A CORRELATION OF SELECTED PERSONAL CHARACTERISTICS OF STUDENTS IDENTIFIED AS HIGH - OR LOW - VARIABLE ON ACADEMIC PERFORMANCE

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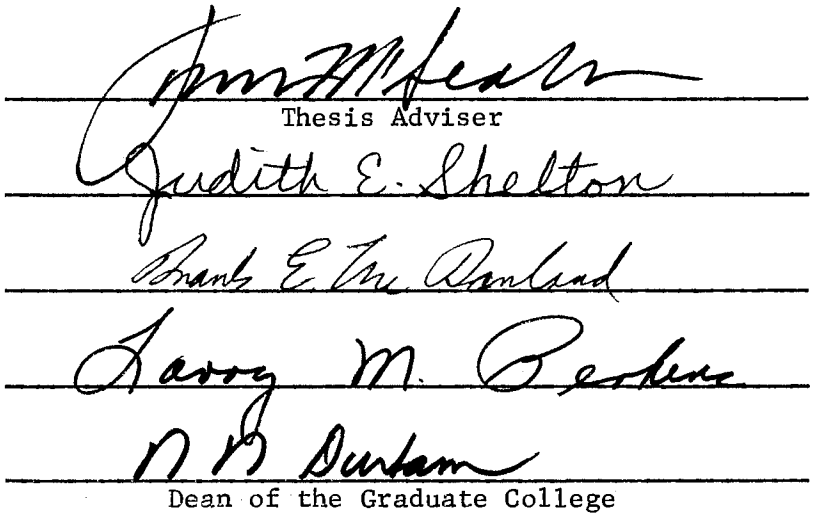

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CHAPTER I

INTRODUCTION

Previous work concerning the identification and measurement of student achievement has produced considerable frustration. The failure of so many students to fulfill their potentialities for academic achievement remains today one of the most crucial problems in education. (3) Zeran and Ricco point out the loss to both society and the individual: "A dynamic society demands an educational environment and a program which affords all boys and girls the opportunity to develop to their optimum. It also demands that they utilize their potentials to the benefit of themselves and of society." (51, p. 1)

The view that the goal of education in America is the development of individual potentialities (though they may vary considerably from student to student) is quite pervasive. The acceptance of students as separate, different, and important individuals stems from that belief and generally characterizes the American educational system.

The prevailing academic tendency to deal with individual differences as they exist within the middle class group of participating students has been greatly magnified in recent years as the American society pressed more firmly toward a condition of mass higher education. Great cultural differences have been found to exist between middle and lower class children. Therefore, attention must be directed to these differences when attempts are made to prepare appropriate academic

curricula. Academic program designs more closely aligned with the needs of the group of students who are not adequately prepared for the cognitive academic styles practiced in the school systems are required. Otherwise the tendency toward higher levels of mass education under the present cognitive learning design will further frustrate and alienate a capable, intelligent and potentially useful segment of our society. Those learners, lacking only the higher level complex mental abilities, are not turned away from learning and development. They are simply unable to progress in schools dominated by the prevailing philosophy. (7, 30).

Great gains seem possible when recommendations of the Carnegie Commission concerning students are followed. The commission cites the needs to accurately identify characteristics of students and guide them toward educational, vocational, or other programs for which they are most properly suited. In order to succeed in this noble endeavor, testing and sampling instruments must demonstrate better measurement and predictive capabilities for all students in the system, not just the cultural elite oriented toward middle class attitudes and values.

Of particular import if new levels of educational development for students throughout school systems are to be reached is the recognition of the need for independent variable design and manipulation that will foster new data development. New instruments that will accurately aid in predicting behavior while accounting for major portions of the variance involved in academic performance are also urgently needed.

Goslin states, "The ultimate test of a test, therefore, is its usefulness in predicting behavior at some future point in time." (23, p. 153) Despite this statement, Goslin and other psychologists have

been somewhat pleased with the measures and predictions of existing instruments. This satisfaction in spite of the fact that less than half of the variance in academic performance is being accounted for by these measures of ability. Lavin concluded that existing instruments accounted for only 35 to 45 percent of the variance in academic performance. (33) The schools seem to contribute an even lesser share of variance explanation for academic performance. The often repeated statement that more learning takes place without rather than within the classroom seems true in view of Coleman's finding that only a small fraction (about one-tenth to one-fifth) of the total variation in scholastic achievement is attributable to factors in the schools themselves. (7) It seems therefore that in spite of advancement in test construction and academic performance prediction using existing instruments, there remains a major portion of academic performance variation left unexplained. Educational researchers must be charged with the task of finding methods to account for more, if not all, of this variation.

Some students participating in educational research have tended to vary significantly in achievement level when an independent variable was manipulated while others have varied little or none at all. This lack of consistency may in part explain why research directed toward assessing the influence of various intellectual variables is often conflicting. It would seem therefore, that current research might profitably be directed toward attempting to identify characteristics of the learner that operate either to facilitate or inhibit learning in specific stimulus situations.

The educational literature of today frequently refers to the needs of the whole learner, the curricular and co-curricular needs of the

student, the fulfillment of the entire person. An identification of the relationships of some personal characteristics to academic achievement and to student tendencies toward either consistent or diverse academic behavior in the diverse learning situations provided by a large range of college classes is the goal of this project.

Significance of the Study

This study is important if we are to better understand those high and low variance groups of students who constitute a large portion of the student body. Research to date has not dealt specifically with the student as a member of either a consistant or diverse academic performance group, although much speculation has been advanced concerning the reasons that some students do "A" work in some academic courses and "D" work in others. This speculation has usually been associated with students whose grade point average has been low. Less attention has been directed at the highly consistent student, particularly when he has been consistently successful in his efforts.

This research project represents a new dimension in dealing with intellectual and non-intellectual factors of college students. The new dimension concerns the consistency of academic performance displayed by a sample of Oklahoma State University students who have completed their first two years of college work.

From this study the researcher has added significant data that has relevance and importance to the body of knowledge in the field of education. This study pioneers attempts at better understanding and prediction of the performance of the student population, and could be a key factor in adjusting curricular and co-curricular programs or other

intellectual variables to better meet the needs of these students. This research may also be of assistance in identifying and providing programs outside the intellectual area which will result in greater student interest, appreciation, and application toward his academic program.

Statement of the Problem

Academic research has accomplished little to aid in understanding non-intellectual factors of students involved in either consistent or diverse academic performance. Since relatively little academic performance variance is accounted for by intellectual factors, this research attempts to determine the appropriateness of accounting for variance in academic performance through non-intellectual factors.

The primary concerns of this project therefore are determinations of relationships between the twenty-one measured non-intellectual variables and the dichotomized measures of academic variance and grade point average. The relationships existing between four student groups, placed according to standing on the dichotomized variance and grade data and the personality factors, as well as the relationships between sex and the personality variables are also deemed important.

Limitations

1. The study is limited to a sample of Oklahoma State University students who have completed the first two years of their college work.

2. The results of this study can be generalized only to undergraduate students at Oklahoma State University who have completed the first two years of their college work. It is important to note however

that no literature exists to indicate significant differences in the student population at Oklahoma State University and students at other colleges and universities in the midwestern portion of the United States.

3. The students in the sample will know that they are participating in a study, therefore the "Hawthorne Effect" may be a factor. To aid in combating this the students will be told that they have been randomly selected for participation in institutional research at Oklahoma State University and their full and honest participation will be appreciated. The Response Bias variable of the Omnibus Personality Inventory will give an indication of any tendency to try to give a good or bad impression.

