPI, as are the female groups. This outcome suggests that the OPI might have limited value in determining differences in personality factors between individuals from different socioeconomic backgrounds.

Comparisons of Study Habits and Attitudes Variables

An analysis of variance was made for each scale of the Brown-Holtzman Survey of Study Habits and Attitudes (SSHA) in order to test the hypothesis of no significant differences among the groups with respect to study habits and attitudes variables. The hypothesis was rejected for the four subscales (Delay Avoidance, Work Methods, Teacher Approval and Educational Acceptance) on pre-test scores obtained on entry into college. The hypothesis was rejected for only two subscales (Delay Avoidance and Work Methods) as shown by post-test scores after one semester of college. The difference between the remaining two subscales (Teacher Approval and Educational Acceptance) after one semester of college was found to be no larger than that attributed to chance. The mean scores on the SSHA scales for each group along with associated F values are shown in Table XVI.

TABLE XVI

PRE-TEST AND POST-TEST MEANS FOR GROUPS EM, EF, CM, AND CF ON STUDY HABITS AND ATTITUDES VARIABLES OF THE SSHA

Variable	EM Group Means		EF Group Means		CM Group Means		CF Group Means		F	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
Delay Avoidance (DA)	22.24	22.00	29.60	28.76	20.80	22.36	22.96	21.52	3.97*	3.29*
Work Methods (WM)	23.68	24.52	30.20	32.52	20.72	22.76	24.72	24.84	5.42*	6.43*
Study Habits (SH)	45.92	46.52	59.80	61.28	41.52	45.12	47.68	46.36	5.50*	5.43*
Teacher Approval (TA)	29.88	28.00	33.40	32.68	26.40	27.24	27.76	27.36	3.09*	2.12
Educational Acceptance (EA)	27.80	26.88	32.64	30.64	26.80	25.68	27.52	25.16	2.76*	2.16
Study Attitudes (SA)	57.68	54.88	66.04	63.32	53.20	52.92	55.28	52.52	3.19*	2.54
Study Orientation (SO)	103.60	101.40	125.84	124.60	94.72	98.04	102.96	98.88	5.08*	4.65*

* Significant at the 5 per cent level of confidence.

a To be significant at the .05 level of confidence for 3 and 96 d.f., an F value of 2.71 is required.

Table XVII shows the results obtained when the group means on the Delay Avoidance (DA) subscale of the SSHA were compared. Significant differences were found on entry between the EF group (raw score mean = 29.60) and the EM group (raw score mean = 22.24), the CM group (raw score mean = 20.80), and the CF group (raw score mean = 22.96). Post-test mean scores also showed the EF group to be significantly higher with a mean of 28.76 than the EM group (raw score mean = 22.00), the CM group (raw score mean = 22.36), and the CF group (raw score mean = 21.52). No significance was found for any other comparisons. An analysis of these results seems to indicate that the EF group exhibits more promptness in completing academic assignments and procrastinates less than the remaining three groups (CF, CM, and EM). The two male groups were not significantly different.

TABLE XVII

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM, EF, CM, AND CF ON THE SSHA DELAY AVOIDANCE SUBSCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EF Group, CM Group	8.80	6.40	7.38	5.39	.05*	.05*
EM Group, EF Group	7.36	6.76	6.73	6.49	.05*	.05*
CM Group, CF Group	2.16	.84	6.73	6.49	ns	ns
EF Group, CF Group	6.64	7.24	5.59	7.12	.05*	.05*
EM Group, CF Group	.72	.48	5.59	5.39	ns	ns
EM Group, CM Group	1.44	.36	5.59	5.39	ns	ns

*Significant at the 5 per cent level of confidence.

Table XVIII shows the results obtained when the group means on the Work Methods (WM) subscale of the SSHA were compared. Significant differences were found on entry between the EF group (raw score mean = 30.20) and the EM group (raw score mean = 23.68), the CM group (raw score mean = 20.72), and the CF group (raw score mean = 24.72). Post-test mean scores also showed the EF group to have a significantly higher mean (32.52) than either the EM group (raw score mean = 24.52), the CM group (raw score mean = 22.76), or the CF group (raw score mean = 24.84). No other significant differences were found between the groups. According to these results a picture similar to that of the DA scale is presented. The EF group, when compared to the EM, CF, and CM groups, seems to use more effective study procedures and are more efficient in doing academic assignments.

TABLE XVIII

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM, EF, CM, AND CF ON THE SSHA WORK METHODS SUBSCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EF Group, CM Group	9.48	9.76	6.44	6.47	.05*	.05*
EF Group, EM Group	6.52	8.00	5.87	5.90	.05*	.05*
CF Group, CM Group	4.00	2.08	5.87	5.90	ns	ns
EF Group, CF Group	5.48	7.68	4.88	4.90	.05*	.05*
CF Group, EM Group	1.04	.32	4.88	4.90	ns	ns
EM Group, CM Group	2.96	1.76	4.88	4.90	ns	ns

*Significant at the 5 per cent level of confidence.

Table XIX shows the results obtained when the group means on the Study Habits scale of the SSHA were compared. Since this scale consists of the DA subscale plus the WM subscale and both of these subscales were significant at the .05 level of confidence on entry and after one semester of college, it follows that significance is also found for the Study Habits scale. This table shows that significant differences are found between the same means as was reflected by the subscales in Tables XVII and XVIII. An analysis of this data seems to indicate that the academic behavior of the EF group is superior to that of the remaining three groups.

TABLE XIX

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM, EF, CM, AND CF ON THE SSHA STUDY HABITS SCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EF Group, CM Group	18.28	16.16	12.63	12.46	.05*	.05*
EF Group, EM Group	13.88	14.76	11.50	9.44	.05*	.05*
CF Group, CM Group	6.16	1.24	11.50	9.44	ns	ns
EF Group, CF Group	12.12	14.92	9.56	11.35	.05*	.05*
CF Group, EM Group	1.76	.16	9.56	9.44	ns	ns
EM Group, CM Group	4.40	1.40	9.56	11.35	ns	ns

*Significant at the 5 per cent level of confidence.

Table XX shows the results obtained when the group means on the Teacher Approval (TA) subscale of the SSHA were compared and Table XXI shows the results obtained when the group means on the Educational Acceptance (EA) subscale of the SSHA were compared. A significant difference was found only on pre-test means for the TA subscale between the EF group (raw score mean = 33.40) and the CM group (raw score mean = 26.40). No other comparisons were found significant at the .05 level on this subscale. A significant difference was found only on pre-test mean scores for the EA subscale between the EF group (raw score mean = 32.64) and the EM group (raw score mean = 27.80). No other comparisons were found significant at the .05 level of confidence.

