THE RELATIONSHIP BETWEEN SCHOLASTIC
MOTIVATION AND PSYCHOLOGICAL NEEDS

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CHAPTER I

INTRODUCTION

Within the context of motivation, the discrepancies in the achievement of individuals with similar abilities has stimulated much interest and research. A number of studies in recent years have attempted to explore, define, and clarify the intervening variables underlying such differences (1, 3, 5, 6, 9, 11, 12). Such studies have employed various motivational concepts such as level of aspiration, level of expectation, and achievement motivation. These concepts have been related to actual achievement or performance as measured by such criteria as grade-point-averages, achievement test scores, and instructors estimates of achievement.

Level of aspiration, level of expectation, and achievement motivation are slightly different concepts and have been measured in many different ways. However, research indicates that, disregarding the influence of ability, they are positively and significantly related to performance and are responsible in some part for the differences in the achievement of individuals. It should be noted that these concepts are quite similar in many respects. According to McCandless.

...a generally positive level of aspiration... seems to be associated with a complex of positive
factors; greater optimism, greater orientation toward 'doing the job well,' greater self-determination, and more effective performance. . . .
A consideration of the concept of level of aspiration leads logically to the idea of an achievement motive . . . . . . . . . . . . . . . . . .
The achievement motive may be thought of as a widely generalized positive level of aspiration. A person with high achievement motive regards problems, obstacles, and competition as a challenge to be met; he works for success (8, pp. 416, 446).

The interest in level of aspiration, level of expectation, and achievement motivation as predictors of achievement has led to the investigation of other personality variables that might be related to these concepts. On the whole, the practical implications of the investigation of these concepts and the identification of related variables in the context of predicting achievement is far-reaching. The majority of studies, as well as the present one, however, have dealt with level of aspiration, level of expectation, or achievement motivation in the area of academic achievement.

Further research into the identification of variables associated with scholastic success and the dynamics involved will doubtlessly make significant contributions to the areas of child rearing techniques, academic counseling, and to the field of education in general. As McCandless states: "Children's adjustment to a curriculum will be shaped to a substantial degree according to the principles of level of aspiration and achievement motive" (8, p. 410).

Another problem that bears upon this discussion is the inability of most American colleges and universities to keep
pace with the alarmingly high attrition rate of college students which has been precipitated by an increasing population and various other sociological and economic factors. Unfortunately the situation has been confounded by the observation that a large percentage of college students are underachieving. Traditionally colleges and universities have relied heavily upon such factors as intelligence and aptitude test results as criteria for admission and prediction of academic success. Research has shown these tests to be quite useful for this purpose, but it is becoming more recognized that personality variables such as psychological needs are perhaps more important as predictors of college success (1, 11). Indeed, intellectual factors typically account for less than half of the variance in scholastic performance (6).

The present study was designed to investigate, in an academic situation, the relation between achievement motivation—a "wish to master" or "desire to do well"—and certain psychological needs by the use of two psychometric instruments. These instruments were the Brown-Holtzman Survey of Study Habits and Attitudes (SSHA) and the Edwards Personal Preference Schedule (EPPS).

Actually, the SSHA is not a "pure" measure of achievement motivation. It is rather a "...measure of study methods, motivation for studying, and certain attitudes toward scholastic activities important in the classroom" (2, p. 3) that have been significant in the prediction of academic success. This
motivation for studying or "scholastic motivation" is, thus, the more widely generalized achievement motive that has been related to, or fixated upon, academic success by the positive cathexis or valence of this goal. The concept of scholastic motivation is, in keeping with Moss and Kagan's (9) suggestion "...that the concept of a general achievement motive is too broad a term, and it may be useful to replace this construct with a series of variables that relate to more specific behaviors" (9, p. 504). Most other researches that have attempted to identify personality variables that are related to achievement motivation have used the more widely generalized form of this concept as measured by the EPPS (n achievement), the French Test of Insight (5), and the Thematic Apperception Test (10). The EPPS was chosen for the present study, because the personality factors or needs measured by the instrument are logically related to academic success, for example, Achievement and Endurance (4).

There has been some criticism of both the EPPS and the SSHA as lacking in validity. These inventories have not been previously associated, and since both purport to measure achievement motivation, it was hoped that this study would make some contribution toward the validation of these instruments.

Theoretical Comments

Achievement behavior seems to be positively related to autonomy. McCandless states that "...the achievement motive
has much in common with such concepts as autonomy, independence, and generativity" (8, p. 418). Winterbottom (12) found that boys with high achievement motivation made fewer requests for help, refused help when offered, and refused a rest period. Boys with high achievement motivation are described by teachers as manifesting a stronger desire to perform well, to be more popular and more independent, and as deriving more pleasure from success.

Achievement behavior seems to be negatively related to dependency. According to McCandless, "...generally, in the preschool years, dependency and 'seeking to do well at tasks,' or achievement orientation, have been found to be negatively correlated" (8, p. 328). Crandal, Preston, and Rabson (3) found that the mothers of achievement-oriented four-and five-year old non-dependent children rewarded their children when they sought approval and when they tried to accomplish difficult tasks. When children sought emotional support or help, the mothers' general affection, and their pattern of reward were unrelated to the children's achievement efforts, although the mothers of children with the highest achievement orientation may have been those mothers who not only were affectionate but also rewarded their children's requests for help, emotional support, and approval. Kagan and Moss (7) also report passivity and dependency to be negatively correlated with achievement behavior. McCandless states further that "...to some degree, a negative relation between dependent behavior
and achievement orientation may be 'built in.' Achievement is usually defined as independent task-orientation, perseverance, and so on; hence, measures of dependency should be negatively correlated with it" (8, p. 328).

Basic Assumptions and Hypotheses

It was the purpose of the present study to attempt to discover the multiple relationships between scholastic motivation as a criterion variable and various psychological needs as measured by the performance of subjects on a paper-and-pencil personality inventory. Four assumptions were made:

1. Scholastic motivation is related to and indicative of psychological needs.

2. Scholastic motivation can be reliably assessed by a measuring instrument of the paper-and-pencil type.

3. The Brown-Holtzman Survey of Study Habits and Attitudes is a valid and reliable device for assessing scholastic motivation.

4. Scholastic motivation as measured by the Brown-Holtzman Survey of Study Habits and Attitudes is a more specific form of achievement motivation.

With the above four basic assumptions as premises, and in view of the findings presented in numerous studies concerned with achievement, the following hypotheses were tested:

Hypothesis I. The relationship between scholastic motivation (SSHA) and each of the following EPPS Subscales will be
significantly positive: Achievement, Order, Endurance, Dominance, and Autonomy.

**Hypothesis II.** The relationship between scholastic motivation (SSHA) and each of the following EPPS Subscales will be significantly negative: Affiliation, Succorance, and Nurturance.

**Hypothesis III.** The largest positive relationship between scholastic motivation (SSHA) and the nine EPPS Subscales used in the present study will obtain for Achievement.

**Hypothesis IV.** The obtained intercorrelations among the nine EPPS Subscales will be similar to those of the standardization group.


CHAPTER II

REVIEW OF RELATED STUDIES

The area of achievement motivation has been reviewed quite extensively by Atkinson (1). Almost all the studies mentioned by Atkinson as well as other studies in the area have dealt with achievement motivation as measured by various apperceptive techniques such as the Thematic Apperception Test, the McClelland Achievement Motivation Test (18), the French Test of Insight and the Iowa Picture Interpretation Test (10). To discuss research involving these measures would be beyond the scope of this chapter. Furthermore, there seems to be little relationship between apperceptive and paper-and-pencil measures of achievement motivation. For example, Bendig (4) and Melikian (19) report no relationship between apperceptive n Achievement (need for achievement and the n Achievement variable on the EPPS. Also a number of researchers question the widespread use of apperceptive techniques as the sole measure of achievement motivation used in many studies (6, 23). Atkinson states that "...the persistent effort to find a more simple, general method for assessment of motivation than thematic apperception is to be encouraged" (1, p. 276). In view of these comments, discussions in the present chapter have been limited to studies involving the SSHA and the EPPS in the area of achievement, especially academic achievement.
Brown-Holtzman Survey of Study Habits and Attitudes

Djen-dyi Wei Sie (7) used the Iowa Picture Interpretation Test and the SSHA, as well as the rank in high school graduating class and two group ability tests, in several multiple regression equations to predict college grade-point average. The sample consisted of 400 subjects enrolled in elementary psychology courses at the State University of Iowa. No significant contribution to the prediction of academic success was made by the Iowa Picture Interpretation Test. However, the SSHA was found to be a significant predictor, and it was stated that this finding was consistent with the hypothesis that the SSHA represents a valid measure of motivational variables. The author also stated that much further research in this area of motivation is needed.