Assumptions

1. It is assumed that the data is linear and independent in nature thereby meeting the restrictions of the statistical techniques Chi-Square and Contigency Coefficient.

2. It is assumed that although students were not administered each of the instruments as a group, the administration of the tests was uniform.

Definition of Selected Terms

Intellectual Variables are defined as scores obtained on the scales of the various measures of aptitude and/or achievement and by grade point average.

Non-intellectual Variables are defined as scores obtained on any of the scales of the selected measures of interest, values,

personality, socioeconomic position, etc.

Scoring on each variable examined in this study provided dichotomous groupings of high and low scorers. The brief word picture presented below will describe the high scorer. A more detailed definition of each variable may be found in Tables III and IV.

Omnibus Personality Inventory

Thinking Introversion - Reflective thinker.

Theoretical Orientation - Scientific method preferred.

Estheticism - Interest in diverse artistic interests.

Complexity - Experimental and flexible orientation.

Autonomy - Need for independence.

Religious Orientation - Skeptical of conventional religion.

Social Extroversion - Interest in being with people.

Impulse Expression - Readiness to express active imaginations.

Personal Integration - Low degree of social alienation.

Anxiety Level - Low level of anxiety.

Altruism - High level of trust and ethics in relation to others.

Practical Outlook - High level of practical and applied activities.

Masulinity - Femininity - High - masculine, low interest in esthetic matters.

Response Bias - Lie scale.

Survey of Study Habits and Attitudes

Delay Avoidance - Low tendency to procrastinate.

Work Methods - Well organized.

Study Habits - Total of Delay Avoidance and Work Methods.

Teacher Approval - Accepting.

Education Acceptance - Accepting.

Study Attitudes - Total of Teacher Approval and Education Acceptance.

Study Orientation - Total of Study Habits and Study Orientation.

High Variance Students are those students who have established records of diverse academic behavior in the diverse learning situations provided by a large range of college classes.

Low Variance Students are those students who have established records of consistent academic behavior in the diverse learning situations provided by a large range of college classes.

Cognitive Learning - the self-initiated elaboration and transformation of stimulus input before it eventuates in an overt response. This involves an active manipulation of the input to arrive at the output.

Hypotheses

Each of the hypotheses below will be examined for each of the following criterion variables as measured by the Omnibus Personality Inventory: Thinking Introversion, Theoretical Orientation, Estheticism, Impulse Expression, Personal Integration, Anxiety Level, Altruism, Practical Outlook, Masculinity-Femininity, and Response Bias, and each of the following criterion variables as measured by the Survey of Study Habits and Attitudes: Delay Avoidance, Work Methods, Study Habits, Teacher Approval, Education Acceptance, Study Attitudes, and Study Orientation.

H.1: There are no significant relationships between academic variance and the criterion variables.

H.2: There are no significant relationships between academic grade point average and the criterion variables.

H.3: There are no significant relationships between sex and the criterion variables.

H.4: There are no significant relationships between group membership and the criterion variables.

Organization of the Study

Chapter I includes an introduction to the problem, the significance of the study, a statement of the problem, definition of terms, hypotheses, limitations, and assumptions. Chapter II contains a review of the research literature pertinent to this study. Chapter III describes the variables, subjects, treatments, instrumentation, and analysis of the data. Chapter IV contains the findings and discussion of the results of the study. Chapter V includes a discussion of the results of the study, conclusions, and implications for further research.

CHAPTER II

REVIEW OF LITERATURE

During the entire period prior to the 1930's relatively little research was conducted concerning students in higher education. There existed a deep seated belief that only the most fit, from mental and moral viewpoints, could progress into the hallowed halls of advanced learning. Curricula were firmly established with no deviation permitted. The training and development of the mental muscles was the prime goal of higher education.

By the mid-1930's a period of awakening was primed by the studies at Bennington College carried out by Newcomb (38). The Vassar College study, 1954-1958, added weight to the slowly building collection, and the most notable work to date date The American College was published in 1962 (42). This work emphasized the importance of environmental conditions for learning and the power of the informal systems of the students to foster or negate the efforts of faculty and administration and the efforts of the curriculum. Particular attention was given a previously neglected area - the effects of the college experience on students. The American College was the forerunner of a great number of studies concerned with the college student. Researchers in even greater numbers are attempting to understand the describe the effects of college life on the student population. Most of these efforts have centered on academic performance.

More recently, greater interest has been shown in the non-intellectual factors of students. Attempts have been made to relate personality variables to academic performance. Some degree of success has been achieved in relating personality test item scores to measures of academic performance, usually grade point average. This success however merely points the way for future work. The continued findings that other factors, as yet unidentified, are bearing on the problem points clearly to the need for new approaches to the understanding of student performance. The early researchers with their almost total emphasis on intellectual considerations and the later period researchers who attempted to relate personality to intellectual considerations laid a foundation from which much current work stems. Throughout these efforts there exists a line of reasoning indicating that although contributions have been made it remains apparent that other factors must account for the approximately half of the unexplained variance in academic performance.

No literature directly concerned with student variance in academic performance has been located. However, correlates of performance in the areas of intellectual and non-intellectual variables are presented in order to establish a foundation and background for this study of student variance in academic performance. The cited works represent but a small fraction of the work done in these areas. They are sufficient however to acquaint the reader with notable works in each of the areas and to allow him to see the value of identifying those non-intellectual factors at work in students which may aid in prediction of academic performance, to include variance, and the establishment of guidance and counseling offerings for those who are less than satisfied

with the predicted results.

Intellectual Correlates of Academic Performance

The most widely researched subject area of academic performance is the over-, under- achiever consideration. The basic premise involved is the acceptance of some level of predicted performance. Causal factors for deviations from the predicted levels are the goals of the research. Many researchers, even the earliest, tended to seek explanations in a combination of intellectual and non-intellectual causal factors, but the great majority of researchers tended to accept intellectual measures, particularly I.Q. scores, as indicants of levels of ability and to define levels of expected achievement. Deviance from these levels many times connoted laziness on the part of the underachiever and some sort of excessive drive, social ambition, or similar unacceptable motivations on the part of the overachiever.

An analysis of the literature and research pertaining to levels of achievement indicates that the consideration of both intellectual and non-intellectual factors in combination is necessary if the total academic behavior pattern is to be identified and understood. Dulles (14, p. 21) challenges all educators and researchers concerned with achievement level as follows:

> Let us ask ourselves a question: Is the 'real' capacity of a student what someone else judges it to be or is it the actual level of performance and achievement? Everyone 'achieves' (i.e. approximates goal behavior) to some extent, but by absolute standards some accomplish more than others. There are reasons for this. Genetics is one important factor; social experience is another. And although it may be impossible at present to disentangle all the contributing elements, in theory, a student's behavior is explanable and modifiable in terms of some observable conditions or events.

> Otherwise, we would not try--purposefully--to educate. It is fairly clear then that given all the biological and social factors every organism achieves what it can achieve.
>
> Logic seems to urge us to direct our attention toward our measures of prediction rather than toward the under-achievement.

Curry (11) determined that the problem of over-under achievement was not limited to any particular intelligence ability groups nor peculiar to any one socioeconomic status level. However, many studies have indicated that while the problem was not limited to any specific group as determined by Curry the variables which caused the discrepant achievement could vary with the ability group, socioeconomic status level, or sex (18, 19, 20, 31, 32).

The major aim of the majority of investigations is to determine those factors which will predict academic achievement most effectively. Lavin (33) pointed out that the relationships between such predictors and performance criteria are not very strong, due possibly to (1) the failure to isolate enough of the right variables, (2) measurement error in predictors, and (3) uncontrolled sources of variation in grades themselves.