TABLE XX

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM, EF, CM, AND CF ON THE SSHA TEACHER APPROVAL SUBSCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EF Group, CM Group	7.00	ns	6.57	ns	.05*	ns
EF Group, CF Group	5.64	ns	5.98	ns	ns	ns
EM Group, CM Group	3.48	ns	5.98	ns	ns	ns
EF Group, EM Group	3.52	ns	4.97	ns	ns	ns
EM Group, CF Group	2.12	ns	4.97	ns	ns	ns
CF Group, CM Group	1.36	ns	4.97	ns	ns	ns

TABLE XXI

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM, EF, CM, AND CF ON THE SSHA EDUCATIONAL ACCEPTANCE SUBSCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EF Group, CM Group	5.84	ns	6.08	ns	ns	ns
EF Group, CF Group	5.12	ns	5.54	ns	ns	ns
EM Group, CM Group	1.00	ns	5.54	ns	ns	ns
EF Group, EM Group	4.84	ns	4.61	ns	.05*	ns
EM Group, CF Group	.28	ns	4.61	ns	ns	ns
CF Group, CM Group	.72	ns	4.61	ns	ns	ns

*Significant at the 5 per cent level of confidence.

a A significant F value was not found for post-test means and no further comparisons were made.

Results of the Teacher attitude scale show no significant differences between the two male groups nor between the two female groups in their opinions of teachers and their classroom methods and behavior; however, pre-test results indicated a difference between the EF and CM groups which was not found after one semester of college.

An analysis of results of the Educational Acceptance scale again shows only a sex difference between the EF and EM groups, a difference which was no longer present after one semester of college. Apparently the groups were fairly homogeneous in their approval of educational objectives, practices, and requirements.

Table XXII shows the results obtained when the group means on the Study Attitudes (SA) scale of the SSHA were compared. This scale is composed of the TA subscale and the EA subscale and the only significant difference found when combining the two subscales was between the EF group (raw score mean = 66.04) and the CM group (raw score mean = 53.20) for pre-test scores. Since no significant differences existed among the groups on the TA and EA subscales after one semester of college it follows that there would be no significance when combining the two subscales.

TABLE XXII

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM, EF, CM, AND CF ON THE SSHA STUDY ATTITUDES SCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EF Group, CM Group	12.84	ns	11.94	ns	.05*	ns
EF Group, CF Group	10.76	ns	10.88	ns	ns	ns
EM Group, CM Group	4.48	ns	10.88	ns	ns	ns
EF Group, EM Group	8.36	ns	9.04	ns	ns	ns
EM Group, CF Group	2.40	ns	9.04	ns	ns	ns
CF Group, CM Group	2.08	ns	9.04	ns	ns	ns

*Significant at the 5 per cent level of confidence.

a No significant F value was found for post-test means and no further comparisons were made.

An analysis of the Study Attitudes scale indicates that the EF group differs from the CM group in their scholastic beliefs on entry into college but no differences appear to exist after one semester of college experience.

Table XXIII shows the results obtained when the group means on the Study Orientation (SO) scale of the SSHA were compared. This scale combines all subscales to produce a Study Orientation score. On entry into college a significantly higher mean was found for the EF group (raw score mean = 125.84) when compared to the CM group (raw score mean = 94.72), to the CF group (raw score mean = 102.96), and to the EM group (raw score mean = 103.60). Significant differences on post-test mean scores were also found between the EF group (raw score mean = 124.60) and the CM group (raw score mean = 98.04), the EF group and the CF group (raw score mean = 98.88), and the EF group and the EM group (raw score mean = 101.40). No other comparisions were found to be significant at the .05 level of confidence.

From the analysis of the study habits and attitudes data it seems evident that the EF group on entry into college exhibited more efficient and meaningful study habits than did the remaining three groups and this difference still existed after one semester of college work. On entry into college some sex differences were found in study attitudes but the groups appeared quite homogeneous in their scholastic beliefs after one semester of college experience. On the overall measure of study habits and attitudes, it still appeared that the EF group was superior to the CM, CF, and EM groups.

TABLE XXIII

SIGNIFICANT DIFFERENCES BETWEEN MEANS FOR GROUPS EM, EF, CM, AND CF ON THE SSHA STUDY ORIENTATION SCALE

Means	Differences		LSR Values		P	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
EF Group, CM Group	31.12	26.56	22.40	22.23	.05*	.05*
EF Group, CF Group	22.83	25.72	20.41	20.25	.05*	.05*
EM Group, CM Group	8.88	3.36	20.41	20.25	ns	ns
EF Group, EM Group	21.64	23.20	16.97	16.84	.05*	.05*
EM Group, CF Group	.64	2.52	16.97	16.84	ns	ns
CF Group, CM Group	8.24	.84	16.97	16.84	ns	ns

*Significant at the 5 per cent level of confidence.

Table XXIV shows the mean scores and the computed F values on the achievement motivation variables as measured by the Michigan State University Work Beliefs Check List (WBCL). Table XXV shows the mean scores as determined by the Occupational Aspiration Scale (OAS) and the computed F values. Since no significant F values were found either on the scales of the WBCL or the OAS scales, we fail to reject the null hypothesis that no statistically significant differences exist among the groups on achievement motivation or occupational aspirations on entry into college and also after one semester of college experience. A comparison of the scores on these variables suggests that the groups are homogeneous with respect to achievement motivation and aspirations.

TABLE XXIV

PRE-TEST AND POST-TEST MEANS AND SIGNIFICANT F VALUES FOR GROUPS EM, EF, CM, AND CF ON ACHIEVEMENT MOTIVATION VARIABLES OF THE WBCL

Variable	EM Group Means N = 25		EF Group Means N = 25		CM Group Means N = 25		CF Group Means N = 25		F	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
$WBCL_1$	6.48	6.16	6.48	6.56	6.52	6.60	6.84	6.32	.44	.51
$WBCL_2$	5.92	5.84	6.68	6.44	5.44	5.76	5.80	5.32	2.32	1.85
$WBCL_3$	4.24	4.24	3.88	4.32	4.04	4.52	4.00	3.96	.50	.94
$WBCL_4$	6.28	6.08	6.12	6.04	6.16	6.08	6.28	5.84	.20	.27
$WBCL_5$	6.20	6.20	6.68	6.60	6.76	6.96	6.88	6.84	1.89	1.70
$WBCL_6$	5.28	4.48	5.88	4.44	5.64	4.80	5.64	4.60	.96	.35

*Significant at the 5 per cent level of confidence.

a To be significant at the .05 level of confidence for 3 and 96 d.f., an F value of 2.71 is required.

TABLE XXV

PRE-TEST AND POST-TEST MEANS FOR GROUPS EM, EF, CM, AND CF ON THE OCCUPATIONAL ASPIRATION SCALE

Test	EM Group Means	EF Group Means	CM Group Means	CF Group Means	F
Pre-test	48.00	49.08	49.56	46.16	.96
Post-test	47.04	49.80	49.40	43.80	.35

*Significant at the 5 per cent level of confidence.

a To be significant at the .05 level of confidence for 3 and 96 d.f., an F value of 2.71 is required.

