PERSONALITY VARIABLES RELATED TO
ACADEMIC ACHIEVEMENT

APPROVED:

[Signatures]

Major Professor

Minor Professor

Dean of the School of Education

Dean of the Graduate School
PERSONALITY VARIABLES RELATED TO ACADEMIC ACHIEVEMENT

THESIS

Presented to the Graduate Council of the North Texas State University in Partial Fulfillment of the Requirements

For the Degree of

MASTER OF SCIENCE

By

Walter Ginn Black, Jr., B. S.
Denton, Texas
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CHAPTER I

INTRODUCTION

In this vastly complex and demanding era, one finds education as the backbone of our tremendously expanding technology. Since the turn of the century education at all levels has become increasingly important. The drives and pressures to attain higher education have lead to such a surge of students to college campuses that facilities have been barely, if at all, adequate to handle the multitudes. Most, if not all, institutions of higher learning have screened the students they have accepted to insure their success in college. Traditionally, universities and colleges have relied upon such factors as aptitude and intelligence test results as criteria for admission and prediction of academic success. Unfortunately, it is readily observable that these attempts are, at best, minimally successful. The vast number of under-achieving students is evidence enough. It is becoming more and more recognized that personality variables are perhaps more important as predictors of college success (4, 39). Goodstein and Heilbrun (13) indicate that intellective factors typically account for less than half of the variance in scholastic performance. Therefore, the purpose of the present study is to investigate personality traits or trait
clusters that will identify academic high and low achievers and differentiate the two.

Review of Related Literature

The study of academic achievement is a vast and extremely complex area of study. One may approach the study of academic achievement from one of, or a combination of, several different basic viewpoints. One may take an environmental approach and analyze the wealth of social conditions affecting academic achievement. One of the critical aspects of the environment is the parent. In what ways do parents affect the student's academic achievement? (Results of studies by Hattwick and Stowell (17), Kurtz and Swenson (22), and Levy (23) strongly indicate that deviations in parent-child relationships are related to deviate patterns of school achievement.)

Chance's (5) findings in her study of the relationship of independence training and academic achievement reported that mothers' attitudes toward earliness of independence training and academic achievement are inversely related, or stated positively, early independence training by mothers is positively correlated with early academic under-achievement. These findings have been supported in other studies. Drews and Teahan (8) made a study of child rearing attitudes and their relationship to academic achievement, in which they found that the mothers of high-achieving junior high
school students were more dominating and were more strict disciplinarians than the mothers of low achievers. However, there is evidence that child rearing attitudes may have different and completely opposite effects upon student achievement at different levels of school. Teahan (37) found that mothers of low-achieving female college students were more dominating than mothers of high achievers.

Duff and Siegel (9) attempted to study academic achievement from a general biographical view. The Biographical Inventory for Students (34) was used as an objective measure of personal history. They found that academic achievement was negatively correlated with the degree of participation in physical, social, and heterosexual activities. They also found that high-ability over-achieving females tend more to conform to social requirements, to participate more actively in religious activities and less actively in aesthetic activities than do high-ability female under-achievers.

The study of the early environment could be quite fruitful. Shaw and Grubb (32) were led by their studies of high-ability high school students to hypothesize that patterns of achievement had their beginnings, not within the educational system, but before entering the system. The patterns of achievement are brought to school with the student. Barrett (2) found patterns of achievement and under-achievement strongly in existence by grade five.
He did not study the grades below five. (Shaw and McCuen (33), however, studied patterns of achievement, beginning at grade one. They found that achievers and under-achievers could be classified at grade one. At grade three the difference in achievement of the two groups was significant at the .01 level.) This evidence is not presented in order to suggest that there is nothing that educational systems can do to alter achievement patterns, but rather to suggest that if the significant environmental factors and their relationships with academic achievement can be identified, then the educational system can take steps to control them so the students can develop to their fullest.