Success in academic work requires certain cognitive skills. These skills are considered to be measured by intelligence tests. The extent to which these types of psychological measures relate to successful academic work has been the major focus of much research. The literature is extensive. Cronbach (9) and Henry (25) reviewed the literature independently and reported conclusions which have been substantiated by more recent research. The correlations of college level ability tests with grade point average range from about .30 to .70 with a median r of .50.

The American College Test (ACT) has been widely used in assessing intellectual growth. Since ACT scores are indicators of the extent to which students can profit from learning experiences, it is legitimate to refer to them as measures of intellective capacity. Data reported in 1965 (1) based upon 59,164 students, showed that the median r between composite score and the college overall grade point average was .50.

Hughes (29) and Hoyt (28) found in studying the relative usefulness of ability tests that a sex difference is likely to confound the results. There appears to be evidence that females are somewhat less variable in performance than males. Overachievement and underachievement occur more frequently in males, while females seem to perform more nearly in line with expectancy. Each sex learns to play a different role, and attitudes and values which become associated with these roles may have a marked influence on academic performance. Since the female tends to play a different role than the male, academic success probably has different meanings for each. With the large number of female teachers in the schools, the model of the good student may be the female model (39). Parsons (39) has contended that a deviation from the student role may constitute a conformation of masculinity.

Seals (43) 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 a college freshman.

Speer (45) used the Kuder Preference Record to investigate the

interest patterns of freshman engineering students as compared to freshman liberal arts students. He found interest patterns of engineering students to differ significantly from those of non-engineering students. The engineering students had high (above the 75th percentile) mechanical, computational, and scientific interests, whereas there seemed to be no such uniformity of interests for the liberal arts students. Speer also found that the engineering students tended to score low in the persuasive and social service interest areas. Similarly, Darley and Hagenah (12) found that students of equivalent ability enrolled in the College of Liberal Arts and Engineering had widely different interest patterns on the Strong Vocational Interest Blank.

Non-Intellectual Correlates of Academic Performance

A widespread concern for high academic achievement at all levels of education is evidenced by the number of studies and articles to appear in recent years. Wesley points out that "the earlier studies seem to have been more concerned with the characteristics of low achievers, and there seems to be some confusion in the reported research caused by assuming the symptoms to be the causes of poor scholarship. Some of the earlier thinking attributed daydreaming, poor study habits, lack of interest, inability to organize material, poor home background, and the like to be the causes of low grades. More recent studies seem to be more concerned with attempting to discern some of the emotional components of motivation which seem to be associated with academic achievement" (50, p. 21).

Finger and Schlesser (17, p. 14) report in their study of "Non-intellective Predictors of Academic Success in School and College" that

> Underachievement in both school and college creates much frustration, frustration that is probably more often exhibited by parents and teachers than by the low-achieving student. The fact that many such students seem unconcerned about their poor performance suggests that underachievement is symptomatic of the possession of some attitudes or values that make it unnecessary to strive for school success. Not infrequently, however, does low achievement result in serious consequences. Some underachievers must face school dismissal, or give up well-established, long-range career plans. Yet, faced with this problem, many, perhaps most, underachievers do not change their school performance, although they may express much concern for their dilemma.

They conclude by saying (17, p. 15)

> School achievement must be related to a complex of cultural commitments stemming from self-, parental, and peer expectations for school and career. The individual adopts fantasy and real aspirations for himself in a wide variety of cultural contexts. Even when school success is a requirement for one's long-range plans, the day-to-day activities of school may be perceived either as satisfying and valuable or as something with which to contend. Attitudes and behaviors related to school become intertwined with one's long-range plans and aspirations.

The use of psychological tests and personality inventories in the public schools is still viewed with much pessimism and skepticism. There are strong implications that more research is needed to substantiate the predictive value of such instruments. However, the findings from many recent investigations are pointing toward the successful use of certain personality variables as predictors of academic achievement.

Pierce (40), using the California Psychological Inventory, contrasted high and low achieving tenth grade boys and twelfth grade boys. He found that both levels differed significantly on the scales measuring Responsibility, Tolerance, Achievement via Conformance, Achievement via Independence and Intellectual Efficiency. Lessinger and Martinson (34) reported findings which were in agreement with Pierce. Snider and Linton (44) supported the findings of these investigations and also

reported that high achieving boys differed from low achieving boys on socialization, self control and good impression, while high achieving girls differed from low achieving girls on achievement via independence, intellectual efficiency and psychological mindedness. Morrow and Wilson (37) also emphasized the importance of socialization and impulse regulation as differentiating factors between levels of achievement.

Rosenberg and others (41) used a psychological inventory with the General Technical score on the Army Classification Battery to predict the academic grades of students in three military courses. They found this to be an effective screening device for all three courses. Holland (27) also studied the prediction of academic achievement from a combination of personality and aptitude variables. He concluded that non-intellectual variables such as super ego, persistance and deferred gratification are useful in predicting and understanding the academic achiever. Flaherty and Reutzel (16) suggest that certain psychological inventory scales may be used as possible nonacademic predictors of achievement.

Watley (49) approached the problem of prediction of academic achievement through personal adjustment. The basic hypothesis of his study was that "better adjusted students are more predictable than maladjusted students." The results of this study indicated that "although the adjustment groups did not appear to be significantly different in terms of academic predictability, a definite relationship did exist between the groups on levels of achievement." Snider and Linton (44) also found that high achievers were better adjusted than low achievers.

Another approach to the use of non-intellectual variables as achievement predictors was investigated by De Sena (13). The Brown-

Holtzman Survey of Study Habits and the Barrow's College Inventory of Academic Adjustment were utilized to compare the effectiveness of these instruments in identifying non-intellectual factors which discriminate among over, under, and normal achievers and which may significantly influence academic achievement. It was found that both instruments show evidence of being useful predictor tools.

A pupil does not succeed or fail in an intellectual or social vacuum. He achieves academically at a given level because of the interaction among all of the variables which make up his inter-, intrapersonal environment. There is an interplay between the intellectual and non-intellectual facets of this environment which indicates that there must be certain aspects of the personality which make the achievement of academic goals need satisfying.

Stagner (46) says that it is becoming increasingly clear that personality influences achievement in an indirect way by affecting the degree to which an individual makes use of his potentialities. He concludes by reporting that

> . . .at some points along the distribution personality is an advantage in academic work while different amounts of the same personality variable may be disadvantageous, or may be operative in one direction in one case, the opposite in a similar situation.

Much of the literature concerning the influence of personality traits on academic achievement deals with the relation of the self-concept to the level of academic achievement. Self-concept, as used in most studies, is a product of the personality structure of the individual which determines the degree of adequacy the individual sees himself as having.

Self-concept is generally accepted as being the degree of adequacy

that an individual sees himself as having and is a product of the individual's structure.

Combs (8), in a study of self-perception in relation to the "underachievement" of academically capable students, says

> The underachiever cannot be treated in terms of any one facet of his problem. Underachievement must be understood to be a completely personal and consistent adaptation of the underachiever to be his needs and capacities as he uniquely experiences them.... The basic thread running through this study is that a major determinant of how well one will be able to function is his feeling of capability of functioning. Many times for the underachiever educational experiences are perceived by him, and are thus experienced by him, as being largely nonfacilitating experiences.

