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# An Investigation of the Inter-Relationships Among Certain Personality Tests and Ratings and Their Relationship to Academic Success in a Teacher's College

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# AN INVESTIGATION OF THE INTER-RELATIONSHIPS AMONG CERTAIN PERSONALITY TESTS AND RATINGS AND THEIR RELATIONSHIP TO ACADEMIC SUCCESS IN A TEACHER'S COLLEGE

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by

Donald H. Duncan

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**A thesis paper submitted in partial fulfillment of the requirements for the degree of Master of Education, in the Graduate School of the Central Washington College of Education.**

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# CHAPTER I

## INTRODUCTION

The general purpose of this investigation is to study the inter-relationships existing between non-intellectual variables and academic success. Public education, at all levels, is interested in increasing efficiency in the prediction of school success in order to make guidance programs more efficient and more effective.

Empirical evidence indicates that for general prediction, general achievement tests, general mental tests, and specific tests of various sorts have been used with moderate success. The relationship between grades and the American Council on Education Psychological Examination Test at Central Washington College of Education was .405 ± .037, indicating only moderate correlation.[1]

Numerous variables have been investigated regarding their predictive values. Chronological age appears to play some part in the results of some investigations, but intelligence in most of these cases has not been controlled. Other investigators indicate there is no relation between

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[1]John O'Donahue, "The Relationship Between Freshman Examination Scores and Academic Success in the Curriculum of Central Washington College of Education" (unpublished Master's thesis, Central Washington College of Education, Ellensburg, 1951), p. 56.

grades and age. The studies concerning the relationship between sex and achievement are contradictory as is the relationship between family background and achievement.

Other factors which undoubtedly influence grades but are difficult to define are: study habits, reading rate and ability, time spent in study, teaching methods and conditions, incentives and direct motivation, student load, extra-curricular activities, and work.

These studies would lead to the conclusion that factors other than intelligence as measured by intelligence tests, or academic ability as measured by achievement tests, contribute practically as much or more to the final results as the latter do. The fact that preparatory school grades give a slightly higher correlation with college grades would indicate that they included some measure of these other factors. It is these non-intellectual factors with which this study is concerned. A review of the literature in this portion of the field shows greater difficulty in measuring the non-intellectual than the intellectual variables.

The study of the relationship of non-academic variables has induced various investigators to empirically study the correlation between different personality traits, as measured by rating scales and personality inventories, and achievement.

Rating scales on personality traits have been found

to correlate with grades in a number of instances. Correlations as high as .57 were obtained from combined ratings by high school principals and teachers on intelligence, attitude, industry, and methods of study.[2] The correlations of these ratings with intelligence or high school grades is not given, although correlations as high as .64 have been found between ratings and grades.[3]

Personality tests likewise show great promise and indicate moderate fluctuation when correlated with grades. Correlations between personality inventories and grades range from -.30[4] to .37.[5]

Moderate success has been found for tested academic variables in predicting school accomplishment. Some success has been attained using other personality variables.

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[2]L. D. Hartson, "Further Validation of the Rating Scales Used With Candidates for Admission to Oberlin College," School and Society, 46:155-60, 1937.

[3]Daniel Harris, "Factors Affecting College Grades: A Review of the Literature, 1930-1937," Psychological Bulletin, 37:128, 1940.

[4]D. G. Ryans, "A Study of the Observed Relationship Between Persistence Test Results, Intelligence Indices, and Academic Success," Journal of Educational Psychology, 29: 578, 1938.

[5]J. H. Clark, "Grade Achievement of Female College Students in Relation to Non-Intellective Factors: MMPI Items," Journal of Social Psychology, 37:279, May, 1953.

to correlate with grades in a number of instances. Correlations as high as .57 were obtained from combined ratings by high school principals and teachers on intelligence, attitude, industry, and methods of study.[2] The correlations of these ratings with intelligence or high school grades is not given, although correlations as high as .64 have been found between ratings and grades.[3]

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[5]J. H. Clark, "Grade Achievement of Female College Students in Relation to Non-Intellective Factors: MMPI Items," Journal of Social Psychology, 37:279, May, 1953.