In a study using experimental and cross-validation groups, Ki Suk (13) combined scores from the SSHA and an attitudes inventory with the American Council on Education Psychological Examination, commonly known as the ACE, (22) to predict honor-point ratios. Three hundred male freshmen at Louisiana State University comprised the sample. The combination of variables producing the highest multiple correlation yielded a coefficient of .68 as a result of cross-validation. The SSHA accounted for 20 per cent of the variance in the honor-point ratio, while the ACE and the Attitudes Inventory accounted for 19 and 8 per cent respectively. A weighted combination of the ACE, SSHA, and the Attitudes Inventory accounted for 47 per cent. It
was concluded "...that such non-intellectual factors as study habits, motivation, and personality as well as academic aptitude appear to play significant roles in determining college grades" (13, p. 156).

Lum (17) administered an experimental form of the SSHA to sixty female sophomore students at the University of Hawaii. The experimental form of the SSHA was identical with the standardized form except for an additional twenty-five items and minor changes in the wording of certain of the original items. Subjects were divided into three groups designated as under-, normal-, and over-achievers on the basis of a regression formula derived from the correlation between ACE scores and freshman grade-point averages. The groups were equated for scholastic aptitude and other pertinent variables, but differed significantly in grades earned. There was no significant difference between underachievers and normal achievers on the SSHA, although the difference was in the expected direction. However, overachievers differed from normal achievers at the .05 level of significance and from underachievers at the .001 level on the SSHA.

In an effort to predict grade-point average, Ahmann and Glock (3) employed a battery which included the SSHA, age in months, high school grade-point average, a measure of scholastic aptitude, and a reading comprehension test. All eighty-one subjects were male College of Agriculture freshmen at Cornell University who were either enrolled in or had attempted to
enroll in the voluntary Cornell Reading Improvement Program. It was found that SSHA contributed little to the multiple correlation, in fact, correlations between SSHA scores and grade-point averages were almost zero.

Another study at Cornell University by Ahmann, Smith, and Glock (2) produced quite similar results. In this investigation 301 male freshmen enrolled in the College of Agriculture were used. As in the previous study, correlations of the SSHA with grade-point averages were almost zero, and thus made no appreciable contribution to the prediction of these averages when included in a battery of tests selected for that purpose. However, the discriminating power of most of the items in the SSHA was reported as quite satisfactory.

Edwards Personal Preference Schedule

Izard (11) related selected scales of the EPFS to actual performance and level of expectation as measured by the estimation of scores on an objective course examination of fifty-three females and thirty-three males at Vanderbilt University. Only Endurance was found to be significantly related to level of expectation, while the following variables were significantly correlated with actual performance: males, Achievement .40 and Abasement -.70; females, Achievement, Dominance, and Change (.33, .33, -.32, respectively) and Nurturance -.48. Achievement correlated significantly with cumulative grade-point average .28 (N = 180) for men and .17 (N = 98) for women. The author
stated that "...this strongly supports the hypothesis of a real, though low relationship between EPPS Achievement and academic achievement among male subjects" (11, p. 394).

In his work with Murry, Frank (20) defined level of aspiration as the difference between the expressed level of aspiration and level of performance on a simple printing task. This measure correlated .20 or better with Narcissism, Aggression, Emotionality, Intraception, Ego Ideal, Dominance, Creativity, Sentience, Projectivity, and Intensity (listed in order of the magnitude of the correlation). Frank stated that "...the main factors causing the average level of aspiration to deviate positively from the average level of performance are the wish to do well, a subjective attitude, and the ability to dismiss failures" (20, p. 469). He reasoned that Aggression assesses the ability to reject failures, Intraception assesses subjectivity, and Dominance measures the ability to minimize failures and the wish and will to do well.

Klett (14) used the fifteen scores on the EPPS, the EPPS consistency score, age, socio-economic status, and IQ to predict grade-point average in a large, unselected high school sample with rather equivocal results. However, over-achievers consistently produced higher scores on Achievement, Dominance, and Endurance and lower scores on Heterosexuality, Autonomy, and Aggression. Also, Dominance and Achievement contributed importantly and consistently to the multiple
correlation. It has since been suggested by Goodstein and Heilbrun (9) that the EPFS may be a more valuable predictor with groups of college students than with high school students.

In a study at the State University of Iowa, Goodstein and Heilbrun (9) correlated scores on the EPFS with the semester grade-point average on a sample of 357 undergraduates, with intelligence partialled out by a brief vocabulary test estimate of scholastic ability. The results of the analysis of the total male and female groups were essentially negative; however, Achievement did correlate significantly .24 with GPA for the total male group. There were no significant correlations for the total female group. More significant results obtained (especially for the middle ability male subgroup) when subjects were divided into low, middle, and high ability subgroups. Results for the middle ability males are similar to those reported by both Gebhart and Hoyt (8) and Krug (15). The authors reported the following significant correlations for the middle ability male subgroup:

Achievement .29, Endurance .46, Affiliation -.26, Intraception -.25, Nurturance -.24, Change -.21.

Using 240 freshmen men at Kansas State College, Gebhart and Hoyt (8) compared EPFS scores with achievement, ability, and school (Engineering or Arts and Sciences). The scores of overachievers were significantly higher than underachievers on Achievement, Order, Intraception, and Consistency, and significantly lower on Nurturance and Change. The authors
hypothesized five very interesting patterns of achievement:
Overachievement associated with (a) a drive to complete
(Achievement), (b) a drive to organize or plan (Order), (c)
intellectual curiosity (Intraception); and underachievement
associated with (a) a need for variety (Change), wherein
academic studies may appear boring and routine, (b) social
motives (Affiliation, Nurturance), wherein friendship may be
placed above scholarship.

In an unpublished study similar to that of Gebhart and
Hoyt's (8), Krug (15), found no significant differences. He
concluded that the apparent contradiction occurred because
the Gebhart-Hoyt study used aptitude measures, while his
study used measures of past performance to construct a base-
line for over- and underachievement. In an effort to repli-
cate the Gebhart-Hoyt study, Krug used an aptitude-based
sample of 167 Carnegie Institute of Technology freshmen. The
results revealed that overachievers scored significantly higher
on the Achievement, Order scales, and significantly lower on
Affiliation and Heterosexuality. Furthermore, the Gebhart-
Hoyt hypothesis of several patterns of over- and underachievement
was supported.

In a study of thirty-eight male and forty-nine female col-
lege freshmen at Fairleigh Dickinson University, Lang, Sperra,
and Seymour (16) correlated instructors' estimates of achieve-
ment and each of the EPPS variables. Correlations significant
at the 5 per cent level for the groups were: (a) female subjects—Achievement .45, Dominance .37, Nurturance -.41 (b) male subjects—Order .28, Dominance .32 (c) females and males combined—Achievement .32, Deference -.18, Nurturance -.29.

The authors recommended that further investigations of this type be undertaken at other institutions.

Bendig (5) administered the EPPS to three groups of subjects (N = 139) enrolled in an introductory psychology course at the University of Pittsburgh. He correlated the EPPS scores, using both rectilinear and curvilinear methods, with the students' course grades. Achievement correlated significantly at .37 while Deference, Autonomy, Abasement, and Change showed low but significant negative rectilinear correlations averaging -.19. Inconsistent curvilinear correlations were found for Dominance, Affiliation, and Aggression. The authors stated that the remaining seven EPPS variables did not appear to be promising as predictors of achievement in introductory psychology.