His study involved an exploration of the way underachievers see themselves and their interpersonal relations in comparison to the self-perception of students who were achieving well. The results of the study indicated significant and consistent differences in the areas of adequacy, acceptability, peer relations, adult relations, efficiency in approaching problems, and freedom and adequacy of emotional expression. In all of these areas the underachiever saw himself as being less competent and less adequate than did the achiever.

Fink (18), Crootof (10), and Morrow and Wilson (37), while using different approaches, all report evidence to support the hypothesis that an adequate self-concept is related to high academic achievement and that an inadequate self-concept is related to low academic achievement to a significant degree.

Multivariate Correlates of Academic Performance

Current trends are toward liberalized usages of multivariate approaches in academic research. Emphasis is placed on measurement of

large numbers of variables, to assessment of their interrelations, and to the discovery of those dimensions of personality that are independently related to academic performance.

Merrill and Murphy (35) found that low ability students whose school performance was adequate were higher on needs for deference, endurance, and dominance but lower on autonomy, exhibitionism, and affiliation as compared with low-ability students who were failing. Gebhart and Hoyt (22) found that overachieving male freshmen were higher on needs for achievement, order, intraception and consistency but were lower on needs for furturance, affiliation, and change. The findings from these studies suggest a pattern; they found that overachievers are lower on need for achievement, order and endurance.

Holland (26) using the California Psychological Inventory and an aptitude inventory with high ability college freshmen found that the best predictor battery for men included the math score from the aptitude test and the personality scores on socialization, social presence and femininity. For women the best battery included verbal aptitude and social presence, responsibility, achievement via conformance and femininity.

Holland (27) intercorrelated several academic achievement tests, extra curricular achievements, and average school grades for 7,262 college freshmen attending twenty-four universities. Results indicated that academic and non-academic accomplishments are relatively independent measures of talent. The most notable finding was the low magnitude of the correlations between academic performance and artistic, scientific and social accomplishment.

Brown (4) studied a group of college girls nominated by faculty

members as outstanding students. Not all the girls had high grades but 57% had A averages. Compared to girls who had high grades but were not nominated, the nominated girls were characterized by a high degree of social maturity, moderate impulse expression and low repression. Further, they were low on conformity and on degree of integration with the student peer culture.

A large number of perceptual, cognitive, and personality factors were investigated by Stern, Stein and Bloom (47) in order to investigate variables relavent to achievement at the college level. The sample was atypical when compared to most college populations in that the average standing for entering classes for several years preceding the study had been consistently above the 90th percentile on national norms for college freshmen. In addition, these students were entering college at about the sixteenth year after completing ten years of schooling. The criterion consisted of grade averages based on comprehensive examinations administered and scored by an independent staff of examiners at the end of each academic year.

Results of the study indicated that a space factor, one isolated by Thurstone involving the "ability to visualize a rigid configuration when moved into different positions" correlated .47 with grade average, a correlation significant at the .01 level.

Using more than 20 ability, interest, personality and temperament measures, Stone (48) found that for male college seniors in the physical sciences, the addition of personality factors more than doubled the efficiency of prediction over ability measures alone.

In an effort to investigate motivational variables, Michael, Jones and Trembly (36) found through factor analysis that academic performance

had very low relationships with motivational factors--mainly a "freedom from a neurotic orientation to study tasks" factor. The findings of this study are similar to the single variable studies investigating motivation.

Summary

In reviewing Chapter II it is apparent that numerous studies have been conducted which investigated factors of academic performance according to a large number of intellectual factors.

No attempts were previously made to learn more about the student, either the successful one of the unsuccessful one, concerning his tendencies toward either consistent or diverse performance.

This chapter has reviewed academic performance studies using studies grouped according to major area correlates of academic performance. Among these were intellectual, non-intellectual, and multivariate correlates. The studies cited established a foundation and allowed for understanding of previous work in the field. It became increasingly clear as the literature citings were presented that still another door or group of doors leading to full understanding of academic performance lay concealed and needed discovery and investigation. This study opened one of those doors and explored the area of academic variance as measured by tendencies toward consistency or diversity in academic performance.

CHAPTER III

DESIGN AND METHODOLOGY

Variables

The purpose of this study is to determine if a significant predictive relationship exists between three organismic variables - grade point average, grade variance, and sex and the criterion variables - scores achieved on the subscales of the Omnibus Personality Inventory and the Survey of Study Habits and Attitudes.

The organismic variables were determined for each sample member by computations of grade point average and variance from existing academic records maintained by the Oklahoma State University Registrar. The sex variable was extracted from those same records. In each case the academic records established by undergraduate students who completed their first two years of college work were used. The first two years of academic experience were selected in order to extend the performance experience period investigated by Brown and Holtzman (5) from one to two years and to limit the term of academic exposure to the period of general and liberal education. Although the sample selection was limited to Oklahoma State University students, no evidence exists to indicate that these students are different from other students in other institutions of higher education in the Oklahoma area who also completed the first two years of academic work at the college level. This similarity to other students might lead to replication of this study in either a

four-year, junior or community college setting. Grades earned during the freshman and sophomore years were quantified by assigning numbers to the letter grades according to the following scheme, A=4, B=3, C=2, D=1, F=0.

Grade point averages were determined by multiplying the semester hour value of each course for which a grade was assigned by the numerical value equivalent to the letter grade. These values were summed and divided by the total of the semester hours attempted. The grade point computations were completed by the Office of the Registrar and extracted from reports issued by that office.

Individual variance was determined by assigning values to letter grades as in grade point average computations and summing these values for all grades assigned. Further, the raw scores were squared, and the sum of scores squared determined so as to complete the requirements of the raw score variance formula. The total number of assigned grades is represented by N.

$$\text{Variance} = \frac{X^2 - \frac{(X^2)}{N}}{N}$$

Subjects

A group of one-hundred and sixty students was chosen as a sampling frame. Sample members were chosen following a records inspection at the Office of the Registrar to insure that the measured difference between the high and low variance groups was significant at alpha level .05. Table I reflects that the difference in variance between the groups is significant at an alpha level less than .001. Grade distributions in both the high and low grade categories are distributed throughout the

grade ranges of each of the groups dichotomized on variance.

TABLE I

ANALYSIS OF VARIANCE BETWEEN THE GROUPS ON ACADEMIC VARIANCE

Source of Variation	d.f.	Sum of Squares	Mean Square	F	P
Between Groups	1	33.15	33.15	442	.001
Within Groups	158	11.90	.075		
Total	159	45.05			

To be significant at the .05 level of probability for 1 and 158 d.f. an F value of 3.91 is required.

From the sampling frame one hundred students were selected for participation in the research. The purpose of the selection procedure was to further insure that all included subjects measured toward the extremes in variance scores. Following the selection procedure, the area at and near the mean in both directions was devoid of subjects further insuring difference in the groups. The subjects were assigned to one of four groups depending upon the variance scores and grade point averages attained in academic endeavors. The median grade point average of the sample was determined to be 2.15 on a 4.0 scale. The variance groups were identified as low, variance of 0 to .59 and high, variance of .80 and above. Table II reflects some representative grade conditions and the variance scores associated with them. For example, an evenly spread grade distribution of A's and B's would result in a variance value of 0.25, A's and F's would result in the maximum variance value attainable, 4.0.