Another basic approach to the study of achievement is the personality factors approach. What basic personality traits, or combination of traits, is associated with academic achievement or under-achievement? Rath and Meyersburg (31) attempted to identify a non-achievement syndrome. They state that the personality organization of non-achieving students seems to follow a definite identifiable pattern. They go a step farther in saying, "The delineation of this syndrome of poor academic achievement enables us to recognize a psychopathological organization closely resembling depressive disorders."
Steinzor (35), in an attempt to clarify the inter-relationships of personality qualities as they relate to academic achievement or under-achievement, studied the Rorschach responses of thirty high ability college students. He reported that non-achievers had fewer signs of good adjustment. Steinzor states that his study supports and agrees with many of the results found by Margulies (26). Many other investigators have used the Rorschach as their primary instrument (6, 24, 28). Steinzor (35) highly recommends the Rorschach for use in the area of academic achievement.

Morgan (27) studied the interest patterns of achieving and non-achieving college students of high ability. He used the Strong Vocational Interest Blank. Results showed a positive relationship between achievement and the Occupational Level scale. Similar results were found by Ostrom (29), Gustad (16) and Kendall (19). The Occupational Level scale has been interpreted as a measure of drive or motivation (29). One would expect motivation to be a critical personality trait in relation to academic achievement. The high achiever has been shown to have a higher motivation level, as measured by the Thematic Apperception Test, than the non-achiever (27).

The Minnesota Multiphasic Personality Inventory (MMPI) is a widely used instrument in studying the many complex relationships of personality traits and overt behavior.
The area of academic achievement is no exception (27, 1, 14, 30). In Morgan's study, the twelve validity and clinical scales did not differentiate between achievers and non-achievers. Both groups scored close to the college averages as reported by Gilliland (12). Morgan reports, however, that achievers scored significantly higher than non-achievers on the special scales of Dominance, Social Responsibility, and Intellectual Efficiency. The Dominance Scale implies such characteristics as optimism, persuasiveness, self-discipline, and resoluteness (38). The Social Responsibility Scale implies such characteristics as dependability, trustworthiness, and a sense of obligation to the group (15). The Intellectual Efficiency Scale is supposed to reflect insight, self-confidence, energy, and realistic attitudes (38). Morgan also reports a significantly higher percentage of non-achievers than achievers had one of their two highest points on the Psychopathic Deviate Scale and one of their two low points on the Paranoia Scale. "The differences may indicate that more non-achievers than achievers are somewhat insensitive, callous, self-centered, or irresponsible" (27).

Another instrument frequently used in the study of academic achievement is the Edwards Personal Preference Schedule (EPPS) (10). The literature reveals conflicting reports with the use of the EPPS. Gebhart and Hoyt (11) used the EPPS in an attempt to identify personality
characteristics related to academic achievement. They reported rather conclusively that over-achievers scored significantly higher on Achievement, Order, Intraception, and Consistency subscales. They related that under-achievers scored significantly lower on the Nurturance, Affiliation and Change subscales.

Izard (18) related selected scales of the EPPS to actual performance and level of expectation as measured by the estimation of scores on an objective course examination. He reported different scales to be more significantly related to actual achievement for males than for females. He found Achievement to be positively correlated and Abasement negatively correlated for the males. For females, Achievement and Dominance were positively correlated and Change and Nurturance were negatively related. The sex differences found are congruent with results reported in several other studies (32; 36).

Although Gebhart and Hoyt (11) stated their results as conclusive, there are studies in the literature that contradict their results. Krug (21) reported in a study that was, in fact, in response to the Gebhart and Hoyt study, that he found no such significant results. He stated also that the two studies were apparently identical in design.

Klett (20) used the EPPS in a large high school sample with poorly delineated results. However, high-achievers
obtained higher scores on Achievement, Dominance, and Endurance and lower scores on Heterosexuality, Autonomy, and Aggression. It was later suggested by Goodstein and Heilbrun (13) that the EPPS may be a more valuable instrument with college subjects than with high school subjects.

Goodstein and Heilbrun (13) used the EPPS in a study in which they correlated scores on the EPPS with the semester grade-point averages of a large number of undergraduates. When the subjects were all grouped together, an analysis of the data produced essentially negative results. For the total male group, however, a significant correlation was obtained between the Achievement scale and grade point averages (GPA). There was no significant correlation for the total female group. More significant results were obtained when the subjects were divided into low, middle, and high ability subgroups. The most significant results were obtained for the middle ability male subgroup. Results for this middle ability male subgroup were similar to those reported by Gebhart and Hoyt. (11).