Comparisons of Change in the Groups

The results of studies of changes in such characteristics as personality, attitudes, and values during the college years have been inconclusive. One aspect of this study was to determine if change does take place in freshman students on any of the variables under consideration over a period of one semester in college.

To determine if significant change (gain score) in the groups on any of the variables under consideration occurred over the period of one semester, correlated t tests were run between pre and post-test scores for each of the groups (EM, EF, CM, and CF). As shown in Table XXVI, some changes occurred on a number of variables. On the OPI Autonomy scale the EF group showed a significant gain score, while on the OPI Impulse Expression scale both the EF and CF groups had a significantly

TABLE XXVI

SIGNIFICANT MEAN GAIN SCORES FOR THE EM, EF, CM, AND CF GROUPS ON VARIABLES OF THE OPI, SSHA, WBCL, AND OAS

Variable	Group	Pre-test Mean	Pre-test S.D.	t	Post-test Mean	Post-test S.D.
Autonomy (OPI)	EF Group	20.08	7.44	3.05*	22.56	7.31
Impulse Expression (OPI)	EF Group	22.00	10.74	3.45*	24.60	10.57
	CF Group	29.68	8.29	2.16*	32.44	9.06
Work Methods (SSHA)	EF Group	30.20	7.51	2.32*	32.52	6.04
	CM Group	20.72	9.24	2.26*	22.76	11.03
Pos. vs Neg. Evaluation of Physical Mobility (WBCL)	CM Group	4.04	1.06	2.14*	4.52	1.26
Pos. vs Neg. Evaluation of Deferred Gratification (WBCL)	EM Group	5.28	1.34	3.24*	4.48	1.50
	CM Group	5.64	1.07	3.67*	4.80	1.41
	EF Group	5.88	1.36	6.65*	4.44	1.42
	CF Group	5.64	1.25	4.44*	4.60	1.12
Occupational Aspirations (OAS)	CF Group	46.16	8.71	2.45*	43.80	8.97

*Significant at the 5 per cent level of confidence.

a To be significant at the .05 level of confidence (two-tailed test) for 24 d.f., a t of 2.064 is required.

higher mean score after one semester of college. Significant change also occurred in the EF and CM groups on the Work Methods subscale of SSHA. These significant gain scores suggest that the EF group has become more independent of authority and that the EF and CF groups appear to be more ready to express impulses and seek gratification either in conscious thought or overt action after one semester of college experience. The results also suggest that the EF and CM groups have improved in the use of effective study procedures and efficiency in doing academic assignments.

In addition, the results show significant gain scores for the CM group on the Positive versus the Negative Evaluation of Physical Mobility subscale of the WBCL which indicates the degree to which this group is psychologically prepared to move as new occupational alternatives appear. A negative gain score was found for the EM, EF, CM, and CF groups on the (WBCL) Positive versus Negative Evaluation of Deferred Gratification subscale which indicates a decline in the ability to defer immediate gratification in favor of long range goals. A negative gain on occupational aspirations as measured by the OAS was found for the CF group, which indicates a significant decrease in level of aspirations.

In summary, it appears that more change has occurred in the EF group since significant change scores (either positive or negative) were found for this group on four of the variables under consideration. Change was also noted on three variables for the CF and CM groups, while significant change occurred on only one variable in the EM group. However, when viewing all of the 28 variables in the study, it appears that very little change occurred in any of the groups over the period of one semester.

Summary of the Differences Among the Four Groups on Ability, Personality, Study Habits and Attitudes, Achievement Motivation, and Occupational Aspiration Data

The four groups can be compared on intellective and non-intellective variables by examining Tables I and III in chapter three and Tables VIII, XVI, XXIV, and XXV in chapter four.

From an inspection of Table I it is evident that the groups are homogeneous with respect to the intellective variable although the mean for the EF group appears lower than for the other three groups. Table III shows an F statistic of .098 which indicates that no significant differences exist among the four groups on ability as determined by mean composite ACT scores. This represents an effort to control the intellective variable.

The results of the OPI data in Table VIII suggest that although the EM group seems to be more theoretically oriented than the CM group and the EF group seems less willing to express impulses and feelings than the CF group, the four groups are still quite homogeneous with respect to personality variables as measured by the OPI. The presence of some sex differences does not seem to detract from this conclusion.

From an analysis of the study habits and attitudes data an examination of Table XVI indicates that the EF group, when compared to the EM, CF, and CM groups, have significantly better study habits and this persists after one semester of college. Although the two female groups differ significantly on this variable, the male groups do not differ. The EF and CM groups seem to be significantly different on the study

attitudes variable on entry into college but the four groups are quite homogeneous with respect to attitudes toward teachers and educational objectives.

When achievement motivation and occupational aspirations were examined, no significant differences were found to exist on any of the variables at the .05 level of confidence.

Despite some statistically significant differences found between the groups in personality and study habits and attitudes variables, further examination of the data seems to indicate more sex differences than differences between male groups and between female groups from different socioeconomic backgrounds.

Differences Between Academically Successful and Unsuccessful Students

An analysis of variance, as described by Popham (61), was used to test the differences between low achieving and satisfactorily achieving students on variables of the OPI, SSHA, WBCL, and the OAS. Since cell frequencies for low achievers were small, it became necessary to combine the experimental group males and females and the comparison group males and females into two groups and to have two levels of achievement for purposes of investigation. A 2x2 factorial analysis of variance was employed. F values were computed for interaction effect due to group and to achievement level for each variable under consideration. A significant interaction was found to exist on the OPI Estheticism scale and on the SSHA Delay Avoidance subscale. No other significant interaction was found for any of the remaining variables. The mean scores on the significant variables with the associated F values are shown in Table

XXVII. An inspection of this table indicates that the null hypothesis of no significant differences between means was rejected at the .05 level for each variable shown. The hypothesis was rejected for the OPI Thinking Introversion, Theoretical Orientation, and Estheticism scales. The satisfactorily achieving students obtained a significantly higher mean score on these three variables. The satisfactory achievers also obtained significantly higher mean scores on the Delay Avoidance, Work Methods, and Educational Acceptance subscales of the SSHA. The hypothesis was also rejected for these three subscales.

TABLE XXVII

MEANS AND SIGNIFICANT F'S FOR SATISFACTORILY ACHIEVING STUDENTS AND LOW ACHIEVING STUDENTS ON OPI, SSHA, WBCL, AND OAS VARIABLES

Variable	Satisfactory Achiever Mean N=78	Low Achiever Mean N=22	F
Thinking Introversion (OPI)	22.14	18.41	4.86*
Theoretical Orientation (OPI)	17.61	14.91	5.69*
Estheticism (OPI)	12.20	9.32	6.96*
Delay Avoidance (SSHA)	24.91	19.95	5.44*
Work Methods (SSHA)	27.68	21.59	8.80*
Educational Acceptance (SSHA)	28.90	21.59	22.06*

*Significant at the 5 per cent level of confidence.

a To be significant at the .05 level of confidence at 1 and 96 d.f., an F value of 4.00 is required.