TABLE II

VARIANCE VALUES FOR REPRESENTATIVE GRADE GROUPINGS

1.	A&B, B&C, C&D	V = .25
2.	A,B,&C, B,C&D, C,D&F	V = .67
3.	A&C, B&D, C&F	V = 1.00
4.	A,C&D, B,D&F	V = 1.5
5.	A&D, B&F	V = 2.25
6.	A,D&F	V = 2.26
7.	A&D	V = 4.00

The four groups were identified in accordance with grade and variance standing according to the following scheme. Group 1 consisted of 25 subjects, 14 male and 11 female, who are classified as high in grades and high in variance. Group 2 consisted of 25 subjects, 18 male and 7 female, who are classified as low in grades and high in variance. Group 3 had the highest female representation with a makeup of 11 males and 15 females for a total of 26 subjects. They are classified as high in grades and low in variance. Group 4 had 18 males and 6 females for a total of 24 subjects, all classified as low in both grades and variance. The total number of research participants was 100.

Data Collection

Participants were administered the Omnibus Personality Inventory and the Survey of Study Habits and Attitudes. Each subject was requested to complete these instruments on April 10, 11, and 12, 1973. On April 12, 1973, 23 subjects had responded. Seventy-five additional

subjects were measured by April 30, 1973, and 2 subjects responded on May 3, 1973, which completed the testing phase.

The letter dispatched to all subjects on April 3, 1973, is shown as an Appendix. All followups were completed by telephone.

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). Both instruments were administered as a part of the experiment.

The Omnibus Personality Inventory (See Table III) 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

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 definitions of the 14 scales of the OPI, Form F are presented in Table III 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. For the purpose of this study the scores were dichotomized at the means. The normative table with the instrument includes the full range of score possibilities and describes a standard score of 60 (84 percentile) or above as sufficiently high for the essence of the high score 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 IV.

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 if 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, .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.

Statistical Analysis

Two nonparametric statistical tests were selected for use in the analysis of data operation. The Chi-Square technique was selected to determine the significance of the relationships and the Contingency

TABLE III

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 Complexity (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.

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

TABLE III (Continued)

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 preference 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 or 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. Authoritarianism, conservatism, and non-intellectual interests are very frequent personality components of persons scoring above the average.

TABLE III (Continued)

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 are 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.

TABLE IV

SUBSCALES OF THE SURVEY OF STUDY HABITS AND ATTITUDES

	Study Habits
SSHA	Delay Avoidance Subscale (DA) measures your promptiness 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) combines 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.

Coefficient in order to measure the strength of the relationships. (15)

Chi-Square is a technique which allows for evaluation of a non-parametric distribution in terms of observed versus expected frequencies. The Contingency Coefficient allows for a measure of the strength of the relationship determined by the Chi-Square. Contingency Coefficient is an appropriate technique when both variables considered are dichotomized.

The statistical analysis was accomplished by computer at the Oklahoma State University. Four relationships involving the variables were analyzed by the Chi-Square and the Contingency Coefficient techniques. These were

1. Academic variance dichotomized and each of the criterion variables,
2. Grade point average dichotomized and each of the criterion variables,
3. Sex and each of the criterion variables,
4. Group membership and each of the criterion variables.

Chi-Square was employed to determine the significance of any existing relationships at an alpha level of .05. The Contingency Coefficient reflected the degree of relationship existing.

Summary

Chapter III has presented a description of the variables used in the study. A combination of two organismic variables, grade point average and variance in academic performance, were used to assign subjects to one of four groups. All subjects were measured on twenty-one non-intellectual factors as determined by two standardization instruments. Significant relationships and degree of association for these significant relations were computed.

The subjects were 100 Oklahoma State University undergraduate students who had completed their first two years of college work. They were selected by records review without regard to college of enrollment. All subjects were given the Omnibus Personality Inventory and the Survey of Study Habits and Attitudes in April and May, 1973.

The statistical techniques employed were Chi-Square and the Contingency Coefficient.

CHAPTER IV

ANALYSIS OF THE DATA

The purpose of this chapter is to report the results of the analysis of the data. Tables V - XIII reflect the statistical data from which the analyses were derived.

Results Related to Hypothesis I

Hypothesis I will be examined for each of the following criterion variables as measured by the Omnibus Personality Inventory: Thinking Introversion, Theoretical Orientation, Estheticism, Complexity, Autonomy, Religious Orientation, Social Extroversion, Impulse Expression, Personal Integration, Anxiety Level, Altruism, Practical Outlook, Masculinity-Femininity, and Response Bias, and each of the following criterion variables as measured by the Survey of Study Habits and Attitudes: Delay Avoidance, Work Methods, Study Habits, Teacher Approval, Education Acceptance, Study Attitudes, and Study Orientation.

H.1: There are no significant relationships between academic variance and the criterion variables.

The Chi-Square and Contingency Coefficient results relating to Hypothesis I are presented in Tables V and VI. Only Personal Integration and Anxiety Level, both OPI variables, were found to be significantly related.

The Personal Integration variable was significantly related to academic variance at the 0.05 level. The contingency coefficient for

TABLE V

RESULTS OF THE CHI-SQUARE AND CONTINGENCY COEFFICIENT ANALYSIS OF CRITERION VARIABLES OF THE OMNIBUS PERSONALITY INVENTORY RELATED TO HYPOTHESIS I

Personality Variable	Chi-Square	Correlation Coefficient	Alpha Level
Thinking Introversion	0.3613	0.0600	N.S.
Theoretical Orientation	1.9798	0.1393	N.S.
Estheticism	1.0004	0.0995	N.S.
Complexity	0.0000	0.0000	N.S.
Autonomy	0.6441	0.0800	N.S.
Religious Orientation	1.0200	0.1005	N.S.
Social Extroversion	0.0408	0.0202	N.S.
Impulse Expression	1.9992	0.1400	N.S.
Personal Integration	4.8419	0.2149	0.05
Anxiety Level	4.1051	0.1986	0.05
Altruism	0.3720	0.0609	N.S.
Practical Outlook	1.0101	0.1000	N.S.
Masculinity-Femininity	0.0400	0.0200	N.S.
Response Bias	1.0004	0.0995	N.S.

To be significant at the .05 level of probability for 1 d.f. a Chi-Square value of 3.84 is required.

TABLE VI

RESULTS OF THE CHI-SQUARE AND CONTINGENCY COEFFICIENT ANALYSIS OF CRITERION VARIABLES OF THE SURVEY OF STUDY HABITS AND ATTITUDES RELATED TO HYPOTHESIS I

Personality Variable	Chi-Square	Correlation Coefficient	Alpha Level
Delay Avoidance	0.6441	0.800	N.S.
Work Methods	0.0000	0.0000	N.S.
Study Habits	0.3601	0.0599	N.S.
Teacher Approval	0.1642	0.0405	N.S.
Educational Acceptance	0.0408	0.0202	N.S.
Study Attitudes	0.3672	0.0605	N.S.
Study Orientation	0.1610	0.0401	N.S.

To be significant at the .05 level of probability for 1 d.f. a Chi-Square value of 3.84 is required.

this variable was 0.2149.

The Personal Integration variable relationship to academic variance reflects that students who demonstrated a tendency toward low variance in their academic performance were significantly less likely to describe in themselves attitudes and behaviors that characterize socially alienated or emotionally disturbed persons.

They do not often feel as though they had done something wrong or wicked or that no one seems to understand them, that there is a barrier between them and others, and they do not feel that they are not as happy as others seem to be.

The student group demonstrating high levels of variance in academic pursuits showed a marked tendency to describe themselves as likely to intentionally avoid others and to experience feelings of hostility and aggression along with feelings of isolation, loneliness, and rejection. At times they feel completely inadequate, have strange and peculiar thoughts, wonder who they really are and what they should really be like. They sometimes have impulses accompanied by such strong feelings of urgency that they can think of little else.

Anxiety Level was also related to academic variance at the 0.05 level. The Contingency Coefficient of the relationship was 0.1986.