Kazmier (12) used both experimental and cross-validation groups totaling 140 introductory psychology students to compare EPPS scores with achievement as measured by three departmental examinations and four class quizzes. All scores were utilized, not just those of selected extreme groups. For the experimental group, Succorance and Dominance correlated significantly with the criterion -.20 and .21 respectively, while Change correlated significantly with the criterion -.24.
The cross-validation group yielded significant correlations of \(-.21\) for Order and \(.23\) for Dominance. For the total sample of subjects, Achievement, Affiliation, and Nurturance correlated with the criterion \(.15\), \(-.15\) and \(-.16\) respectively, while Dominance was significant with a correlation of \(.21\). A multiple correlation coefficient of \(.34\) obtained when the Wherry-Doolittle test selection technique was used to select the best EPPS scales for the experimental group. However, the value of the correlation coefficient degenerated to \(-.06\) when these scales were used for the cross-validation group. Thus, it appeared that there was a lack of the desired stability of relationship of the EPPS scales with the criterion in this study (12, p. 197). The authors stated that this finding points up the shortcomings of many research studies which have reported success in prediction with the EPPS scales.

Shaw (21) administered the McClelland Achievement Motivation Test, the EPPS, and the French Test of Achievement Motivation to seventy-eight achievers and underachievers in order to determine the relationships among these measures. Subjects were junior and senior high school students who had scored 110 or above on a well known group intelligence test. Achievers were defined as students with grade-point averages of 2.00 (B) or better and underachievers as ones with 1.5 or less. None of the three need achievement scales was found to significantly differentiate between achievers.
and underachievers, with the exception of the French scale which did differentiate between male achievers and under-achievers.

In summary, a majority of the above empirical findings justified the inclusion of the Achievement, Order, Affiliation, Dominance, Nurturance, Endurance, and Aggression variables of the EPSS in the present study (5, 8, 9, 11, 12, 14, 15, 16, 20). In all studies mentioned, when Achievement, Dominance, Order, and Endurance were found to be significantly related to achievement behavior, the correlations were positive. Affiliation and Nurturance produced negative correlations when significantly related to achievement behavior. The Aggression variable received inconsistent correlations.

At this point and in conclusion it is appropriate to cite some comments by Shaw (21).

The basic assumption underlying the idea of the "need to achieve" is that it is a quantity which some people have in greater degree than do others, and that quantitative measures of this variable will provide an index to the individual's need to achieve in all areas. It would appear that certain fallacies grow out of this assumption. The first fallacy is that the need to achieve is constant for all areas of an individual's life space. The second fallacy is that the need to achieve results in observable production of a socially desirable sort. The third fallacy involved in the basic assumption of the need achievement theory is that felt need to achieve and behavior are congruent. The fact that the intervening variables in the life situation of any given individual may enter into the situation to prevent an individual from meeting any need to achieve he might feel is thus overlooked.

Motives have both force and direction. Present measures of need achievement consider only the former while neglecting the latter. If one is willing to define motivation as the amount of energy expended,
then the concept embodied in the idea of "need to achieve" is legitimate. If one believes that motivation cannot be measured in terms of energy output nor amount of production, then the concept of the "need to achieve" will have limited usefulness (21, p. 284).

While it is felt that the present study does not neglect the "direction" of motives, it does not seek to determine whether or not motivation can be measured in terms of observable behavior. Rather, it simply assumes that the SSA is a measure of scholastic motivation and seeks to identify personality variables that are related to this inventory.
CHAPTER BIBLIOGRAPHY


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CHAPTER III

METHOD

Subjects

The sample utilized in the present correlation study was selected from a group of students enrolled during the summer of 1965 in seven freshman level classes at North Texas State University. The classes included two introductory mathematics courses comprised of twenty-six students; one introductory psychology course containing twenty-two students; one introductory educational psychology course comprised of fifteen students; two freshman English courses containing forty-three students; and a sophomore history course of seven students. The total sample consisted of one hundred twelve subjects, fifty-two men and sixty women. Of these, forty-one were students enrolled in the College of Arts and Sciences; eighteen in the School of Business Administration; thirty-seven in the School of Education; two in the School of Music; and two in the School of Home Economics. Twelve students reported that they were undecided as to their major field of study. The chronological ages of the students ranged from seventeen to forty-two years, the mean age being 19.1 years. All subjects were either freshmen or sophomores. It was assumed that the sample was fairly representative of freshmen and sophomores enrolled in summer school at North Texas State University.
Measuring Instruments

**Measure of Scholastic Motivation**

As was previously mentioned, the SSHA (see Appendix) was designed to be a measure of study habits, scholastic motivation, and attitudes. It was selected for the present study because "...the inventory is very heavily pointed in the direction of assessing motivation for study and attitudes towards academic work. This emphasis provides the most unique and valuable aspect of the inventory" (2, p. 782). The SSHA was derived from inventories on study habits, group interviews, studies using observational and interview techniques to differentiate good and poor students, and related learning experiments (1, p. 10).

Normative data were based upon SSHA scores for 2114 men and 1476 women in twelve colleges. One hundred sixty-two men and 119 women were sophomores, and 1932 men and 1327 women were freshmen. No significant difference was found between the scores of the sophomores and those of the freshmen. Separate norms were provided for each sex (1, p. 5).

According to SSHA test constructors the split-third reliability coefficients of the SSHA were found to be .92 for a sample of 178 men and .84 for a sample of 170 women. Test-retest reliability procedures yielded correlation coefficients of .95 for a sample of 54 men and .93 for a sample of 74 women. There was a two-week interval between the two administrations for both groups. An eleven-week interval
for a sample of 106 men and 87 women produced test-retest reliability coefficients of .88 and .84 respectively (1, p.5).

Validation of the SSHA was established in ten different colleges throughout the United States. The one-semester grade-point average was used as the criterion in all these studies. The total sample consisted of 1756 men and 1118 women. Of these, 162 men and 119 women were freshmen, and 1594 men and 999 women were sophomores. The validity coefficients ranged from .27 to .66 for men with an average of .42, and from .26 to .65 for women with an average of .45 (averages obtained by Fisher's Z-function). The correlations between the SSHA and the criterion for all schools in these studies were statistically significant and positive (1, p. 6).

Correlations between the SSHA and the ACE have been found to be consistently low. Also, the use of the SSHA and the ACE in combination has been shown to be a better predictor of grades than the ACE alone. Thus, it appears that the SSHA is measuring variables important to academic success which are not assessed by a scholastic aptitude test. Standardization data for a high school population is also given in the manual (for further validation data see previous chapter--reference 1, p. 6).

The SSHA was untimed and consisted of seventy-five items. For each statement a five-point scale was provided for indicating whether the subject "rarely, sometimes, frequently, generally, or almost always does or feels, as the statement
suggests." These terms were defined on a percentage basis as follows: "rarely" meant from 0 to 15 per cent of the time, "generally" meant from 66 to 85 per cent of the time, "almost always" meant from 86 to 100 per cent of the time. The numbers obtained by using a "Rights Key" and an "Elimination Key" were summed to yield the raw score which was converted to a percentile by means of a prepared table.

Measure of Psychological Needs

The EPNS was designed to measure fifteen normal personality variables (see Appendix) of which nine were used in the present study. The variables and the statements that purport to measure them were selected from a list of manifest needs developed by H. A. Murray and others (5). The names given to the variables are the same as those used by Murray.

Brief definitions, taken from the test manual, for each variable used in the present study follow:

1. *Achievement:* To do one's best, to be successful, to accomplish tasks requiring skill and effort, to be a recognized authority, to accomplish something of great significance, to do a difficult job well, to solve difficult problems and puzzles, to be able to do things better than others, to write a great novel or play.

2. *Order:* To have written work neat and organized, to make plans before starting on a difficult task, to have things organized, to keep things neat and orderly, to make advance plans when taking a trip, to organize details of work, to keep letters and files according to some system, to have meals organized and a definite time for eating, to have things arranged so that they run smoothly without change.