These results suggest that satisfactory achievement in both the experimental and comparison groups is associated with a liking for reflective thought and academic activities, with a preference for dealing with theoretical concerns and a logical approach to problems and situations, and with response to esthetic stimulation. The results also suggest that failure to achieve successfully is related to low interest in these areas. The results further suggest that promptness in completing academic assignments, efficient work methods, and acceptance of educational goals and objectives are important to academic success. It would appear that scores on these variables would help to identify academically successful and unsuccessful students.

Significant F values for interaction were found for the OPI Estheticism scale and also for the Delay Avoidance subscale of the SSHA. The analysis of variance with mean squares and F values are shown in Table XXVIII. Interaction represents the extent to which one variable fails to react the same at all levels of another; in other words, a lack of uniformity of scores was found between achievement levels in the two groups.

The significant F values for levels of achievement suggest that students in the experimental and comparison groups receiving a grade point average of 2.00 or above demonstrated more diverse interests in esthetic matters and activities as measured by the OPI. Further, students in the two groups who had a grade point average of 2.00 or above demonstrated a higher degree of promptness in completing academic assignments, and more freedom from wasteful delay and distraction as measured by the SSHA. Inspection of subgroup means in Tables XXIX and XXX, and Figures 1 and 2, show the lack of uniformity in the SSHA Delay

TABLE XXVIII

ANALYSIS OF VARIANCE TABLES FOR OPI SCALES AND SSHA SUBSCALES WITH SIGNIFICANT INTERACTION

		d.f.	Mean Square	F	P
Estheticism (OPI)	Groups	1	16.81	.81*	ns
	Levels	1	143.01	6.96*	.05
	Inter-action	1	90.57	4.41*	.05
	Error	96	20.52		
Delay Avoidance (SSHA)	Groups	1	376.36	4.71*	.05
	Levels	1	434.61	5.44*	.05
	Inter-action	1	580.01	7.26*	.05
	Error	96	79.79		

*Significant at the 5 per cent level of confidence.

a To be significant at the .05 level of confidence at 1 and 96 d.f., an F value of 4.00 is required.

TABLE XXIX

MEAN SSHA DELAY AVOIDANCE SCORES FOR THE EXPERIMENTAL AND COMPARISON GROUPS AT TWO LEVELS OF ACHIEVEMENT

	Experimental Group Males and Females N=50	Comparison Group Males and Females N=50	Total
Satisfactory Achievers	28.48	21.82	24.91
Low Achievers	18.23	22.44	19.95
Total	25.82	21.94	23.88

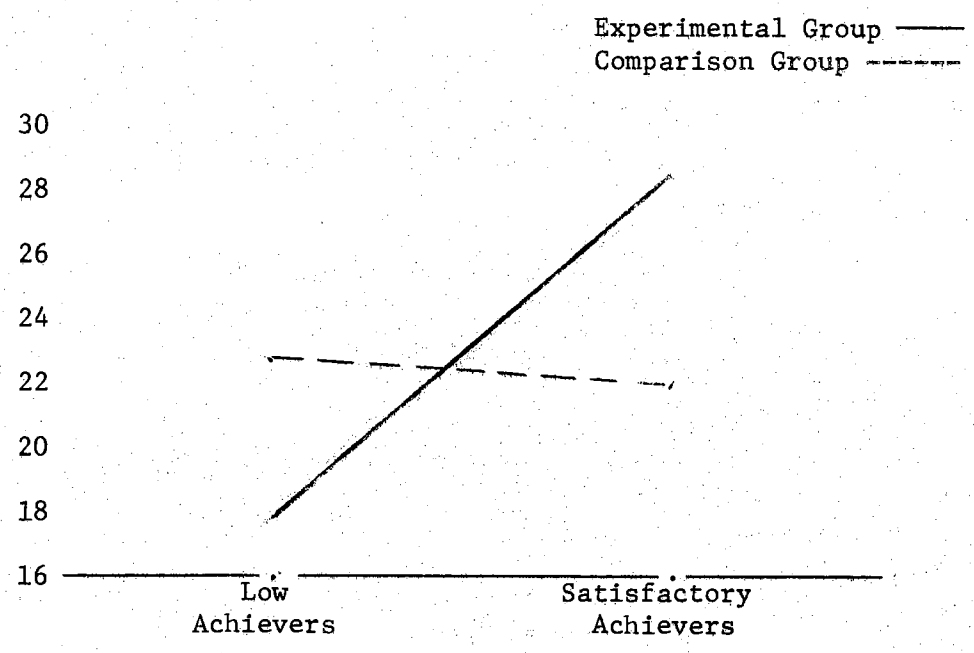

Figure 1. An Illustration of Significant Interaction on the SSHA Delay Avoidance Subscale

TABLE XXX

MEAN OPI ESTHETICISM SCORES FOR THE EXPERIMENTAL AND COMPARISON GROUPS AT TWO LEVELS OF ACHIEVEMENT

Level	Experimental Group Males and Females N=50	Comparison Group Males and Females N=50	Total
Satisfactory Achievers	12.27	12.14	12.20
Low Achievers	11.15	6.67	9.32
Total	12.00	11.16	11.57

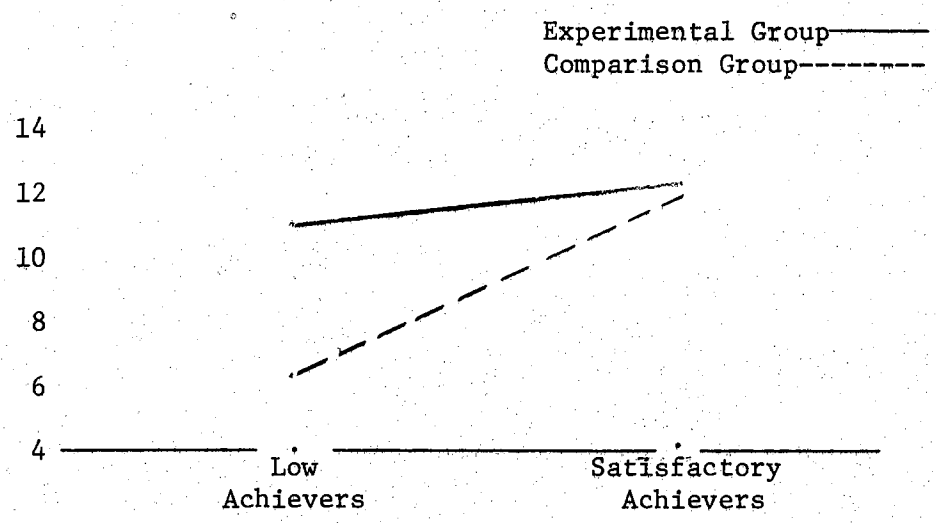

Figure 2. An Illustration of Significant Interaction on the OPI Estheticism Scale

Avoidance Subscale and the OPI Estheticism scale. For the experimental group a higher grade point average was accompanied by higher scores on the Delay Avoidance subscale, while for the comparison group the results suggest that scores tend to decrease as the grade point average increased. Figure 1 provides a graphic illustration of this interaction. Inspection of Table XXX and Figure 2 suggests that esthetic interests tend to increase as grade point average increases. It also indicates that the magnitude of increase is somewhat greater for the comparison group than for the experimental group which contributes to interaction even though the lines representing the two groups do not intersect.