Low variance students deny that they feel they are about to go to pieces, that they are anxious or high-strung almost all the time, or that they find it hard to concentrate. They claim they are happy most of the time, and that they recognize no feelings or symptoms of anxiety. They admit to few attitudes and behaviors that characterize socially alienated or emotionally disturbed persons. Students who are identified as high on variance however are significantly more prone to identify

themselves as frequent worriers. They have periods of great restlessness, feel difficulties are piling up, are inclined to take things hard, and are more sensitive than most people.

Hypothesis I will be rejected for Personal Integration and Anxiety Level. It cannot be rejected for the remaining variables.

Results Related to Hypothesis II

Hypothesis II will be examined for each of the following criterion variables as measured by the Omnibus Personality Inventory: Thinking Introversion, Theoretical Orientation, Estheticism, Complexity, Autonomy, Religious Orientation, Social Extroversion, Impulse Expression, Personal Integration, Anxiety Level, Altruism, Practical Outlook, Masculinity-Femininity, and Response Bias, and each of the following criterion variables as measured by the Survey of Study Habits and Attitudes: Delay Avoidance, Work Methods, Study Habits, Teacher Approval, Education Acceptance, Study Attitudes, and Study Orientation.

H.2: There are no significant relationships between academic grade point average and the criterion variables.

The Chi-Square and Contingency Coefficient results relating to hypothesis II are presented in Tables VII and VIII.

Only one Omnibus Personality Inventory variable was significantly related to academic grade point average. All variables of the SSHA were very significantly related to considerations of this hypothesis.

Impulse Expression was found to be related to academic grade point average at the 0.02 level. The contingency coefficient involved in this relationship was 0.2302.

Students with a low grade point average demonstrated a willingness to admit that at times they feel like swearing and at times like

TABLE VII

RESULTS OF THE CHI-SQUARE AND CONTINGENCY COEFFICIENT ANALYSIS OF CRITERION VARIABLES OF THE OMNIBUS PERSONALITY INVENTORY RELATED TO HYPOTHESIS II

Personality Variable	Chi-Square	Correlation Coefficient	Alpha Level
Thinking Introversion	0.2467	0.0499	N.S.
Theoretical Orientation	0.2640	0.0516	N.S.
Estheticism	2.2701	0.1497	N.S.
Complexity	0.2784	0.0530	N.S.
Autonomy	0.121	0.0111	N.S.
Religious Orientation	1.2887	0.1132	N.S.
Social Extroversion	0.5288	0.0729	N.S.
Impulse Expression	5.5418	0.2302	0.02
Personal Integration	0.0095	0.0098	N.S.
Anxiety Level	0.4853	0.0698	N.S.
Altruism	2.9631	0.1705	N.S.
Practical Outlook	2.3356	0.1518	N.S.
Masculinity-Femininity	3.6433	0.1884	N.S.
Response Bias	2.9233	0.1694	N.S.

To be significant at the .05 level of probability for 1 d.f. a Chi-Square value of 3.84 is required.

TABLE VIII

RESULTS OF THE CHI-SQUARE AND CONTINGENCY COEFFICIENT ANALYSIS OF CRITERION VARIABLES OF THE SURVEY OF STUDY HABITS AND ATTITUDES RELATED TO HYPOTHESIS II

Personality Variable	Chi-Square	Correlation Coefficient	Alpha Level
Delay Avoidance	7.4402	0.2644	0.01
Work Methods	7.0556	0.2630	0.01
Study Habits	8.4859	0.2810	0.01
Teacher Approval	12.6262	0.3363	0.01
Educational Acceptance	14.0389	0.3524	0.01
Study Attitudes	6.3840	0.2461	0.01
Study Orientation	9.7316	0.2992	0.01

To be significant at the .05 level of probability for 1 d.f. a Chi-Square value of 3.84 is required.

smashing things, that they often act on the spur of the moment without stopping to think, and that some of their friends think their ideas are impractical if not a bit wild. They do not prefer people who are never profane and do not subscribe to the statement that they have never done anything dangerous for the thrill of it.

Students who have attained high averages showed no marked tendencies as did the students with the lower grades. They were evenly divided between tending to and tending not to admit to a willingness toward uninhibited impulse expressions.

Students accomplishing high grade point averages scored very significantly higher on all seven measures of the Survey of Study Habits and Attitudes. Each of the seven measures were significantly related to high grades at the .01 level which tends to once again reinforce the findings of Brown and Holtzman when they correlated their scales with academic performance.

Hypothesis II will be rejected for the OPI criterion variable of Impulse Expression and all the SSHA variables. It cannot be rejected for the other variables.

Results Related to Hypothesis III

Hypothesis III will be examined for each of the following criterion variables as measures by the Omnibus Personality Inventory: Thinking Introversion, Theoretical Orientation, Estheticism, Complexity, Autonomy, Religious Orientation, Social Extroversion, Impulse Expression, Personal Integration, Anxiety Level, Altruism, Practical Outlook, Masculinity-Femininity, and Response Bias, and each of the following criterion variables as measured by the Survey of Study Habits and Attitudes: Delay

Avoidance, Work Methods, Study Habits, Teacher Approval, Education Acceptance, Study Attitudes, and Study Orientation.

H.3: There are no significant relationships between sex and the criterion variables.

The Chi-Square and the Contingency Coefficient results relating to Hypothesis III are presented in Tables IX and X.

Three of the Omnibus Personality Inventory variables were found to be significantly related to sex. No significant relationships were determined with the Survey of Study Habits and Attitudes variables, although Brown and Holtzman (5) did report a tendency for females to attain slightly higher grades during the freshman year of college.

Impulse Expression was related to sex at the 0.01 level. The associated contingency cpefficient was 0.2868.

Men in the sample scored significantly higher on this variable. The scale assesses a general readiness to express impulses and to seek gratification either in conscious thought or overt action. The men indicated that at times they feel like swearing and at times like smashing things. Women, true to traditional role expectations, scored quite low on this item.

Practical Outlook was another factor that resulted in support of the traditional role expectations based on sex. Men scored significantly higher, 0.05 level, contingency coefficient 0.2191, than did women. This is not an unexpected result based on the OPI test manual description of high and low scores. High scorers, men in this sample, are interested in practical, applied activities, and tend to value material possessions and concrete accomplishments. The criterion most often used by high scorers to evaluate ideas and things is one of immediate utility. Authoritarianism, conservatism, and non-intellectual interests are very

TABLE IX

RESULTS OF THE CHI-SQUARE AND CONTINGENCY COEFFICIENT ANALYSIS OF CRITERION VARIABLES OF THE OMNIBUS PERSONALITY INVENTORY RELATED TO HYPOTHESIS III

Personality Variable	Chi-Square	Correlation Coefficient	Alpha Level
Thinking Introversion	0.0184	0.0136	N.S.
Theoretical Orientation	3.5160	0.1843	N.S.
Estheticism	0.6008	0.0773	N.S.
Complexity	0.4528	0.0671	N.S.
Autonomy	0.1901	0.0436	N.S.
Religious Orientation	3.0686	0.1725	N.S.
Social Extroversion	3.0686	0.1725	N.S.
Impulse Expression	8.9647	0.2868	0.01
Personal Integration	0.1332	0.0365	N.S.
Anxiety Level	0.4528	0.0671	N.S.
Altruism	1.5135	0.1237	N.S.
Practical Outlook	5.0415	0.2191	0.05
Masculinity-Femininity	24.6616	0.4448	0.001
Response Bias	0.2001	0.0455	N.S.