3. *Autonomy:* To be able to come and go as desired, to say what one thinks about things, to be independent of others in making decisions, to feel free
to do what one wants, to do things that are unconventional, to avoid situations where one is expected to conform, to do things without regard to what others may think, to criticize those in positions of authority, to avoid responsibilities and obligations.

4. Affiliation: To be loyal to friends, to participate in friendly groups, to do things for friends, to form new friendships, to make as many friends as possible, to share things with friends, to do things with friends rather than alone, to form strong attachments, to write letters to friends.

5. succorance: To have others provide help when in trouble, to seek encouragement from others, to have others be kindly, to have others be sympathetic and understanding about personal problems, to have others do favors cheerfully, to be helped by others when depressed, to have others feel sorry when one is sick, to have a fuss made over one when hurt.

6. dominance: To argue for one's point of view, to be a leader in groups to which one belongs, to be regarded by others as a leader, to be elected or appointed chairman of committees, to make group decisions, to settle arguments and disputes between others, to persuade and influence others to do what one wants, to supervise and direct the actions of others, to tell others how to do their jobs.

7. nurturance: To help friends when they are in trouble, to assist others less fortunate, to treat others with kindness and sympathy, to forgive others, to do small favors for others, to be generous with others, to sympathize with others who are hurt or sick, to show a great deal of affection toward others, to have others confide in one about personal problems.

8. endurance: To keep at a job until it is finished, to complete any job undertaken, to work hard at a task, to keep at a puzzle or problem until it is solved, to work at a single job before taking on others, to stay up late working in order to get a job done, to put in long hours of work without distraction, to stick at a problem even though it may seem as if no progress is being made, to avoid being interrupted while at work.

9. aggression: To attack contrary points of view, to tell others what one thinks about them, to criticize others publicly, to make fun of others, to tell others off when disagreeing with them, to get revenge for insults, to become angry, to blame others when things go wrong, to read newspaper accounts of violence (3, p. 11).
The EPFS also provided a measure of "test consistency" and "profile stability" (3, p. 5).

The EPFS was untimed and consisted of 225 pairs of statements. These statements were matched with respect to their social desirability scale values and thus, tended to minimize the influence of social desirability in the responses. The subjects were instructed to choose one of two statements which is more characteristic of what they like or how they feel. Each of the fifteen personality variables was paired twice with each of the other variables. Twenty-eight was the maximum score that could be obtained for any given variable. A subject could obtain the maximum score by choosing, in each of the comparisons, the statement for a given variable as being more characteristic of himself than the statements for the other variables. Thus, the higher the score on a particular variable, the more often the subject had chosen the statements for this variable as being descriptive of himself over the statements for the other variables. Scores were reported in percentiles.

Norms for both college and adult populations were provided in the manual. The college sample consisted of 749 women and 760 men enrolled in liberal arts classes at various universities and colleges. Normative data were supplied for both sexes (3, p. 9).

Reliability coefficients for the fifteen personality variables were determined for the 1509 subjects in the college
normative group. Using a one-week interval separating the two administrations, split-half reliability coefficients ranged from .74 to .87 with algebraic means from 11.31 to 17.00 and standard deviations from 1.78 to 5.66. Generally, the intercorrelations among the fifteen variables were quite low for the 1509 subjects. The largest correlation was .46 between Affiliation and Nurturance, the next largest -.36 between Autonomy and Nurturance (3, pp. 19, 20).

Two validity studies reported in the test manual (3, p. 21) correlated self-ratings with EPPS scores and found perfect agreement in some cases and little agreement in others. Another study mentioned in the test manual (3, p. 21) using 106 students at the University of Washington correlated the EPPS with the Guilford-Martin Personnel Inventory (4) and the Taylor Manifest Anxiety Scale (6). In general, the correlations were significant at the 5 per cent level and in the expected directions.

Procedure

The SSIA and the EPPS were administered by the investigator during regular classroom periods, the SSIA being administered first in all cases. The subjects had not been previously informed of the testing. No information about the nature of the instruments nor any specific instructions other than that provided in the question booklets, was given. The subjects were informed that they were not obligated to participate if they so chose and that the results would be
held in strictest confidence and not affect their grades in any way. All subjects were assigned a number which was used instead of a name to identify the answer sheets. Subjects who were not freshmen or sophomores were asked to leave as no upperclassmen were used in the SSA standardization population. All testing proceeded smoothly; only one subject chose not to participate. Administration of the tests was completed in four days.


CHAPTER IV

RESULTS

The raw scores obtained from the SSHA and the EPPS were subjected to a multiple regression analysis to test the hypotheses presented in Chapter I. The criterion or dependent variable was the SSHA. The independent variables or predictors were nine need measurements yielded by the EPPS: (1) Achievement (2) Order (3) Autonomy (4) Affiliation (5) Succorance (6) Dominance (7) Nurturance (8) Endurance (9) Aggression.

Chapter IV has been organized in the following order:

(1) Statistical Treatment
(2) Interrelationship Among Independent Variables
(3) Relationship Between Independent Variables and Dependent Variable
(4) Multiple Correlations Between Independent Variables and Dependent Variable
(5) Determination of Most Reliable Combination of Independent Variables
(6) Relative Contributions of Independent Variables To Dependent Variable.

Statistical Treatment

An IBM 1620 computer was used to solve the multiple correlation regression analyses. The program yielded the means and standard deviations of all variables, the intercorrelations among the nine predictors, the simple correlations between the predictors and the criterion, and the regression
coefficients needed to construct the various multiple regression equations from the addition and/or deletion of predictors.

**Interrelationship Among Independent Variables**

Presented in Table I are the simple Pearson-product-moment correlations among the variables employed in the present study. Inspection of Table I (Variables 1 through 9) shows slight to moderate intercorrelations among the predictors. The largest correlation was \(-0.65\) between Achievement and Affiliation, the next largest \(0.54\) between Affiliation and Nurturance. Incidentally, with the exception of \(-0.42\) between Achievement and Nurturance, these were all the intercorrelations found in the moderate range. As mentioned in Chapter III, Edwards reported that for the standardization population the largest intercorrelation was \(0.46\) between Affiliation and Nurturance, the next largest being \(-0.36\) between Autonomy and Nurturance (2, pp. 19, 20). Thus, the relationship between Affiliation and Nurturance was the only one high enough to be considered in the moderate range in the standardization group.

The largest discrepancy between the intercorrelations in the present study and those in the standardization population occurred between Achievement and Affiliation. The intercorrelations between Achievement and Affiliation for the present study and the standardization population were \(-0.65\) and \(-0.33\) respectively. The next largest discrepancy was for the relationship between Autonomy and Affiliation. The intercorrelation
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<td>1 Ach.</td>
<td>0.07</td>
<td>-0.07</td>
<td>-0.65</td>
<td>-0.14</td>
<td>0.32</td>
<td>-0.42</td>
<td>-0.17</td>
<td>0.02</td>
<td>0.36</td>
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<td>2 Ord.</td>
<td></td>
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<td>-0.10</td>
<td>-0.16</td>
<td>-0.11</td>
<td>-0.26</td>
<td>-0.28</td>
<td>-0.14</td>
<td>0.18</td>
<td></td>
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<td>3 Aut.</td>
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<td></td>
<td>-0.13</td>
<td>-0.12</td>
<td>0.01</td>
<td>-0.25</td>
<td>-0.16</td>
<td>0.31</td>
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<tr>
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<td></td>
<td></td>
<td>0.18</td>
<td>-0.35</td>
<td>0.54</td>
<td>-0.31</td>
<td>-0.22</td>
<td>-0.44</td>
<td></td>
</tr>
<tr>
<td>5 Suc.</td>
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<td></td>
<td></td>
<td></td>
<td>-0.02</td>
<td>0.14</td>
<td>-0.24</td>
<td>0.04</td>
<td>-0.03</td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.32</td>
<td>-0.04</td>
<td>0.05</td>
<td>0.27</td>
<td></td>
</tr>
<tr>
<td>7 Nur.</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.31</td>
<td>-0.21</td>
<td>-0.27</td>
<td></td>
</tr>
<tr>
<td>8 End.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.03</td>
<td>0.27</td>
<td></td>
</tr>
<tr>
<td>9 Agg.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.02</td>
<td></td>
</tr>
</tbody>
</table>

**Mean**

|------|------|------|------|------|------|------|------|------|------|

**Standard Deviation**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
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<tr>
<td>4.16</td>
<td>4.08</td>
<td>4.41</td>
<td>4.49</td>
<td>4.06</td>
<td>4.69</td>
<td>4.32</td>
<td>5.20</td>
<td>4.14</td>
<td>12.19</td>
</tr>
</tbody>
</table>

*Correlations significantly different from zero at the 5 per cent level of confidence.*

**Correlations significantly different from zero at the 1 per cent level of confidence.**

**Criterion variable.**
between Autonomy and Affiliation was -.13 for the present study and -.33 for the standardization group. On the whole, the intercorrelations among the predictor variables compared favorably with those of the standardization group, thus partially confirming Hypothesis IV.