Bendig (3) reported in a rather inconclusive study that the following subscales are promising as predictors of achievement: Achievement, Autonomy, Deference, Change, and Abasement.

Shaw (31) administered the EPPS, the French Test of Achievement Motivation, and the McClelland Achievement Motivation in an attempt to determine the relationships
among these measures. Shaw found that none of the three need achievement scales was found to significantly differentiate between achievers and under-achievers.

Demos and Spolyar (7) analyzed data obtained from a large group of students as part of admission procedures. They report no significant differences between EPPS profiles of achievers, over-achievers, and under-achievers.

As can be readily seen, although there has been a great deal of research done in this area, there are many conflicting reports and certainly nothing definitive. As the influx of students to college campuses increases, so does the need for clear cut definitive knowledge about the personality variables related to academic achievement. It is to this need that the present study addresses itself.

Statement of Problem and Hypotheses

The problem of the present study was to add clear, definitive knowledge to the complex area of academic achievement. Whether academic achievers differ in their personality make-up from academic under-achievers was the paramount issue to be investigated. The Edwards Personal Preference Schedule (EPPS) (10) and the Watson-Glaser Critical Thinking Appraisal (WG-CTA) (40) were used to obtain measures of personality variables. There has been
widespread use of the EPPS in studies of academic achievement. In reviewing the literature one finds that a personality variable which has been neglected in the study of academic achievement is the variable of critical thinking. This is somewhat surprising, for basic to the philosophy of education is the assumption that a high level of critical thinking is necessary for success in academic realms. The WG-CTA was used as a measure of the personality variable of critical thinking. Also of major concern was whether or not personality variables related to academic achievement are influenced by ability level and the major area of study. The Cooperative School and College Ability Test (SCAT) was used as a measure of ability level.

The following were the specific hypothesis tested:

1. There will be a significant difference between the EPPS vector means of the high achiever subjects and the low achiever subjects.

2. There will be a significant difference between the EPPS vector means of the elementary education high-achiever subjects and the secondary education high-achiever subjects.

3. There will be a significant difference between the EPPS vector means of the high academic ability achiever subjects and the low academic ability achiever subjects.

4. There will be a significant difference between the EPPS vector means of the high academic ability achiever subjects and the high academic ability low-achiever subjects.
5. There will be a significant positive correlation between grade point averages (GPA's) and these EPPS scales: Deference, Order, Achievement, and Endurance.

6. There will be a significant negative correlation between GPA's and these EPPS scales: Affiliation, Aggression, and Autonomy.

7. There will be a significant positive correlation between GPA's and scores on the WG-CTA.
CHAPTER BIBLIOGRAPHY


CHAPTER II

METHODOLOGY

Subjects

The subjects were eighty students selected from a total population of 1464 students. This number encompassed all students who enrolled in introductory teacher-education courses from the spring semester of 1966 through the summer terms of 1967 at North Texas State University. The total number of subjects was composed of four subgroups (N = 20) that were randomly selected from four corresponding subgroups of the total population from which the subjects were chosen. The subgroups were females enrolled in secondary education introductory courses (N = 557), males enrolled in secondary education introductory courses (N = 506), females enrolled in elementary education introductory courses (N = 338), and males enrolled in elementary education introductory courses (N = 59).

One of the purposes of the introductory education courses at North Texas State University is that of screening the prospective teachers. As part of the screening procedure all students take the Cooperative School and College Ability Tests (SCAT) (1), the Edwards Personal Preference Schedule (EPPS)(2), and the Watson-Glaser Critical Thinking Appraisal (WG-CTA) (8). The teacher education courses are
begun at the beginning of the junior year. Therefore, with a few exceptions, all of the members of the population from which the subjects were drawn took the three mentioned test after completing two years of college.

Procedure

The files on the 1464 students were obtained from the School of Education at North Texas State University. They were divided into the four respective subgroups described above. Twenty subjects were randomly selected from each subgroup and their scores on the SCAT, the WG-CTA, and the EPPS were recorded. The grade point averages (GPA's) for each of the eighty subjects were computed on all college work done up until the time that the present study was done.