To be significant at the .05 level of probability for 1 d.f. a Chi-Square value of 3.84 is required.

TABLE X

RESULTS OF THE CHI-SQUARE AND CONTINGENCY COEFFICIENT ANALYSIS OF CRITERION VARIABLES OF THE SURVEY OF STUDY HABITS AND ATTITUDES RELATED TO HYPOTHESIS III

Personality Variable	Chi-Square	Correlation Coefficient	Alpha Level
Delay Avoidance	1.5846	0.1249	N.S.
Work Methods	0.0873	0.0295	N.S.
Study Habits	0.7488	0.0862	N.S.
Teacher Approval	1.9713	0.1890	N.S.
Educational Acceptance	1.3159	0.1140	N.S.
Study Attitudes	1.3159	0.1140	N.S.
Study Orientation	0.6369	0.0796	N.S.

To be significant at the .05 level of probability for 1 d.f. a Chi-Square value of 3.84 is required.

frequent personality components of high scorers. They believe the best theory is the one that has the best practical applications. On tests they prefer short factual questions to those requiring the organization and interpretation of a large body of material. They do not like uncertainty and unpredictability. They find it annoying to listen to a lecturer who seems unable to take a firm stand and believe it is the responsibility of intelligent leadership to maintain the established order.

The female portion of the sample is marked to a high degree by considerations opposite to those cited above. They find a greater appeal in ideas than in facts. They prefer the man of ideas to the practical man, and like to discuss philosophical problems. They do not feel that there is only one answer to most questions or that every individual needs to be an outspoken booster for his side of a question.

Masculinity-Femininity is the last variable associated with hypothesis III that was significantly related. It was the most significantly related variable in the entire study as the alpha level was 0.001 and the contingency coefficient was 0.4448.

The sample members responded as expected on this male-female scale. Male members deny interests in esthetic matters and admit to few adjustment problems, feelings of anxiety or personal inadequacies. They tend to be somewhat less socially inclined than low scorers and more interested in scientific matters. They would rather teach chemistry and physics than poetry. They like mathematics, do not get excited easily, are usually calm, and do not enjoy teas and receptions.

Female members of the sample, besides having stronger esthetic and social inclinations, also admit to greater sensitivity and emotionality.

They like dramatics, enjoy looking at paintings, sculpture and architecture, and have found courses in literature and poetry as satisfying as most other subjects.

Hypothesis III will be rejected for the variables of Impulse Expression, Practical Outlook, and Masculinity-Femininity. It cannot be rejected for the remaining variables.

Results Related to Hypothesis IV

Hypothesis IV will be examined for each of the following criterion variables as measured by the Omnibus Personality Inventory: Thinking Introversion, Theoretical Orientation, Estheticism, Complexity, Autonomy, Religious Orientation, Social Extroversion, Impulse Expression, Personal Integration, Anxiety Level, Altruism, Practical Outlook, Masculinity-Femininity, and Response Bias, and each of the following criterion variables as measured by the Survey of Study Habits and Attitudes: Delay Avoidance, Work Methods, Study Habits, Teacher Approval, Education Acceptance, Study Attitudes, and Study Orientation.

H.4: There are no significant relationships between group membership and the criterion variables.

The Chi-Square and Contingency Coefficient results relating to hypothesis IV are presented in Tables XI and XII.

When variance and grade point average considerations are both included in the analyses, more OPI variables are found to be significantly related to the grade and variance groups, and the strengths of the relationships over analyses of preceding hypotheses are increased. In the SSHA considerations the variables are not only more significantly related as the alpha level decreased to 0.001 for three of the variables, but the strength of the relationship, as indicated by the contingency

TABLE XI

RESULTS OF THE CHI-SQUARE AND CONTINGENCY COEFFICIENT ANALYSIS OF CRITERION VARIABLES OF THE OMNIBUS PERSONALITY INVENTORY RELATED TO HYPOTHESIS IV

Personality Variable	Chi-Square	Correlation Coefficient	Alpha Level
Thinking Introversion	13.5416	0.3453	0.01
Theoretical Orientation	18.2476	0.3928	0.01
Estheticism	4.2283	0.2014	N.S.
Complexity	0.7410	0.0858	N.S.
Autonomy	7.4926	0.2640	N.S.
Religious Orientation	3.9623	0.1952	N.S.
Social Extroversion	4.9184	0.2165	N.S.
Impulse Expression	8.3707	0.2779	N.S.
Personal Integration	5.0374	0.2190	N.S.
Anxiety Level	4.8650	0.2154	N.S.
Altruism	6.9848	0.2555	N.S.
Practical Outlook	5.2867	0.2241	N.S.
Masculinity-Femininity	5.4904	0.2281	N.S.
Response Bias	11.6328	0.3228	0.01

To be significant at the .05 level of probability for 3 d.f. a Chi-Square value of 7.82 is required.

TABLE XII

RESULTS OF THE CHI-SQUARE AND CONTINGENCY COEFFICIENT ANALYSIS OF CRITERION VARIABLES OF THE SURVEY OF STUDY HABITS AND ATTITUDES RELATED TO HYPOTHESIS IV

Personality Variable	Chi-Square	Correlation Coefficient	Alpha Level
Delay Avoidance	16.5309	0.3766	0.001
Work Methods	18.2802	0.3931	0.001
Study Habits	15.8925	0.3703	0.01
Teacher Approval	15.1199	0.3624	0.01
Educational Acceptance	17.0014	0.3812	0.001
Study Attitudes	13.8394	0.3487	0.01
Study Orientation	13.8615	0.3489	0.01

To be significant at the .05 level of probability for 3 d.f. a Chi-Square value of 7.82 is required.

coefficient, is also considerably increased.

The determined relationships and significance factors among the assigned groups do not necessarily conflict with evidence determined by analyses of the data based on variance and their grade point average dichotomized groupings. In dealing with the four groups in terms of both grades and variance we find that Thinking Introversion, Theoretical Orientation, and Response Bias emerge as significant variables for the first time, and they accompany Impulse Expression and all variables of the SSHA to complete the pattern of significant relationships in terms of hypothesis IV.

The other previously determined significant variables of hypotheses I and III do not emerge as significant when both variance and grades are considered simultaneously.

Results related to Hypothesis IV indicated that a confused picture of similar responses exist between and among the four predetermined groupings of students. In the area of Thinking Introversion we can detect that groups II and III are found to be similar in considerations of reflective thought and academic interests. The same is true of groups I and IV, however the direction of the association is opposite (See Table XIII).

The Theoretical Orientation variable reflects that group III demonstrates a pattern of responses positive toward theoretical concerns, the scientific method, science and scientific activities. Group II was slightly similar to Group III. Groups I and IV were negative toward this variable.

On Impulse Expression, groups II and IV were shown to be quite willing to voice concerns and seek immediate gratification. Group I

TABLE XIII

RESULTS RELATING TO HYPOTHESIS IV GRAPHICALLY REPRESENTED TO INDICATE DIRECTION OF RELATIONSHIP OF SIGNIFICANTLY RELATED VARIABLES

Personality Variable	Variance - Grade Groups I	II	III	IV
Omnibus Personality Inventory				
Thinking Personality Inventory	Low	High	High	Low
Theoretical Orientation	Low		High	Low
Impulse Expression	Low	High		High
Response Bias		High	High	Low
Survey of Study Habits and Attitudes				
Delay Avoidance			High	Low
Work Methods			High	Low
Study Habits			High	Low
Teacher Approval	High		High	Low
Educational Acceptance	High		High	Low
Study Attitudes			High	Low
Study Orientation			High	Low

High indicates the group had a large number of members attain high scores on the variable.