**Relationships Between Independent Variables and Dependent Variable**

The dependent variable in the present study was the SSHA. Inspection of Table I will show a mean of 33.9, and a standard deviation of 12.2. The mean and standard deviation of the college standardization population were 33.5 and 11.6 respectively (1, p. 5). These figures indicated substantial correspondence between the present sample and the standardization group.

Table I shows a positive relationship between the criterion and the Achievement, Order, Endurance, and Dominance variables. Correlations between the criterion variable and Achievement, Endurance, and Dominance were significantly different from zero at the one per cent level of confidence, while those for Order and Autonomy were not significant. This evidence lent support to Hypothesis I which stated that there would be a significantly positive relationship between the SSHA and the Achievement, Order, Endurance, Dominance, and Autonomy Subscales of the EPP3.

Hypothesis II specified a significantly negative relationship between the criterion and the Affiliation, Succorance,
and Nurturance Subscales of the EPFS. Examination of Table I shows that there was a negative relationship in each case: Affiliation \((r = -0.44)\); Nurturance \((r = -0.27)\); and Succorance \((r = -0.03)\). The latter correlation did not differ from zero significantly, thus Hypothesis II was partially confirmed.

Data found in Table I also confirmed Hypothesis III. Hypothesis III stated that the largest positive relationship between the SSHA and the nine EPFS Subscales will be for Achievement. Table I indicates a correlation of \(0.36\) between the criterion and the Achievement Subscale. This was the largest positive correlation between the predictors and the criterion; it was significant at the one percent level. The only other larger correlation was a negative one for Affiliation \((-0.44)\).

**Multiple Correlations Between Independent Variables and Dependent Variable**

The multiple correlations \((R)\) between the predictors (EPFS Subscales) and the criterion (SSHA) are presented in Table II. The multiple correlation indicates the amount of correlation between the criterion variable and two or more of the nine predictor variables taken together. This holds true for the data in Table II except for variable four (Achievement). The coefficient reported for variable four is actually a simple Pearson-product-moment correlation between the Achievement Subscale of the EPFS and the SSHA. The multiple \(R\) is also a partial function of the intercorrelations.
among the nine predictor variables as a unit as well as their separate correlations with the criterion variable. The procedures used to compute the multiple R's yield only positive multiple coefficients regardless of the sign of the zero order correlations.

**TABLE II**

**RANK ORDER OF PREDICTORS WITH REGARD TO CONTRIBUTION TO THE MULTIPLE CORRELATION SHOWING F LEVEL, STANDARD ERROR, COEFFICIENT OF CORRELATION, AND MULTIPLE CORRELATION**

<table>
<thead>
<tr>
<th>Test</th>
<th>F Level</th>
<th>Standard Error of Estimate</th>
<th>$R^2$</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Affiliation</td>
<td>26.26</td>
<td>11.04</td>
<td>.12818</td>
<td>.439**</td>
</tr>
<tr>
<td>2 Order</td>
<td>2.60</td>
<td>10.96</td>
<td>.15521</td>
<td>.394</td>
</tr>
<tr>
<td>6 Dominance</td>
<td>2.91</td>
<td>10.87</td>
<td>.20246</td>
<td>.450</td>
</tr>
<tr>
<td>8 Endurance</td>
<td>2.29</td>
<td>10.80</td>
<td>.24753</td>
<td>.498</td>
</tr>
<tr>
<td>5 Succorance</td>
<td>1.07</td>
<td>10.80</td>
<td>.24422</td>
<td>.494</td>
</tr>
<tr>
<td>1 Achievement</td>
<td>1.06</td>
<td>10.80</td>
<td>.28733</td>
<td>.536</td>
</tr>
<tr>
<td>7 Nurturance</td>
<td>.46</td>
<td>10.83</td>
<td>.26819</td>
<td>.518</td>
</tr>
<tr>
<td>9 Aggression</td>
<td>.08</td>
<td>10.87</td>
<td>.26776</td>
<td>.517</td>
</tr>
<tr>
<td>3 Autonomy</td>
<td>.02</td>
<td>10.93</td>
<td>.26719</td>
<td>.517</td>
</tr>
</tbody>
</table>

* All R's significantly different from zero at the 5 per cent level of confidence.

** Actually .439 is the zero-order correlation between Affiliation and the SSHA.
Determination of Most Reliable Combination of Independent Variables

A process involving the addition of variables was employed to determine the least number of independent variables which would "best" predict scholastic motivation. The criterion for the retention of a given predictor variable was whether or not its addition would significantly increase the multiple correlation. If the addition of a particular variable did not significantly raise the $R$, it was not considered worthwhile to retain it in a final multiple regression equation. For example, the $R$ in row two of Table II is based on the multiple correlation between the criterion and variables four and two taken together. The $R$ in row three of Table II represents the multiple correlation problem for the criterion and variables four, two, and six taken together. Thus the $F$ level in row three is the significance of the difference between these two multiple correlation coefficients (.450 -.394).

As shown in column one of Table II, the step-wise multiple linear regression analysis program utilized ranked the nine independent variables in order of their relative contributions to the multiple correlation, while taking into consideration the duplication or overlap caused by the intercorrelations among the predictors. Column two of Table II shows an $F$ level was also computed at which point the addition of another variable would not increase $R$ significantly. As variables were added the standard error of the difference between each new $R$
and the previous $R$ was computed. Finally the program yielded a multiple-regression equation from the variables included in the final composite.

The $F$ level (second column, Table II) was computed to determine the significance of the addition of a given predictor variable to the composite. This $F$ level was computed with regard to the interrelationships among the various predictors. An $F$ ratio of $3.94$ was necessary to reach the $5$ per cent level of significance. Inspection of Table II will reveal that this level of significance was reached by the Affiliation variable only, which had a standard error of the difference between $R$'s, as shown in the standard error column, of $11.04$.

It was revealed in Table II that the Affiliation Subscale of the BPPS alone could be used as the most efficient predictor "composite", that is, the addition of the other eight subscales in various combinations did not significantly increase the multiple correlation. Therefore, the most reliable predictor used in the present study was shown to be Affiliation.