Measuring Instruments

The EPPS (2) was designed as an instrument to be used for research and counseling purposes. Its function is to provide quick and convenient measures of relatively independent normal personality variables. The personality variables and the statements that purport to measure these variables had their beginnings in a list of manifest needs presented by H. A. Murray and others (6).

The EPPS provides measures of fifteen personality variables. The names of the variables and a brief description of the manifest needs associated with each appear in Table I.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Manifest Needs Associated with Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement</td>
<td>To accomplish successfully tasks of social and personal significance</td>
</tr>
<tr>
<td>Deference</td>
<td>To conform to convention and follow the leadership of others</td>
</tr>
<tr>
<td>Order</td>
<td>To stress organization and neatness in one's activities</td>
</tr>
<tr>
<td>Exhibition</td>
<td>To attract attention to oneself by dress or behavior</td>
</tr>
<tr>
<td>Autonomy</td>
<td>To act independently of others and of conventions</td>
</tr>
<tr>
<td>Affiliation</td>
<td>To engage in many activities with friends</td>
</tr>
<tr>
<td>Intraception</td>
<td>To think in terms of the motives underlying behavior</td>
</tr>
<tr>
<td>Succorance</td>
<td>To receive encouragement, sympathy, and affection from others</td>
</tr>
<tr>
<td>Dominance</td>
<td>To assume leadership roles in relationships with other</td>
</tr>
<tr>
<td>Abasement</td>
<td>To feel guilty and at fault when things go wrong and generally timid and inferior</td>
</tr>
<tr>
<td>Nurturance</td>
<td>To provide help, sympathy, and affection to others</td>
</tr>
<tr>
<td>Change</td>
<td>To seek new experiences and avoid routine</td>
</tr>
<tr>
<td>Endurance</td>
<td>To work hard and keep at a task until it is completed</td>
</tr>
</tbody>
</table>
TABLE I--Continued

<table>
<thead>
<tr>
<th>Variables</th>
<th>Manifest Needs Associated with Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heterosexuality</td>
<td>To engage in social and sexual experiences involving the opposite sex</td>
</tr>
<tr>
<td>Aggression</td>
<td>To attack, criticize or make fun of others</td>
</tr>
</tbody>
</table>

In addition to the fifteen personality variables, the EPPS provides a measure of test consistency and a measure of profile stability (2, p. 5). A more complete description of the variables can be found in the Appendix.

The EPPS is untimed and consists of 225 pairs of statements. The subject is instructed to chose the statement of each pair that is most characteristic of himself, the way he feels, what he likes, etc. Through sophisticated statistical procedures the statements that make up each pair were matched with regard to social desirability. This was done to minimize the influence of social desirability upon the responses made. Each of the personality variables is paired twice with each of the other variables. Twenty-eight is the maximum score a subject can receive on each variable. If, in each of the comparisons, the subject chooses the statement for a given variable as being more characteristic of himself than the statements for the other variables, then he will receive the maximum score of twenty-eight.
The manual provides norms for both college and adult populations. The subject sample for the college norms consisted of 749 females and 760 males enrolled in various liberal arts classes at various universities and colleges. Normative data for both sexes are supplied in the manual (2, p. 10). Raw scores are converted to percentile scores for interpretation.

Reliability coefficients of two types are reported for the fifteen personality variables (2, p. 19). These are split-half reliability coefficients or "coefficients of internal consistency" (2, p. 19) and test-retest reliability coefficients or "stability coefficients" (2, p. 19). Internal consistency coefficients ranged from .74 to .87, and stability coefficients ranged from .74 to .88 for the fifteen scales.

The manual (2, p. 21) reports several studies in which a validity coefficient was obtained by correlating scores on the fifteen variables with self ratings and ratings by peers. In some cases perfect agreement was found and in other cases very little agreement was found.

Another study reported in the manual (2, p. 21) investigated the relationships between variables measured by the EPPS and similar variables measured by the Guilford-Martin Personnel Inventory (3) and the Taylor Manifest
Anxiety Scale (7). In general correlations in the expected directions were significant at the .5 per cent level of significance.

The Watson-Glaser Critical Thinking Appraisal (WG-CTA) (8) is designed to provide problems and situations which require the application of some of the important abilities involved in critical thinking and produce a score that will be an index of one's level of critical thinking.