For the experimental group it appears that those students with a satisfactory grade point average as compared to those who were not successful, tended to have a higher interest in completing academic assignments and making efficient use of time and a lesser interest in esthetic activities. For the comparison group it appears that those

students with a satisfactory grade point average showed less interest in completing academic assignments and efficient use of time than did the low achievers but esthetic interests for the satisfactory achievers was substantially the same as for the experimental group.

In summary, the significant interaction effects obtained for the OPI Estheticism scale and the SSHA Delay Avoidance subscale indicate the limited use of these measures for identifying differences between two levels of achievement unless group membership is known. It seems reasonable to assume in this investigation that the scores on the OPI Estheticism scale and the SSHA Delay Avoidance subscale depends on the relationship between the other variables, achievement and group membership.

Summary of Differences Between Academically Successful and Unsuccessful Students

Satisfactorily achieving and low achieving students can be compared with respect to personality and study habits and attitudes variables by examining Tables XXVII, XXVIII, XXIX, and XXX as well as Figures 1 and 2. As shown in Table XXVII, three OPI personality variables and three SSHA study habits and attitudes variables resulted in significant F values. Significant differences were found to exist between the satisfactory achieving and low achieving students on the OPI variables (Thinking Introversion, Theoretical Orientation, and Estheticism) and on SSHA variables (Delay Avoidance, Work Methods, and Educational Acceptance).

Further, in comparison with low achieving students, satisfactorily achieving students tended to have a greater interest in reflective

thought and academic activities, made more efficient use of time, and were more accepting of educational goals and objectives.

Additional differences were found on the OPI Estheticism scale and the SSHA Delay Avoidance subscale. However, the relationships of the scores on these variables to grade point average varied extensively between the groups. These scales were examined and discussed on pages 73 and 75.

Relationship Between Non-Intellective Variables and Academic Achievement

For each test score a product moment correlation coefficient was calculated to determine the relationship between first semester grade point average and post-test variables obtained after one semester of college. The various test scores were considered to be significantly correlated with grade point average if the obtained r value equaled or exceeded the tabled value at the .05 level of significance for the appropriate degrees of freedom. Both positive and negative relationships were considered.

Results of the Analysis for the EM Group

Correlations were computed between each variable and grade point average. For testing the null hypothesis of no significant relationship, the various variables were considered to be significantly correlated with grade point average if the obtained r value equaled or exceeded the tabled value at the .05 level of confidence for the appropriate degrees of freedom. The null hypothesis was rejected for the TI, AU, PI, and PO variables of the OPI and for the DA, WM, SH, EA,

SA, and SO variables of the SSHA. The means, standard deviations, and correlation coefficients of each of these variables are provided in Table XXXI. From an inspection of Table XXXI it is apparent that only four of the fourteen personality variables on the OPI were significantly related to grade point average in the EM group. The OPI Thinking Introversion variable has an r of .42 with grade point average which is almost identical to the r of .41 obtained on the Autonomy and Personal Integration variables of the OPI. The r of -.47, obtained on the OPI Practical Outlook scale indicates that scores on this variable are inversely related to the grade point average of this group.

These findings seem to suggest that interest in a fairly broad range of ideas, an average amount of need for independence, and a degree of social isolation are positively related to the academic achievement of students in this group, while an interest in practical, applied activities is associated with unsuccessful performance.

Again inspecting Table XXXI, it becomes apparent that three of the four scales on the SSHA are significantly correlated with grade point average for the EM group. The two subscales (Delay Avoidance and Work Methods) have r's of .64 and .68 respectively, both significant. The Study Habits scale which is made up of the DA and WM subscales, shows an r of .70, again significant. Only one of the two subscales which make up the Study Attitudes scale was significantly correlated with grade point average. This scale, the Educational Acceptance scale yields an r of .51 while the Study Attitudes scale yields an r of .42. The r for a combination of all scales, the Study Orientation scale, is .60. These findings suggest that the degree of promptness in completing academic

TABLE XXXI

STATISTICALLY SIGNIFICANT CORRELATION COEFFICIENTS
WITH GRADE POINT AVERAGE
EM GROUP (N=25)

Variable	Means	S.D.	Correlation Coefficient
Thinking Introversion (OPI)	21.24	6.98	.42*
Autonomy (OPI)	22.04	8.47	.41*
Personal Integration (OPI)	28.72	10.58	.41*
Practical Outlook (OPI)	17.52	5.03	-.47*
Delay Avoidance (SSHA)	22.00	10.20	.64*
Work Methods (SSHA)	24.52	7.26	.68*
Study Habits (SSHA)	46.52	16.46	.70*
Educational Acceptance (SSHA)	26.88	9.85	.51*
Study Attitudes (SSHA)	54.88	18.78	.42*
Study Orientation (SSHA)	101.40	32.15	.60*

*Significant at the 5 per cent level of confidence.

a To be significant at the .05 level of confidence at 24 d.f., a correlation coefficient of .388 is required.

assignments and the use of effective study procedures as measured by the DA and WM subscales are positively related to the academic success of this group of students. Although attitudes toward teachers was not significantly correlated with grade point average, approval of educational goals and objectives was associated with the academic success of

the EM group. The general attitude of this group was positively associated with grade point average as was the overall measure of study habits and attitudes.

Other significant relationships are shown for groups EF, CM, and CF in Table XXXII. No significant r's were found for the EF group on the variables under consideration when compared to grade point average. For the CM group only one variable was significantly related to grade point average, the Occupational Aspiration scale with an r of .39. For the CF group the Anxiety Level scale of the OPI with an r of .43 and the Work Methods scale of the SSHA with an r of .49 were significantly related to grade point average. Those findings seem to suggest that the level of occupational aspiration is positively related to the academic success of students in the CM group but this is not the case for any other group. For the CF group, feelings of anxiety and efficiency in doing academic assignments are positively related to academic success.

TABLE XXXII

STATISTICALLY SIGNIFICANT CORRELATION COEFFICIENTS WITH GRADE POINT AVERAGE EF GROUP (N=25) CM GROUP (N=25) CF GROUP (N=25)

Variable	Group	Mean	S.D.	Correlation Coefficient
Occupational Aspirations (OAS)	CM Group	49.40	9.57	.39*
Anxiety Level (OPI)	CF Group	10.48	3.38	.43*
Work Methods (SSHA)	CF Group	24.84	9.04	.49*

*Significant at the 5 per cent level of confidence.

a To be significant at the .05 level of confidence at 24 d.f., a correlation coefficient of .388 is required.