### Relative Contributions of Independent Variables To Dependent Variable

The relative contributions of the nine independent variables to the variance in the dependent variable are presented in the last column of Table III. The sum of these percentages
(26.72) equalled the coefficient of multiple determination \( R^2 \) presented in the last row of Table II. The coefficient of multiple determination, indicated the proportion of total variance in the dependent variable accounted for by the nine predictor composite. The coefficient of multiple determination was computed by multiplying each Beta coefficient, shown in column five of Table III, by its corresponding validity coefficient, presented in column six of Table III, and

### TABLE III

**STATISTICAL DATA EMPLOYED IN COMPUTATION OF MULTIPLE REGRESSION EQUATIONS FOR THE TEN VARIABLE PROBLEM**

<table>
<thead>
<tr>
<th>Test</th>
<th>( b )</th>
<th>Standard Error of ( b )</th>
<th>( t )</th>
<th>Beta</th>
<th>Validity Coefficient</th>
<th>Per cent of Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.351</td>
<td>.348</td>
<td>1.01</td>
<td>.120</td>
<td>.36</td>
<td>4.72</td>
</tr>
<tr>
<td>2</td>
<td>.451</td>
<td>.287</td>
<td>1.57</td>
<td>.151</td>
<td>.18</td>
<td>2.70</td>
</tr>
<tr>
<td>3</td>
<td>.034</td>
<td>.279</td>
<td>.12</td>
<td>.012</td>
<td>-.05</td>
<td>.06</td>
</tr>
<tr>
<td>4</td>
<td>-.792</td>
<td>.355</td>
<td>-2.23</td>
<td>-.292</td>
<td>-.44**</td>
<td>12.82</td>
</tr>
<tr>
<td>5</td>
<td>.291</td>
<td>.270</td>
<td>1.08</td>
<td>.098</td>
<td>-.03</td>
<td>.33</td>
</tr>
<tr>
<td>6</td>
<td>.459</td>
<td>.252</td>
<td>1.82</td>
<td>.176</td>
<td>.27**</td>
<td>4.72</td>
</tr>
<tr>
<td>7</td>
<td>.202</td>
<td>.330</td>
<td>.61</td>
<td>.072</td>
<td>-.27**</td>
<td>1.91</td>
</tr>
<tr>
<td>8</td>
<td>.398</td>
<td>.234</td>
<td>1.70</td>
<td>.170</td>
<td>.27**</td>
<td>4.72</td>
</tr>
<tr>
<td>9</td>
<td>-.081</td>
<td>.275</td>
<td>-.29</td>
<td>-.027</td>
<td>.02</td>
<td>.04</td>
</tr>
</tbody>
</table>

* \( t \) significantly different from zero at the 5 per cent level of confidence.

** Correlations significantly different from zero at the 1 per cent level of confidence.
then summing the products. Each individual product indicated the relative contribution of the variable in question. For example, inspection of Table III indicates that the Beta coefficient and validity coefficient for the Affiliation Subscale were -.292 and -.44 respectively. The product of these two coefficients is .12818. Therefore, multiplying by 100, 12.82 per cent of the variance in scholastic motivation as measured by the SSHA was accounted for by whatever was measured by the Affiliation Subscale of the EPPS, partialing out those things that the two scales have in common. The sum of the per cents in Table III equalled 26.72 which was the per cent of variance accounted for by all nine predictors taken together.

As indicated in Table III, the step-wise linear regression analysis program yielded the values necessary to compute a multiple-regression equation for all nine predictor variables combined. The relevant values were the \( b \) coefficients or the partial regression coefficients shown in the second column. The function of the \( b \) coefficients is to act as a multiplying constant to give weight to the various predictors in the composite. Each \( b \) coefficient is a ratio that indicates how many units the predicted values increase in a given variable when the effects of the other variables in the composite are held constant. A constant was also employed to assure that the mean of the predictor values coincided with the mean of the criterion values. The constant for the total multiple-regression equation using all nine predictors was 18.39. The
constant for a multiple-regression equation using only Affiliation was 52.30.

The t in column four of Table III refers to the significance of the contributions of each independent variable. This t test determined whether each independent variable contributed to the total prediction when its intercorrelations with other predictors were taken into consideration. The t of the Affiliation Subscale was the only one significant at the 5 per cent level.

Considering the above data, if a multiple-regression equation were computed it would be possible to predict scores on the SSHA, within certain limits, by the use of the Affiliation Subscale of the EPPS. In fact, it would be possible to predict scores on the SSHA at approximately the same level of efficiency by using only Affiliation as it would using all nine variables or any combination thereof, since Affiliation accounts for the majority of the per cent of contribution among the nine predictors. The limits would be set by the standard error of estimate given in Table II which in this case is 11.04. Thus it may be said that two-thirds of the predictions of scholastic motivation based on the Affiliation variable will fall within 11.04 points of the actual SSHA score. This conclusion presupposes predictions made on the basis of a regression equation obtained from the above data and predictions made for individuals belonging to the population used in the present study and sampled at random.
CHAPTER BIBLIOGRAPHY


CHAPTER V

DISCUSSION

The results presented in Chapter IV will be discussed within the framework of the four major research hypotheses. Due to the complete lack of research on the relationship between the two inventories employed in the present study, these hypotheses were primarily derived from studies which compared scores on the EPPS or the SSHA to actual performance in an academic setting. It was felt that the positive findings of the majority of these investigations justified the formulation of the hypotheses.

Hypothesis I predicted significantly positive relationships between scholastic motivation and needs for Achievement, Order, Endurance, Dominance, and Autonomy. The hypothesis received partial support; that is, significantly positive correlations were obtained for Achievement, Endurance, and Dominance at the 1 per cent level of confidence. The results provided by testing Hypothesis I are consistent with a number of studies in the same general area (2, 5, 6, 7, 8, 9, 10, 11, 14) which found that Achievement behavior was related to EPPS performance. However, the results of the present study, as well as those of other investigations (2, 9), are inconsistent with McCandless' statement that achievement motivation has much in common with autonomy (12, p. 418).
Hypothesis II predicted a significantly negative relationship between scholastic motivation and needs for Affiliation, Succorance, and Nurturance. This hypothesis was partially confirmed and is in general agreement with previously mentioned studies (3, 5, 6, 7, 8, 10, 11). That is, Affiliation and Nurturance received negative correlations that were significantly different from zero at the 1 per cent level of confidence. However, there seems to be disagreement between the results of Hypothesis II in regard to the Succorance variable and the belief of McCandless that dependency is negatively related to Achievement behavior (12, p. 325). That Succorance and dependency are quite similar concepts is indicated by the definition of Succorance as the need "to have others provide help when in trouble, to seek encouragement from others..." (4, p. 11).

The need for Achievement was predicted by Hypothesis III to have the largest significantly positive relationship with scholastic motivation. This hypothesis was confirmed by a low correlation of .36 between the SSHA and Achievement, which was significant at the 1 per cent level. The only larger simple correlation between the predictors and the criterion was -.44 for Affiliation, which was also significant at the 1 per cent level.

On the whole, there seems to be general agreement between other studies that have related the EPPS Subscales to achievement behavior and the correlation obtained in testing Hypothesis
III (5, 6, 7, 8, 10, 11). This agreement is for the absolute magnitude of the correlations as well as its size in relation to other positive and negative EPPS predictors. However, it must be remembered that the majority of these studies used actual performance as a criterion rather than a measure of motivation. For this reason it was expected that a somewhat higher correlation would obtain since both the SSHA (scholastic motivation) and the Achievement Subscale of the EPPS (achievement motivation) purport to measure much the same thing. One reason for the low relationship between SSHA achievement motivation and EPPS achievement motivation is probably the fact that the SSHA is partially a measure of study habits. It should also be remembered that studies in the area have found no relationship between various measures of achievement motivation (1, 13).

Hypothesis IV stated that the intercorrelations among the nine EPPS Subscales in the present study would be similar to those of the standardization group. This hypothesis received substantial support. All intercorrelations obtained in both groups were below the moderate range except three for the present study and one for the standardization population. It is interesting to note that in both the present study and the standardization sample the largest positive intercorrelation was between Affiliation and Nurturance. The largest discrepancy between the intercorrelations in the present study and those in the standardization sample was -.65 and -.33.
respectively for the relationship between Achievement and Affiliation. The next largest discrepancy was for the relationship between Autonomy and Affiliation. These variables received an intercorrelation of -.13 in the present study and -.33 in the standardization sample.

The present study sought to determine the combination of psychological needs which would best predict scholastic motivation. It was found that the need for Affiliation was the only significant contributor to the multiple correlation. The correlation between Affiliation and SSA was -.44 significant at the 1 per cent level of confidence. Thus, of all nine variables used, Affiliation was the most reliable predictor of scholastic motivation, remembering that multiple correlation rules out that which the variables had in common.

In conclusion, it seems that scholastic motivation and perhaps to a small extent study habits are negatively related to such things as loyalty to friends, participation in friendly groups, doing things for others, forming new friendships, making as many new friends as possible, sharing things with friends, doing things with friends rather than alone, forming strong attachments, and writing letters to friends. This is consistent with Gebhart and Hoyt's (5) hypothesis of underachievement associated with social motives wherein friendship may be placed above scholarship.