There are two carefully equated forms of the test, each consisting of five subtests designed to measure different factors related to the total concept of critical thinking. Each form contains ninety-nine items, and there is no time limit, although most persons complete it in forty minutes or less. The following are the subtests of the WG-CTA:

- **Inference.** Designed to sample ability to discriminate among degrees of truth or falsity or probability of certain inferences drawn from given facts or data.
- **Recognition of Assumptions.** Designed to sample ability to recognize unstated assumptions in given assertions or propositions.
- **Deduction.** Designed to sample ability to reason deductively from given premises; to recognize the relation of implication between propositions; to determine whether what seems an implication or necessary inference between one proposition and another is indeed such.
- **Interpretation.** Designed to sample ability to weigh evidence and to distinguish between unwarranted generalizations and probable inferences which, though not conclusive or necessary, are warranted beyond a reasonable doubt.
- **Evaluation of Arguments.** Designed to sample ability to distinguish between arguments which are strong and important to the question at issue and those which are weak and unimportant or irrelevant. (8, p. 1)
The items on all of the subtest require critical thinking about one of two kinds of subject matter. Some items require the testee to think critically about problems involving "neutral" subject matter. Other items, parallel in logical structure, require the testee to think critically about subject matter about which they are apt to have emotional feelings, biases, or prejudices.

The authors present a rather extensive discussion of their concept of critical thinking upon which the test was based (8, p. 8). A few of their ideas relevant to the present study will be mentioned. They state, "Ability to think critically involves an attitude of wanting to have supporting evidence for opinions or conclusions before assuming them to be true" (8, p. 8). They point out that critical thinking is not opposed to creative thinking but is another aspect of one's personality, and that the two are not necessarily found in the same person. They state that some who are very creative thinkers may be poor critical thinkers.

The authors state,

The Critical Thinking Appraisal is not an intelligence test. . . Many persons who have very superior mental ability as measured by an intelligence test may make a relatively low score on the Critical Thinking Appraisal (8, p. 9). The reliability of the test as a whole and of the various subtests has been determined by the split-half and the inter-form method for several populations. The manual
reports reliability coefficients that indicate that the
test has adequate statistical reliability.

The authors report several problems in attempting
validity research on the test. They report high corre-
lations between success on individual items and success
on the total test. The reporting of several studies in
which the test was validated against independent criteria
indicate that the WG-CTA is able to differentiate signi-
ficantly between subjects who, on the basis of the cri-
teria being used, manifested different levels of critical
thinking.

The Cooperative School and College Ability Tests
(SCAT Series II) was designed to provide estimates of
basic verbal, mathematical, and global abilities. The
verbal score is based upon the number of correct responses
a subject makes to fifty verbal analogy items. The mathe-
matics score is based upon the number of correct responses
a subject makes to fifty quantitative items. The total
score is based upon the total correct responses made on
the two subtests. The testee is allowed twenty minutes
to finish each of the two subtests. The series has tests
at four levels of difficulty with equivalent forms at each
level. The difficulty level is based upon school grade
level. The grade levels for the easiest to the most dif-
cult are 4-6, 7-9, 10-12, and 12-14.
The raw scores are of limited value in interpretation and are converted to percentile ranks and percentile bands. The manual reports the normative data and percentile equivalents of scores for the various levels (1, pp. 12-32).

The reliabilities reported for the SCAT are the results of analyses based on one administration of the tests. These reliability measures then are measures of internal consistency. The manual reports all reliabilities to be .87 or above in all cases for the verbal subtest, .90 or above in all cases for the math subtest, and .94 or above in all cases for the total score.

Validity studies reported centered around the predictive ability of the test (1, p. 41). Validity coefficients were obtained between the scores on the SCAT and various measures of academic performance. Coefficients were obtained in the lower .40's. When the scores on the SCAT were correlated to other measures of academic achievement, the coefficients were generally higher (1, p. 42).

The measure of academic achievement used in the present study was a grade point average (GPA). The GPA was obtained for each subject by obtaining the total number of grade points received in all college work up to the time of the present study and dividing by the total number of academic hours attempted. The GPA obtained was based on a three point system. The GPA's were computed directly from
Basic Assumptions and Operational Definitions

For the sake of clarity and commonality, the following basic assumptions were made:

1. The scores obtained on the fifteen subscales of the EPPS are valid measurements of the personality variable that the various subscales purport to measure.