Low indicates the group had a large number of members attain low scores on the variable.

An open space reflects no clear indication on that variable.

indicated a negative response to such activity and Group III respondents were evenly divided in their answers.

Response Bias was another variable that showed groups II and III to be similar in response patterns. Each group answered so as to attempt to make a good impression. Group IV responded in a manner similar to a control groups efforts to create a poor test taking impression.

On the SSHA items, both groups associated with high grades responded as predicted by the instrument manual. The low grade point average groups were also as predicted in the SSHA manual. This directional tendency related in a relationship significance at the 0.001 level for three of the variables and very close to 0.001 for each of the others, and an increased contingency coefficient value over findings associated with hypothesis II.

Hypothesis IV will be rejected for the variables of Thinking Introversion, Theoretical Orientation, Impulse Expression, and Response Bias as well as each of the criterion variables measured by the SSHA. The hypothesis cannot be rejected for all other variables.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter will be presented in three sections. First, a general summary of the investigation will be given. The second section will be concerned with the conclusions drawn from the study. The last section will discuss recommendations for future research.

Summary

The purpose of this study was to determine the predictive relationships of certain non-intellectual variables to group placement according to academic performance measured by grades attained and the variance exhibited in the grade record.

Four hypotheses were stated in the null concerning the predictive relationship of the non-intellectual variables. These hypotheses were as follows:

H.1: There are no significant relationships between academic variance and the criterion variables.

H.2: There are no significant relationships between academic grade point average and the criterion variables.

H.3: There are no significant relationships between sex and the criterion variables.

H.4: There are no significant relationships between group membership and the criterion variables.

Each of the above hypotheses will be examined for each of the following criterion variables as measured by the Omnibus Personality

Inventory: Thinking Introversion, Theoretical Orientation, Estheticism, Complexity, Autonomy, Religious Orientation, Social Extroversion, Impulse Expression, Personal Integration, Anxiety Level, Altruism, Practical Outlook, Masculinity-Femininity, and Response Bias, and each of the following criterion variables as measured by the Survey of Study Habits and Attitudes: Delay Avoidance, Work Methods, Study Habits, Teacher Approval, Education Acceptance, Study Attitudes, and Study Orientation.

The data utilized in this study were collected from 100 subjects who were administered two standardized instruments which were used as predictor variables. The instruments contained a total of twenty-one variables, fourteen personality factors, and seven study habit and attitudes measures.

Conclusions

The results of the analyses of the data in the present investigation warrant the following conclusions:

1. The Survey of Study Habits and Attitudes measures accurately those factors identified by Brown and Holtzman (5) as indicative of students at each end of the academic performance scales as determined by grade point average attained.

2. The significance and strength of relationships determined by the Survey of Study Habits and Attitudes are increased when the factor of variance is included in considerations of academic performance.

3. The Survey of Study Habits and Attitudes may be used to predict academic performance as measured by grade point average and is adequate in conjunction with other variables to classify subjects according to the grade and variance groupings used in this study.

4. Low variance subjects have been found to be unalienated and without high levels of anxiety. High variance subjects have been shown to exhibit high levels of alienation and anxiety. Scores on the variables Personal Integration and Anxiety Level may be used to predict levels of diverseness in academic performance.

5. Subjects scoring low on the variable Impulse Expression attain high grade point averages. A low score on this variable relates to high grade point average attainment.

6. A combination of the variable scores indicated in items 4 and 5 may be used to classify subjects on both variance and grades, resulting in an approximation of the scheme proposed for classification in this study.

7. A comparison of men and women subjects on the variables of the study resulted in no usable data related to prediction of academic performance. Brown and Holtzman (5) found a sex difference on grades attained through the freshman year but when measured through two academic years using their instrument the relationships were not significant at an alpha level of 0.05.

8. Group placement according to the scheme presented may be predicted by use of the OPI and SSHA for groups III and IV (low variance groups). Prediction of the high variance subjects to high and low grade groups may be accomplished using the results related to hypothesis IV and incorporating approximations available in the data relating to hypothesis II.

Recommendations

The present study has made a contribution to academic performance

prediction by probing into the area of variance in academic performance and relating both variance and grade attained to twenty-one variables classified as non-intellectual. Indications that variance is a consideration of importance in academic performance abound. According to the personality trait descriptions related to subjects classified as high in variance, it can be assumed that consistency in academic performance, as in most other endeavors, is a valued, if not treasured, tendency. The following recommendations are offered.

First, considerably more effort should be expended in investigating the tendencies of some students toward diverse rather than consistent results in academic performance. This study dealt with but a few non-intellectual variables and found the high variance subjects to measure high in areas of personality considerations indicative of developmental problems.

Second, another study should follow this one designed to dig deeply into the area of variance as described and computed in this study with the intent of isolating those personality factors that combine with the findings of this study to better describe and eventually deal with those factors found related to the poles of variance.

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APPENDIX

LETTER TO PROSPECTIVE STUDENTS IN STUDY

April 2, 1973

Dear :

Research of considerable importance to students at Oklahoma State University is presently being conducted to determine relationships that exist between student scores on non-academic factors and scholastic achievement. You have been selected for participation in this research.

Your cooperation, involving about one hour of your time, will be greatly appreciated. In return you will receive profiles of your scores on both the Omnibus Personality Inventory and the Survey of Study Habits and Attitudes. These instruments are reliable, and you will find the results helpful in your academic program at Oklahoma State University.

Data concerning your participation in this research will not be used for any purpose other than this research project. No access or use of the data will be allowed by any other agency. The strictest confidence will be applied in all cases.

Please come to Room 307, Gunderson Hall (College of Education) any time between 8:00 A.M. and 5:00 P.M. on Tuesday, Wednesday, or Thursday, April 10, 11, or 12, in order to complete these instruments. If you are unable to participate during this period please call Mr. William J. Meehan at 372-1067 to arrange an alternate schedule. Your results and profiles will be available by the latter part of April.

Your cooperation in this project is vital, and your support is greatly appreciated.

Sincerely,

James M. Seals, Ph.D.
Associate Professor

JMS:mr

VITA

William Joseph Meehan

Candidate for the Degree of

Doctor of Education

Thesis: A CORRELATION OF SELECTED PERSONAL CHARACTERISTICS OF STUDENTS IDENTIFIED AS HIGH - OR LOW - VARIABLE ON ACADEMIC PERFORMANCE

Major Field: Student Personnel and Guidance

Biographical:

Personal Data: Born in Waterbury, Connecticut, July 21, 1930, the son of William Joseph and Mary Hanlon Meehan.

Education: Attended parochial and public schools in Waterbury and Thomsen, Connecticut, and Woonsocket, Rhode Island. Graduated from Marianapolis Prep School, Thomsen, Connecticut, in 1950. Attended Fairfield University, Fairfield, Connecticut, and seven other undergraduate institutions while in the military service before receiving the Bachelor of General Studies from the University of Nebraska - Omaha in 1968. Attended the University of Southern California, Los Angeles, California, and Oklahoma State University, Stillwater, Oklahoma, in graduate programs. Completed requirements for the Degree of Doctor of Education in May, 1974.

Professional Experience: United States Army enlisted man 1951-52, Commissioned Officer, ranks of lieutenant through lieutenant-colonel, 1952-1971. Various command, staff, and research and development positions related to student services in educational endeavors were held which closely approximated professional activities found in school and university student services activities. Extension Agent - Urban Programs, Oklahoma State University Extension, Tulsa County, 1973-1974.