Summary of the Relationship Found Between Non-Intellective Variables and Academic Achievement

Only a small number of significant relationships were found in each group between the measured characteristics and grade point average. In general, the most significant relationships were found in the EM group and no significant relationships were found in the EF group. In the EM group the OPI Thinking Introversion, Autonomy, Personal Integration, and Practical Outlook scales were found significantly related. The OPI Anxiety Level scale was significantly related to grade point average only in the CF group. Six of the seven scales and subscales on the SSHA were significantly related to academic success in the EM group, while none were found to be significantly related in the EF and CM groups. Only the Work Methods subscale of the SSHA was significantly related to academic success in more than one of the groups. The Occupational Aspiration Scale was significantly related to academic success only in the CM group and no relationship was found for variables of the WBCL.

The results of this study suggest that personality variables as measured by the OPI, achievement motivation as measured by the WBCL, and occupational aspirations as measured by the OAS have very limited usefulness in identifying academically successful and unsuccessful students. Although three of the four scales on the SSHA are significantly and positively correlated with the academic achievement of students in the EM group, only one other significant relationship was found in the remaining three groups. These results seem to cast some doubt on whether the subscales of the SSHA measure traits that play an important part in academic achievement. Since no significant relationships were

found between scales of the WBCL and grade point average as shown in Tables XXXI and XXXII, it would appear that the scales of this instrument do not aid in differentiating between academically successful and unsuccessful students. This is also the case with the Occupational Aspiration Scale.

Analysis of Differences in Grade Point Average and Dropout Rate in the EM, EF, CM, and CF Groups

Differences in Grade Point Average

The results of the analysis of the mean grade point averages for the four groups were as follows: EM Group = 2.32; EF Group = 2.65; CM Group = 2.66; and CF Group = 3.00.

As shown in Table XXXIII, although a significant F was found when comparing the means of the EM, EF, CM, and CF groups, further examination of the means using the Newman-Keuls procedure (69) resulted in a significant difference between the EM and the CF groups. No other significant differences were found among the groups.

These results show that the CF group had a significantly higher grade point average than did the EM group, that the EM group grade point average was the lowest of the four groups, and that almost identical grade point averages were obtained by the EF and EM groups. The results also indicate that as a group satisfactory achievement was obtained by all groups. Since homogenity of ability was obtained among the groups in this study, when viewing these results the assumption that factors other than academic ability effect college performance seems a valid one.

TABLE XXXIII

ANALYSIS OF VARIANCE BETWEEN THE GROUPS ON GRADE POINT AVERAGE

Source of Variation	d.f.	Sum of Squares	Mean Square	F	P
Between	3	604.67	201.56	3.88	.05*
Within	96	4987.88	51.96		
Total	99	5592.55			

*To be significant at the .05 level of significance for 3 and 96 d.f., an F value of 2.17 is required.

Differences in Dropout Rate

In order to determine if significant differences existed between the experimental and comparison groups on the number of dropouts in the groups Fisher's test for differences between uncorrelated means was used. Since the cell frequencies were small, the test of significance was therefore made through the use of a $\bar{z}$ ratio. The formula for such a $\bar{z}$ ratio is

$$\bar{z} = \frac{p_1 - p_2}{\sqrt{\bar{p}_e \bar{q}_e \left(\frac{N_1 + N_2}{N_1 N_2}\right)}}$$

Fisher recommends the use of just one estimate of the population variance and not two estimates, one from each sample, which calls for a weighted mean of the two sample proportions.

Of the students, who participated in the initial test sessions on entry into college, the number who dropped out are presented in Table XXXIV.

TABLE XXXIV

DIFFERENCES IN DROPOUT RATE BETWEEN THE GROUPS

	Number of Participants	Number of Dropouts	Percent
Experimental			
Males (EM)	35	3	8.5
Females (EF)	45	5	11.1
Total	80	8	10.0
Comparison			
Males (CM)	52	3	5.7
Females (CF)	58	2	3.4
Total	110	5	4.5

Although the percentage of total dropouts in the experimental and comparison groups appears to be significantly different the groups were not found to be statistically different using Fisher's method of comparison. A $\bar{z}$ score of 1.82 was derived which is less than the required 1.96 needed for significance at the .05 level of confidence.

Summary of Differences in Grade Point Average and Dropout Rate

The analysis of grade point average showed that a significant difference existed between the CF group and the EM group. However, no other significant differences were found. When viewing each total group, it is apparent that satisfactory achievement was achieved in each of the groups. A comparison of satisfactory achievers and low achievers is found on pages 77 through 84.

No statistically significant differences in dropout rate were found between the experimental and comparison groups. Of the 80 experimental group students, who were tested initially, eight dropped out of college by the end of the first semester while only five of the 110 comparison group students did not persist. Although 10 per cent of the experimental group dropped out of college as opposed to 4.5 per cent of the comparison group, the result of Fisher's test for differences between uncorrelated means showed that the groups were not significantly different in dropout rate.

CHAPTER V

SUMMARY AND CONCLUSION

General Summary of the Investigation

This study was concerned with two groups of freshman students entering Oklahoma State University in the fall of 1969. The experimental group consisted of 25 males and 25 females participating in the Federal Work-Study Program and classified as coming from low income families by virtue of their eligibility to participate in the program. The comparison group consisted of 25 males and 25 females from the general college population who were not eligible to participate in the Work-Study Program because of family income and thus were considered as coming from the middle and upper income levels.

The purposes of this investigation were (1) to examine certain non-intellective factors which might differentiate the academically successful freshman students from the unsuccessful ones, (2) to determine if there are significant differences on these factors between students coming from low socioeconomic backgrounds and those from middle and upper income groups, and (3) to study the relationship between these factors and the academic success of these two groups.

In this investigation the American College Testing Battery was used for obtaining a measure of ability in order to establish equivalent ability groups and to control the intellective variable. Four test

instruments, the Omnibus Personality Inventory, the Brown-Holtzman Survey of Study Habits and Attitudes, the Michigan State University Work Beliefs Check List, and the Occupational Aspiration Scale were used to measure non-intellective variables.

The analysis of variance was used to test differences among the groups, between two achievement levels, and to determine interaction effects. When significant F's were found, the Newman-Keuls procedure was used to make comparisons between means. Significant change over a period of one semester was evaluated using correlated t tests between pre and post-test scores in each of the groups. A coefficient of correlation was used to determine relationships between the variables under consideration and grade point average after one semester of college experience. Finally an analysis of variance was used to determine differences in grade point average among the groups and Fisher's (33) test for differences between uncorrelated means was used to determine differences in dropout rate.