2. The total score on the WG-CTA is a valid measure of critical thinking ability.

3. The score on the SCAT is a valid measurement of academic ability.

4. The SCAT differentiates between levels of academic ability sufficiently so that ranking subjects on the basis of their scores on the SCAT would be a valid ranking of the subjects on the basis of academic ability.

The following are the operational definitions:

1. An academic achiever is a subject that ranks at or above the fiftieth percentile on the basis of GPA's within his respective subgroup.

2. An academic non-achiever is a subject that ranks at or below the forty-ninth percentile on the basis of GPA's for his respective subgroup.

3. A subject of high academic ability is a subject that ranks at or above the fiftieth percentile on the basis of the SCAT for his respective subgroup.
4. A subject of low academic ability is a subject that ranks at or below the forty-ninth percentile on the basis of the SCAT for his respective subgroup.

5. The concept of critical thinking is a personality variable.

Statistical Treatment of Data

A Pearson Product-Moment Coefficient of Correlation (r) (4) was computed between GPA and the score on the WCTA and the scores on the fifteen subscales of the EPPS for the following subgroups of subjects:

1. All subjects
2. All subjects of high academic ability
3. All subjects of low academic ability
4. All academic achievers
5. All academic non-achievers

The .05 level of significance was chosen as the level necessary for acceptance of the correlation coefficients as significant.

A Hotelling's $T^2$ (5) technique was used to test for significant differences between the EPPS profiles of the following pairs of subgroups:

1. High academic ability achievers--Low academic ability achievers.
2. High academic ability achievers--High academic ability non-achievers.

4. High academic achievers--Low academic achievers.

To control for the interdependence of some of the EPPS scales, all scores were converted to z scores before computing the Hotelling's $T^2$ for each pair of subgroups (4).
CHAPTER BIBLIOGRAPHY


4. Haynes, Jack R., North Texas State University, Personal Interview.


CHAPTER III

RESULTS AND DISCUSSION

Results

The first hypothesis predicted a significant difference between the EPPS vector means of the high achiever subjects and the low achiever subjects. As can be seen in Table II, the Hotelling's $T^2$ computed between high and low achiever subject's EPPS profiles was nonsignificant at the .05 level. Therefore, the hypothesis was rejected.

Hypothesis II predicted a significant difference between the EPPS vector means of the elementary education high achievers and the secondary education high achievers.

<table>
<thead>
<tr>
<th>df1</th>
<th>dr2</th>
<th>TSQR</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
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<tr>
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<td>67</td>
<td>11.92227</td>
<td>.85341</td>
<td>N.S.</td>
</tr>
</tbody>
</table>

TABLE II

HOTELLING'S $T^2$ TEST FOR SIGNIFICANT DIFFERENCE BETWEEN HIGH AND LOW ACHIEVERS' EPPS PROFILES
This hypothesis was rejected because, as can be seen in Table III, the Hotelling's $T^2$ computed was nonsignificant at the .05 level.

**TABLE III**

**HOTELLING'S $T^2$ TEST FOR SIGNIFICANT DIFFERENCE BETWEEN SECONDARY AND ELEMENTARY ACHIEVERS' EPPS PROFILES**

<table>
<thead>
<tr>
<th>df1</th>
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<th>TSQR</th>
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</thead>
<tbody>
<tr>
<td>12</td>
<td>27</td>
<td>3.28795</td>
<td>.19468</td>
<td>N.S.</td>
</tr>
</tbody>
</table>

A Hotelling's $T^2$ was computed to test the third hypothesis that there would be a significant difference between the EPPS vector means of the high academic ability achiever subjects and the low academic ability achiever subjects. Table IV shows that the difference was not significant at the .05 level; therefore, the third hypothesis was rejected.