In addition, there does seem to be a low but significant relationship between the SSA and EPPS measures of Achievement.
motivation. In view of the previously mentioned contradictions among such measures, it is felt that this finding lends some support to the validity of both instruments.
CHAPTER BIBLIOGRAPHY


CHAPTER VI

SUMMARY

The present study sought to explore the relationships between scholastic motivation and certain psychological needs by employing two paper-and-pencil measuring instruments which had not been previously associated. The following hypotheses were tested:

Hypothesis I. The relationship between scholastic motivation (SSHA) and each of the following EPPS Subscales will be significantly positive: Achievement, Order, Endurance, Dominance, and Autonomy.

Hypothesis II. The relationship between scholastic motivation (SSHA) and each of the following EPPS Subscales will be significantly negative: Affiliation, Succorance, and Nurturance.

Hypothesis III. The largest positive relationship between scholastic motivation (SSHA) and the nine EPPS Subscales used in the present study will obtain for Achievement.

Hypothesis IV. The obtained intercorrelations among the nine EPPS Subscales will be similar to those of the standardization group.

The sample used to test the hypotheses was composed of 112 students registered for two introductory mathematics
courses, two freshman English courses, one introductory psychology course, one introductory educational psychology course, and one sophomore history course. All subjects were freshmen and sophomores, fifty-two men and sixty women, enrolled at North Texas State University. Chronological ages ranged between seventeen and forty-two years.

The Brown-Holtzman Survey of Study Habits and Attitudes (SSHA) was used to measure scholastic motivation. The inventory consisted of seventy-five items designed to identify students whose attitudes and study habits were different from those of students who earn high grades.

The Edwards Personal Preference Schedule was utilized to measure various psychological needs. It consisted of 225 items, each of which was a pair of statements weighted for the social desirability factor. The statements yielded scores representing fifteen different "normal" psychological needs, nine of which were employed in the present study.

Both the SSHA and the EPFS were administered together by the investigator during regular classroom periods. No information was given other than that supplied by the test booklets. The time required for administration of both instruments was approximately eighty minutes for each class. Both instruments were completed by all subjects.

The obtained scores were subjected to a multiple regression analysis, the criterion or dependent variable was the SSHA, and the independent variables were the nine EPFS Subscales.
The multiple regression problem was solved by an IBM 1620 computer under the auspices of the North Texas State University Computer Center. The results of testing the four hypotheses were

1. Hypothesis I received partial support. The obtained \( r \)'s for Achievement, Endurance, and Dominance were significant at the 1 per cent level of confidence.

2. Hypothesis II received partial support. The obtained \( r \)'s for Affiliation and Nurturance were significant at the 1 per cent level of confidence.

3. Hypothesis III was confirmed. The largest positive \( r \) was .36 for Achievement, significant at the 1 per cent level of confidence.

4. Hypothesis IV received substantial support. On the whole the intercorrelations among the Subscales were quite similar to those of the standardization group.

Of the nine subscales used, the multiple regression analysis indicated that Affiliation was the best single predictor of scholastic motivation. The \( r \) was -.439 for Affiliation and .517 for the total composite of all nine variables, both significant at the 1 per cent level. On the whole, the results of the multiple regression analysis were somewhat similar to those of related studies that used academic achievement instead of a measure of motivation as the criterion. This tended to support the SSHA as a measure of scholastic motivation.
It was suggested that there is a negative relationship between Affiliation and scholastic motivation and perhaps to a small extent, between Affiliation and study habits. The hypothesis of underachievement associated with social motives received substantial support. In addition, a low but significant $r$ between the SSHA and EPPS measures of Achievement motivation tended to lend some support to the validity of both instruments.
APPENDIX

Description of the Fifteen Needs Measured by the Edwards Personal Preference Schedule

1. ach Achievement: To do one's best, to be successful, to accomplish something of great significance, to do a difficult job well, to solve difficult problems and puzzles, to be able to do things better than others, to write a great novel or play.

2. def Deference: To get suggestions from others, to find out what others think, to follow instructions and do what is expected, to praise others, to tell others that they have done a good job, to accept the leadership of others, to read about great men, to conform to custom and avoid the unconventional, to let others make decisions.

3. ord Order: To have written work neat and organized, to make plans before starting on a difficult task, to have things organized, to keep things neat and orderly, to make advance plans when taking a trip, to organize details of work, to keep letters and files according to some system, to have meals organized and a definite time for eating, to have things arranged so that they run smoothly without change.

4. exh Exhibition: To say witty and clever things, to tell amusing jokes and stories, to talk about personal adventures and experiences, to have others notice and comment upon one's appearance, to say things just to see what affect it will have on others, to talk about personal achievements, to be the center of attention, to use words that others do not know the meaning of, to ask questions others cannot answer.

5. aut Autonomy: To be able to come and go as desired, to say what one thinks about things, to be independent of others in making decisions, to feel free to do what one wants, to do things that are unconventional, to avoid situations where one is expected to conform, to do things without regard to what others may think, to criticize those in positions of authority, to avoid responsibilities and obligations.

6. aff Affiliation: To be loyal to friends, to participate in friendly groups, to do things for friends, to form new friendships, to make as many friends as possible, to share things with friends, to do things with friends rather than alone, to form strong attachments, to write letters to friends.

7. int Intracception: To analyze one's motives and feelings, to observe others, to understand how others feel about problems, to put one's self in another's place, to judge people by why they do things rather than by what they
do, to analyze the behavior of others, to analyze the motives of others, to predict how others will act.

8. succ Succorance: To have others provide help when in trouble, to seek encouragement from others, to have others be kindly, to have others be sympathetic and understanding about personal problems, to receive a great deal of affection from others, to have others do favors cheerfully, to be helped by others when depressed, to have others feel sorry when one is sick, to have a fuss made over one when hurt.

9. dom Dominance: To argue for one's point of view, to be a leader in groups to which one belongs, to be regarded by others as a leader, to be elected or appointed chairman of committees, to make group decisions, to settle arguments and disputes between others, to persuade and influence others to do what one wants, to supervise and direct the action of others, to tell others how to do their jobs.

10. aba Abasement: To feel guilty when one does something wrong, to accept blame when things do not go right, to feel that personal pain and misery suffered does more good than harm, to feel the need for punishment for wrong doing, to feel better when giving in and avoiding a fight than when having one's own way, to feel the need for confession of errors, to feel depressed by inability to handle situations, to feel timid in the presence of superiors, to feel inferior to others in most respects.

11. nur Nurturance: To help friends when they are in trouble, to assist others less fortunate, to treat others with kindness and sympathy, to forgive others, to do small favors for others, to be generous with others, to sympathize with others who are hurt or sick, to show a great deal of affection toward others, to have others confide in one about personal problems.

12. chg Change: To do new and different things, to travel, to meet new people, to experience novelty and change in daily routine, to experiment and try new things, to eat in new and different places, to try new and different jobs, to move about the country and live in different places to participate in new fads and fashions.

13. end Endurance: To keep at a job until it is finished, to complete any job undertaken, to work hard at a task, to keep at a puzzle or problem until it is solved, to work at a single job before taking on others, to stay up late working in order to get a job done, to put in long hours of work without distraction, to stick at a problem even though it may seem as if no progress is being made, to avoid being interrupted while at work.

14. het Heterosexuality: To go out with members of the opposite sex, to engage in social activities with the opposite sex, to be in love with someone of the opposite sex, to kiss those of the opposite sex, to be regarded as physically attractive by those of the opposite sex, to participate
in discussions about sex, to read books and plays involving sex, to listen to or to tell jokes involving sex, to become sexually excited.

15. Aggression: To attack contrary points of view, to tell others what one thinks about them, to criticize others publicly, to make fun of others, to tell others off when disagreeing with them, to get revenge for insults, to become angry, to blame others when things go wrong, to read newspaper accounts of violence.