Summary of the Findings

From the analysis of differences among the experimental and the comparison groups it was found that they were quite homogeneous in terms of personality variables as measured by the OPI. However, the data did indicate that sex differences were more predominant than differences between male groups and between female groups from different socio-economic backgrounds. Male students from the experimental group indicated a greater preference for dealing with theoretical concerns, had a higher interest in scientific activities, and favored a more logical approach to problems and situations than did male students from the

comparison group. On entry into college, the test taking attitude of the experimental group males appeared better than that of the comparison group males, however, this difference did not persist after one semester of college. Females in the comparison group appeared to be more ready to express impulses and to seek gratification in conscious thought and overt action than did females in the experimental group. The test taking attitude of the experimental group females was considerably better than that of the comparison group females. Other differences on the measured characteristics of the OPI represented sex differences and varied from variable to variable.

Some statistically significant differences were found among the groups on study habits and attitudes variables. Significant differences were found on all four subscales of the SSHA on entry into college. However, only two subscales were found to be significantly different after one semester of college. On entry, the experimental group females had significantly better study habits as measured by the SSHA, a difference which persisted after one semester of college. However, the male groups did not differ significantly on study habits. The groups were homogeneous with respect to attitudes toward teachers and acceptance of educational goals and objectives after one semester of college.

When achievement motivation as measured by the WBCL and occupational aspirations as measured by the OAS were examined, no significant differences were found to exist on any of the variables at the .05 level of confidence.

Despite some statistically significant differences found among the groups in personality and study habits and attitudes variables, when all of the 28 variables are considered the groups appear to be quite

homogeneous. Change on these variables over a period of one semester appears to be minimal in each of the groups.

Statistically significant differences were also found between academically successful students and unsuccessful ones on three of the 14 OPI variables and on three subscales of the SSHA. Satisfactorily achieving students tended to have a higher interest in reflective thought and in academic activities, were able to make more efficient use of time, and were more accepting of educational goals and objectives. Further differences were found between satisfactory achievers and low achievers on the Estheticism scale of the OPI and the Delay Avoidance subscale of the SSHA. However, the relationship of the scores on these variables to grade point average varied extensively between the two groups.

Only a small number of significant relationships were found in the groups between the measured characteristics and grade point average. However, for the experimental males significant relationships to grade point average were found for four scales of the OPI and six scales of the SSHA. None of the 28 variables under consideration were found to be significantly correlated with grade point average in the experimental female group, while only two variables were significantly correlated to grade point average in the comparison female group and one variable in the comparison male group.

Since no significant relationships were found between the scales of the WBCL and grade point average, it would appear that the scales of this instrument do not aid in differentiating between satisfactorily achieving and low achieving students. This was also the case for the Occupational Aspiration Scale.

It would appear that after reviewing results on all of the 28 variables in the study the subscales of the SSHA would be more useful in differentiating between academically successful students and unsuccessful ones than either the OPI, WBCL, or OAS. For the most part, however, only a minimum number of the variables were found to be of use in differentiating between students from different socioeconomic backgrounds. Finally, an analysis of differences in grade point average shows that the CF group obtained the highest grade point average and the EM group the lowest. However, no other statistically significant differences were found. Although an analysis of dropout rate showed 10 per cent of the experimental group (EM, EF) dropping out and only 4.5 per cent of the comparison group (CM, CF), the dropout rate between the groups was not significantly different.

Recommendations and Conclusions

The results of this study add to the existing literature concerning college students from low socioeconomic backgrounds. In general the results of this study seem to indicate that very few differences exist between students from low socioeconomic backgrounds and those from middle and upper income groups as measured by the instruments used in this investigation. No differences were noted on achievement motivation and aspirations which would indicate that students from low socioeconomic backgrounds who participate in the Federal Work-Study Program at Oklahoma State University are as motivated to achieve and have aspirations which are not unlike those of students from middle and upper income groups. However, despite the face validity of the instruments which were used, it appears that perhaps they did not tap the crucial

motivational factors which seem to be operating for students in the Work-Study Program. Therefore, testing with additional relevant instruments is recommended.

Some differences were found to exist between the groups on certain personality and study habits and attitudes variables and academic success. However, with respect to the majority of the variables under consideration, the groups were quite homogeneous. In general, scores on the measures of personality, achievement motivation and occupational aspirations do not appear to be favorably related to grade point average, thus, they would have very limited use in differentiating between academically successful and unsuccessful students. It appears that the study habits and attitudes subscales would be a more useful tool for this purpose. However, these measures appear to yield information which could more effectively be used in counseling with students than for research purposes.

A minimal amount of change was found to occur in the populations investigated over the period of one semester. Additional research on the matter of change might be more meaningful if a period of time longer than one semester is used. Although no attempt was made in this study to relate the variables under consideration to students who did not persist, perhaps subsequent research could determine whether relationships exist between these variables and college persistence.

This research should be viewed as one of a number of investigations which should be completed, both with these students and students with similar backgrounds in order to better understand college students from the lower socioeconomic strata. A study using students from more than one institution as subjects would be in order.

Without additional data the results of the present investigation appear to indicate that students from low socioeconomic backgrounds are not significantly different from students in the middle and upper income groups and that there is no pressing need for special attention or the development of special programs to meet the needs of these individuals. However, it is recommended that additional investigations be conducted in order to support or refute the findings of this research.

Further, the results of this investigation suggest that the usefulness of test information in identifying academically successful and unsuccessful students should be determined at each separate institution. Whether for the purpose of predicting academic success or simply identifying variables associated with academic success to be used by counselors and other college personnel, it would be difficult to generalize test information from one institution to another.

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APPENDIX

UNPUBLISHED DATA COLLECTION INSTRUMENTS

MICHIGAN STATE UNIVERSITY WORK BELIEFS CHECK LIST

Your name_____

Instructions:

This check-list is made up of statements people often say they believe. You will probably find that you agree with some and disagree with others. If you agree with a statement, circle AGREE; if you disagree with a statement, circle DISAGREE. Do not omit any. Be sure your name is at the top of the sheet.