**TABLE IV**

**HOTELLING'S $T^2$ TEST FOR SIGNIFICANT DIFFERENCE BETWEEN HIGH AND LOW ACADEMIC ABILITY ACHIEVERS' EPPS PROFILES**

<table>
<thead>
<tr>
<th>df1</th>
<th>dr2</th>
<th>TSQR</th>
<th>F</th>
<th>P</th>
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<tbody>
<tr>
<td>12</td>
<td>27</td>
<td>23.26245</td>
<td>1.37738</td>
<td>N.S.</td>
</tr>
</tbody>
</table>
A Hotelling's $T^2$ was also computed between the EPPS vector means of the high ability achievers and the high ability low achievers. Table V shows that the difference was non-significant at the .05 level. Hypothesis IV, that there would be a significant difference between the EPPS vector means of high ability achievers and the high ability low-achievers was therefore rejected.

**TABLE V**

<table>
<thead>
<tr>
<th>df1</th>
<th>dr2</th>
<th>TSQR</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>27</td>
<td>10.53633</td>
<td>.62386</td>
<td>N.S.</td>
</tr>
</tbody>
</table>

To test Hypotheses V through VII, a correlation was computed between GPA's and the scores on the WG-CTA and between GPA's and twelve of the fifteen EPPS scales. Due to limitations of the computer, three scales were deleted from statistical analysis. Those scales were Heterosexuality, Change, and Succorance. Table VI shows the correlation coefficients between GPA's and the scores mentioned above.
### TABLE VI

**SIMPLE CORRELATION COEFFICIENTS BETWEEN GPA'S PERSONALITY VARIABLE MEASURES**

<table>
<thead>
<tr>
<th>Variable Measures</th>
<th>Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. WG-CTA</td>
<td>.4406*</td>
</tr>
<tr>
<td>2. Achievement</td>
<td>.0939</td>
</tr>
<tr>
<td>3. Deference</td>
<td>.3034**</td>
</tr>
<tr>
<td>4. Order</td>
<td>.0359</td>
</tr>
<tr>
<td>5. Exhibition</td>
<td>-.1066</td>
</tr>
<tr>
<td>6. Autonomy</td>
<td>-.1497</td>
</tr>
<tr>
<td>7. Affiliation</td>
<td>-.0091</td>
</tr>
<tr>
<td>8. Succorance</td>
<td>.0508</td>
</tr>
<tr>
<td>9. Dominance</td>
<td>-.1650</td>
</tr>
<tr>
<td>10. Abasement</td>
<td>.1488</td>
</tr>
<tr>
<td>11. Nurturance</td>
<td>.1532</td>
</tr>
<tr>
<td>12. Endurance</td>
<td>-.1661</td>
</tr>
<tr>
<td>13. Aggression</td>
<td>-.0700</td>
</tr>
</tbody>
</table>

Variable 1 is score on **WG-CTA** and variables 2-13 are **EPPS** subscales.

*significant at the .01 level.

**significant at the .05 level.

The fifth hypothesis, stating that there would be a significant positive correlation between GPA's and the **EPPS** scales of Deference, Order, Achievement, and Endurance, was only partially supported. As shown in Table VI, the correlation between Deference and GPA's was significant at
the .05 level. The correlation coefficient between GPA's and the scales of Order, Achievement, and Endurance was non-significant at the .05 level. The correlation coefficient between GPA's and the scale of Endurance was not in the predicted direction.

The sixth hypothesis predicted that there would be a significant negative correlation between GPA's and the EPPS scales of Agression, Autonomy, and Dominance. As can be seen in Table VI, all of the correlation coefficients were in the predicted direction, but none were significant at the .05 level.

The seventh hypothesis, stating that there would be a significant positive correlation between GPA's and scores on the WG-CTA, was supported. As shown in Table VI, the correlation coefficient was significant at the .01 level.

Discussion

The results of the present study indicate that the comparison of the EPPS profiles between groups that are formulated on the basis of a criterion dealing with academic achievement was of little value. One could not distinguish between the various pairs of subgroups investigated on the basis of EPPS profiles.

There are several weaknesses of the present study that should be considered before concluding that the EPPS is of no value in the study of academic achievement. The most glaring weakness of the present study was the criterion
upon which academic achievement was based. In future studies a method of determining academic achievement such as the one described by Heilbrun (5) might be more valid. He defined academic achievement in terms of whether a student fell above or below a regression line relating cumulative grade-point averages to a measure of intellectual ability.

Although the results of the present study indicated that comparison of the entire EPPS profiles did not distinguish between various achievement groups, that does not rule out the possibility that various combinations of subscales might differentiate between achievement groups. Future studies might utilize a two-scale figural scoring of the EPPS much as is used with the Minnesota Multiphasic Personality Inventory (4).