Brown-Holtzman Survey of Study Habits and Attitudes

Directions

The purpose of this survey is to furnish an inventory of study habits and attitudes to serve as a foundation for self-improvement. If taken seriously, this inventory can help you obtain a better understanding of how to study properly. If you will honestly and thoughtfully mark all of the statements on the pages that follow, you will be able to learn many of your study faults. The value of this survey to you will be in direct proportion to the care with which you mark each statement. Since your answers will be treated with the strictest confidence, feel free to answer all questions frankly.

You will mark your answers on a separate answer sheet. Make no marks on this booklet. There are 75 statements in this questionnaire. For each statement a five-point scale is provided for indicating whether you rarely, sometimes, frequently, generally, or almost always do or feel as the statement suggests. You are to rate yourself on each statement by marking the space on your answer sheet that represents your answer choice. Thus, for example, you would mark space R on your answer sheet if you rarely follow the procedure described or if you feel that the statement is rarely true for you. In marking your answers, be sure that the number of the statement agrees with the number on the answer sheet. Make sure that your marks are heavy and black. Make no stray marks on the answer sheet and erase completely any mark that you wish to change.

To aid you in answering this questionnaire, the terms have been defined on a percentage basis as follows:

R-RARELY means from 0 to 15 per cent of the time.
S-SOMETIMES means from 16 to 35 per cent of the time.
F-FREQUENTLY means from 36 to 65 per cent of the time.
G-GENERALLY means from 66 to 85 per cent of the time.
A-ALMOST ALWAYS means from 86 to 100 per cent of the time.

Remember, you are asked to rate yourself, not in accordance with what you think you should do or feel, or as you think others might do or feel, but as you yourself are in the habit of doing and feeling. When you cannot answer a statement on the basis of actual experience, mark the statement according to what you would be most likely to do if the situation should arise.

There are no "right" or "wrong" answers to these statements, and there is no time limit for this questionnaire. Work as rapidly as you can without being careless, and do not spend too much time on any one statement. Please do not omit any of the statements.

1. I feel that teachers do not understand the student's problems.
2. My dislike for a certain teacher causes me to neglect my school work.
3. I feel that I would study harder if I were given more freedom to choose courses that I like.
4. Whether I like a course or not, I still work hard to make a good grade.
5. When my assigned homework is extra long or unusually difficult, I become discouraged and either quit in disgust or skip hurriedly through the assignment, studying only the easier parts of the lesson.
6. In preparing reports, themes, term papers, etc., I make certain that I clearly understand what is wanted before I begin work.
7. Difficulty in expressing myself in writing slows me down on reports, themes, examinations, and other work to be turned in.
8. My teachers criticize my written reports as being hastily written or poorly organized.
9. I feel that teachers allow their personal like or dislike for a student to influence their grading unduly.
10. I lose interest in my studies after the first few days or weeks.
11. I memorize grammatical rules, definitions of technical terms, formulas, etc., without really understanding them.

12. I give special attention to neatness on themes, reports, and other work to be turned in.

13. I take it easy and let my assignments collect for the first two or three weeks of a new semester.

14. I hesitate to ask the teacher for further explanation of an assignment that is not clear to me.

15. Lack of interest in my school work makes it difficult for me to keep my attention focused on assigned reading.

16. Unless I really like a course, I believe in doing only enough to get a passing grade.

17. I get nervous and confused when taking an examination and fail to answer questions to the best of my ability.

18. I have trouble with the mechanics of English composition.

19. When I get behind in my school work for some unavoidable reason, I make up back assignments without prompting from the teacher.

20. I feel confused and undecided as to what my goal in life should be.

21. Some of my courses are so uninteresting that I have to "force" myself to do the assignments.

22. When I am under pressure, my work is inferior in quality.

23. Daydreaming about dates, future plans, etc., distracts my attention from my lesson while I am studying.

24. I believe that having a good time and getting one's full share of fun out of life is just as important as studying.

25. Even though an assignment is dull and boring, I stick to it until it is completed.

26. In taking reading notes, I tend to take down material which later turns out to be unimportant.

27. In taking class notes, I try to copy down the teacher's exact words as closely as possible.
28. I keep all the notes for each subject together, carefully arranging them in some logical order.

29. When I am having difficulty with my school work, I try to talk over the trouble with the teacher.

30. I feel that my grades are a fairly accurate reflection of my ability.

31. I feel that it is not worth the time, money, and effort one must expend to get a college education.

32. Difficulty in assembling ideas with order and clearness within a brief amount of time results in my doing poorly on examinations.

33. Some of my classes are so boring that I spend the class period drawing pictures, writing letters, or daydreaming instead of listening to the teacher.

34. I lay aside returned examinations, reports, and homework assignments without bothering to correct errors noted by the instructor.

35. I keep my place of study business-like and cleared of unnecessary or distracting items such as pictures, letters, mementos, etc.

36. Telephone calls, people coming in and out of my room, "bull-sessions" with my roommate, etc., interrupt me while I am trying to study.

37. It takes a long time for me to get warmed up to the task of studying.

38. I am unable to concentrate well because of periods of restlessness, moodiness, or "having the blues."

39. I put off writing themes, reports, term papers, etc., until the last minute.

40. I feel that I am taking courses that are of little practical value to me.

41. When I sit down to study I find myself too tired, bored, or sleepy to study efficiently.

42. I strive to develop a sincere interest in every course I take.
43. The prestige of having a college education provides my main motive for going to college.

44. I think that maybe I should drop out of school and get a job.

45. I carefully study the figures, graphs, and tables in a reading assignment.

46. Prolonged reading or study gives me a headache.

47. After reading several pages of an assignment, I am unable to recall what I have just read.

48. I cut classes whenever there is something I'd rather do or whenever I need to cram for a test.

49. I waste too much time "chewing the fat," reading magazines, listening to the radio, going to the movies, etc., for the good of my studies.

50. My studying is done in a random, unplanned manner and is impelled mostly by the demands of approaching classes.

51. "Extracurricular activities"—dating, clubs, athletics, fraternity and sorority activities, etc.—cause me to get behind in my school work.

52. I utilize the vacant hours between classes for studying so as to reduce the evening's work.

53. Problems outside of school—financial difficulties, being in love, conflict with parents, etc.—cause me to neglect my school work.

54. I am on time with written assignments.

55. I have difficulty in picking out the important points of a reading assignment—points that are later asked on examinations.

56. When in doubt about the proper form for a written report, I refer to an approved model to provide a pattern to follow.

57. I like to have the radio playing while I'm preparing my homework.

58. When reading a long assignment, I stop periodically and mentally review the main facts and theories that have been presented.
59. I seem to accomplish very little in relation to the amount of time I spend studying.

60. I prefer to sit in the back of the classroom.

61. With me, studying is a hit-or-miss proposition depending on the mood I'm in.

62. I study three or more hours per day outside of class.

63. Before each study period I set up a goal as to how much material I will cover.

64. I can concentrate on a reading assignment for only a short while before the words become a meaningless jumble.

65. I am interrupted by distracting noises while I am studying.

66. I copy the diagrams, drawings, tables, and other illustrations that the instructor puts on the blackboard.

67. I keep my assignments up to date by doing my work regularly from day to day.

68. I prefer to study my lessons alone rather than with others.

69. I lose points on true-false or multiple-choice examinations because I change my original answer only to discover later that I was right the first time.

70. When preparing for an examination I arrange facts to be learned in some logical order—order of importance, order of presentation in class or textbook, order of time in history, etc.

71. I am careless of spelling and in the mechanics of English composition when answering examination questions.

72. Although I work until the last possible minute, I am unable to finish examinations within the allotted time.

73. If time is available, I take a few minutes to check over my answers before turning in my examination paper.

74. When test papers or written assignments are returned, I find that my grade was lowered by careless mistakes.

75. I think that questionnaires such as this are foolish and are of little or no help to anyone.
## Raw Scores on the Criterion and Predictor Variables

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BIBLIOGRAPHY

Books


Articles


Publications of Learned Organizations


Unpublished Materials

Djen-dye Wei Sie, Gorgiana, "The Relationship of Two Experimental Measures of Student Motivation to Academic Success in College," unpublished doctor's dissertation, Department of Psychology, State University of Iowa, 1955.


Tests