1.1	The only purpose of working is to make money.	Agree	Disagree
1.2	I believe a man needs to work in order to feel that he has a real place in the world.	Agree	Disagree
1.3	I feel sorry for people whose jobs require that they take orders from others.	Agree	Disagree
1.4	Every man should have a job that gives him a steady income.	Agree	Disagree
1.5	The happiest men are those who work only when they need money.	Agree	Disagree
1.6	Doing a good job day in and day out is one of the most satisfying experiences a man can have.	Agree	Disagree
1.7	A regular job is good for one.	Agree	Disagree
1.8	I feel sorry for the rich people who never learn how good it is to have a steady job.	Agree	Disagree
2.1	I don't like people who are always right on time for every appointment they have.	Agree	Disagree
2.2	I feel sorry for people who have to do the same thing every day at the same time.	Agree	Disagree
2.3	I don't like to have to make appointments.	Agree	Disagree
2.4	I believe that promptness is a virtue.	Agree	Disagree
2.5	I usually schedule my activities.	Agree	Disagree
2.6	I'd rather let things happen in their own way than scheduling them by the clock.	Agree	Disagree
2.7	It makes me feel bad to be late for an appointment.	Agree	Disagree
2.8	I expect people who make appointments with me to be right on time.	Agree	Disagree
3.1	I would be unhappy living away from my relatives.	Agree	Disagree
3.2	I hope to move away from here within the next few years.	Agree	Disagree
3.3	People who can't leave their hometowns are hard for me to understand.	Agree	Disagree
3.4	Man's first loyalty should be to his home community.	Agree	Disagree
3.5	When a boy becomes a man he should leave home.	Agree	Disagree
3.6	I like to see new things and meet new people.	Agree	Disagree
4.1	I like to try new things.	Agree	Disagree
4.2	On the whole, the old ways of doing things are best.	Agree	Disagree
4.3	Life would be boring without new experiences.	Agree	Disagree
4.4	I like people who are willing to change.	Agree	Disagree

4.5	On the whole, most changes make things worse.	Agree	Disagree
4.6	The happiest people are those who do things the way their parents did.	Agree	Disagree
4.7	New things are usually better than old things.	Agree	Disagree
5.1	I believe that a person can get anything he wants if he is willing to work for it.	Agree	Disagree
5.2	Man should not work too hard, for his fortune is in the hands of God.	Agree	Disagree
5.3	A man shouldn't work too hard because it won't do him any good unless luck is with him.	Agree	Disagree
5.4	With a little luck I believe I can do anything I really want to do.	Agree	Disagree
5.5	A person shouldn't hope for much in this life.	Agree	Disagree
5.6	If a man can't better himself it's his own fault.	Agree	Disagree
5.7	Practically everything I try to do turns out well for me.	Agree	Disagree
5.8	I usually fail when I try something important.	Agree	Disagree
6.1	I would rather work than go to school.	Agree	Disagree
6.2	Money is made to spend, not to save.	Agree	Disagree
6.3	I think there's something wrong with people who go to school for years when they could be out earning a living.	Agree	Disagree
6.4	One gains more in the long run, if he studies than if he gets a job.	Agree	Disagree
6.5	The more school a person gets the better off he is.	Agree	Disagree
6.6	Generally speaking, things one works hard for are the best.	Agree	Disagree
6.7	When I get a little extra money I usually spend it.	Agree	Disagree

YOUR NAME_____

OCCUPATIONAL ASPIRATION SCALE

This set of questions concerns your interest in different kinds of jobs. There are eight questions. Each one asks you to choose one kind of job out of the ten presented.
Be sure your name is at the top of this page.
Read each question carefully. They are all different.
Answer each one the best you can. Do not omit any.

Question 1. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN GET when your SCHOOLING IS OVER?

1.1___Lawyer
1.2___Welfare worker for a city government
1.3___United States representative in Congress
1.4___Corporal in Army
1.5___United States Supreme Court Justice
1.6___Night watchman
1.7___Sociologist
1.8___Policeman
1.9___County agricultural agent
1.10___Filling station attendant

Question 2. Of the jobs listed in this question, which ONE would you choose if you were FREE TO CHOOSE ANY of them you wished when your SCHOOLING IS OVER?

2.1___Member of the board of directors of a large corporation
2.2___Undertaker
2.3___Banker
2.4___Machine operator in a factory
2.5___Physician
2.6___Clothes presser in a laundry
2.7___Accountant for a large business
2.8___Railroad conductor
2.9___Railroad engineer
2.10___Singer in a night club

Question 3. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN GET when your SCHOOLING IS OVER?

3.1___Nuclear physicist
3.2___Reporter for a daily newspaper
3.3___County judge
3.4___Barber
3.5___State governor
3.6___Soda fountain clerk
3.7___Biologist
3.8___Mail carrier
3.9___Official of an international labor union
3.10___Farm hand

Question 4. Of the jobs listed in this question, which ONE would you choose if you were FREE TO CHOOSE ANY of them you wished when your SCHOOLING IS OVER?

4.1___Psychologist
4.2___Manager of a small store in a city
4.3___Head of a department in state government
4.4___Clerk in a store
4.5___Cabinet member in the federal government
4.6___Janitor
4.7___Musician in a symphony orchestra
4.8___Carpenter
4.9___Radio announcer
4.10___Coal miner

Question 5. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN HAVE by the time you are 30 YEARS OLD?

5.1___Civil Engineer
5.2___Bookkeeper
5.3___Minister or Priest
5.4___Streetcar motorman or city bus driver
5.5___Diplomat in the United States Foreign Service
5.6___Share cropper (one who owns no livestock or farm machinery and does not manage the farm)
5.7___Author of novels
5.8___Plumber
5.9___Newspaper columnist
5.10___Taxi driver

Question 6. Of the jobs listed in this question, which ONE would you choose to have when you are 30 YEARS OLD, if you were FREE TO HAVE ANY of them you wished?

6.1___Airline pilot
6.2___Insurance agent
6.3___Architect
6.4___Milk route man
6.5___Mayor of a large city
6.6___Garbage collector
6.7___Captain of the Army
6.8___Garage mechanic
6.9___Owner-operator of a printing shop
6.10___Railroad section hand

Question 7. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN HAVE by the time you are 30 YEARS OLD?

7.1___Artist who paints pictures that are exhibited in galleries
7.2___Traveling salesman for a wholesale concern
7.3___Chemist
7.4___Truck driver
7.5___College professor
7.6___Street sweeper
7.7___Building contractor
7.8___Local official of a labor union
7.9___Electrician
7.10___Restaurant waiter

Question 8. Of the jobs listed in this question, which ONE would you choose to have when you are 30 YEARS OLD, if you were FREE TO HAVE ANY of them you wished?

8.1___Owner of a factory that employs about 100 people
8.2___Playground director
8.3___Dentist
8.4___Lumberjack
8.5___Scientist
8.6___Shoeshiner
8.7___Public school teacher
8.8___Owner-operator of a lunch stand
8.9___Trained machinist
8.10___Dock worker

*The Occupational Aspiration Scale: Theory, Structure and Correlates: East Lansing, Michigan: Michigan State University Agricultural Experiment Station, Technical Bulletin 288, 1963, reproduced by permission of Archibald O. Haller and Irwin W. Miller.

VITA

Jack G. Cazzelle

Candidate for the Degree of

Doctor of Education

Thesis: A STUDY OF NON-INTELLECTIVE FACTORS RELATED TO THE ACADEMIC SUCCESS AND ADJUSTMENT OF COLLEGE FRESHMEN FROM LOW SOCIOECONOMIC BACKGROUNDS

Major Field: Student Personnel and Guidance

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