The results of the correlation coefficients computed between GPA's and the EPPS scales were somewhat disappointing. The failure to find a significant correlation between GPA's and the Achievement scale is in disagreement with several studies found in the literature (2, 3) and in agreement with others (1, 6). A possible explanation for these conflicting results is that the variable measured by the EPPS Achievement scale is a broad, general achievement drive, while academic achievement is a more specific drive.
Another possible explanation for the lack of significant correlations is that the population drawn from might have a limited variation both in achievement and in scores on the EPPS. Although there were both secondary and elementary education majors in the population, the field of education is a specialized field and is probably highly homogeneous as related to EPPS scores.

A result of the present study that shows possible promise in future research was the highly significant correlation between GPA's and scores on the WG-CTA. The author of the test reports that the concept measured by the test can be developed by some methods that can be incorporated into the curriculum. The concept of critical thinking should be investigated more thoroughly in relation to academic achievement.


CHAPTER IV

SUMMARY

The purpose of the present study was to more clearly define the relationship between academic achievement and the personality make-up of the student. Whether academic achievers differ in their personality make-up from under-achievers was the main issue investigated.

The subjects were forty elementary education majors and forty secondary education majors chosen randomly from populations of 1063 and 844 respectively. As part of admission to the teacher education program at North Texas State University, the subjects took the SCAT, the WG-CTA, and the EPPS at the beginning of their junior year. The GPA for each subject was computed from data obtained from the subjects permanent record. A Hotelling's $T^2$ was computed, yielding the following results on the following hypotheses:

1. There will be a significant difference between the EPPS vector means of the high-achiever subjects and the low-achiever subjects. The difference was non-significant at the .05 level; therefore, the hypothesis was rejected.

2. There will be a significant difference between the EPPS vector means of the elementary education
high-achiever subjects and the secondary education high-achiever subjects. The difference was non-significant at the .05 level; therefore, the hypothesis was rejected.

3. There will be a significant difference between the EPPS vector means of the high academic ability achiever subjects and the low academic ability achiever subjects. The difference was non-significant at the .05 level; therefore, the hypothesis was rejected.

4. There will be a significant difference between the EPPS vector means of the high academic ability achiever subjects and the high academic ability low-achiever subjects. The difference was non-significant at the .05 level; therefore, the hypothesis was rejected.

A simple coefficient of correlation was computed, yielding the following results on the following hypotheses:

5. There will be a significant positive correlation between grade point averages (GPA's) and these EPPS scales: Deference, Order, Achievement, and Endurance. This hypothesis was only partially supported. The correlation coefficient between Deference and GPA was significant at the .05 level. The correlation coefficient between GPA and Endurance was not in the predicted direction and was non-significant at the .05 level. The coefficients for Order and Achievement, although in the predicted direction, were non-significant at the .05 level.
6. There will be a significant negative correlation between GPA's and these **EPPS** scales: Affiliation, and Autonomy. Although the correlation coefficients for all the abovementioned scales were in the predicted direction, they were non-significant at the .05 level. The hypothesis was, therefore, rejected.

7. There will be a significant positive correlation between GPA's and scores on the **WG-CTA**. The correlation found was significant at the .01 level. Therefore, the hypothesis was confirmed.

The results reported indicate that the **EPPS** was of little value in determining the relationship of personality variables to academic achievement. Modification of the research design of the present study could lead to fruitful investigation of academic achievement, using the **EPPS**.

The significant correlation between GPA and the **WG-CTA** indicates very strongly that further research into the relationship between academic achievement and the personality variable of critical thinking should be undertaken.
APPENDIX

Description of the Fifteen Personality Variables
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. suc Su-corance: 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. agg 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.
BIBLIOGRAPHY

Books


Articles


4. Chance, J. E., "Independence Training and First Graders' Achievement," Journal of Counseling Psychology,


23. Marguilies, Helen, "Rorschach Responses of Successful and Unsuccessful Students," Archives of Psychology, XXX (July, 1942), 271-274.


Test Manuals


Unpublished Materials

1. Haynes, Jack R., North Texas State University, personal interview.