Continued search for additional variables or combinations of variables seems necessary. It becomes necessary to know not only the relationship between each of the variables and the criterion, but also the inter-relationships among the measures.

## I. PURPOSE

The purpose of this investigation is to find: (1) what relationship exists between self ratings attained from a personality inventory and dormitory supervisor ratings on a standard scale, (2) what relationship exists between scores on a personality inventory and college grade point average, and (3) what relationship exists between dormitory supervisor ratings and college grade point average.

More specifically, the purpose of this investigation is to test the following hypotheses: (1) the stability of the Haggerty-Olson-Wickman Behavior Rating Schedule B (HOW) as administered by residence hall supervisors over two separate quarters of college is of significant magnitude to justify its consideration for predictive purposes, (2) the non-intellectual variables, as measured by the instruments in this study, predict grade point average with significant magnitude to justify addition to prediction batteries, (3) the reliability of the Thematic Apperception Test (TAT), as scored by two separate investigators, is of significant magnitude to justify its consideration for use in prediction,

(4) there is a sufficient relationship between the MMPI, using Gough's Social Responsibility Scale (Re), and the HOW to suggest that a self inventory can be substituted for adult ratings, and (5) there is sufficient relationship between the MMPI Si Scale and Gough's Re Scale on the MMPI to suggest that one could be substituted for the other.

## II. MEASURES

Instruments were selected that give (1) a self rating using a personality inventory, (2) an adult observer rating, and (3) a projective personality rating on tension.

### Personality Inventory

The Minnesota Multiphasic Personality Inventory (MMPI) is an objective psychometric instrument designed to provide ultimately, in a single test, scores on all of the important phases of personality. The instrument is comprised of 566 statements covering a wide range of subject matter, from the physical condition to the moral and social attitudes of the individual being tested.

The subject is asked to answer the statements, as they apply to him, true or false, on the answer sheet provided for that purpose. If a statement does not pertain to the subject, he may leave that space blank on the answer sheet. Both individual and group forms are available, but only the

group form was used in this study.

Personality characteristics may be assigned on the basis of nine clinical scales developed empirically for use with the inventory. Other scales that have been similarly developed or are in the process of being developed may be used. Two such scales from the MMPI were used in this study: (1) The Social Scale (Si) aims to measure the tendency to withdraw from social contact with others.[6] The Si Scale is not a clinical scale, but has been used for counseling and guidance. (2) The Responsibility Scale (Re) "aims to measure internalization of social and moral responsibility" and has been used with high school and college samples.[7]

Adult Observer Rating

Rating scales are widely used in the evaluation of pupil personality. In this procedure, the teacher or some other person closely acquainted with the individuals or pupils rates them on personality traits in terms of the manner in which the individuals have impressed the rater. Rating methods to date have suffered in accuracy because of the fact that some raters tend to be too lenient and others

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[6] S. R. Hathaway and J. C. McKinley, Minnesota Multiphasic Personality Inventory (New York: The Psychological Corporation, 1951), p. 21.

[7] Ibid., p. 22.

too critical. Improvement in objectivity has been gained by care in instructions, or training, with raters.

Widely used among rating techniques are the graphic rating scales, such as the Haggerty-Olson-Wickman Behavior Rating Schedule (HOW), and variations of that form. In this procedure the rater places a check mark at a certain position on a line to indicate his evaluation of the person he is rating. The line is divided into five sections and each section is given a number from one to five commensurate with the degree of importance or weight that that trait indicates a problem tendency of the person rated.[8]

Projective Personality Test

The use of projective techniques have been found to be a valuable aid to the skilled interpreter in the location of certain indistinguishable personality traits. The Thematic Apperception Test (TAT) is one of the least structured of the pictorial techniques now in current use. The subject is asked to make up a story to fit the picture, telling what has led up to the event shown in the picture, describing what is happening at the moment as well as how

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[8]M. E. Haggerty, W. C. Olson, and E. K. Wickman, Haggerty-Olson-Wickman Behavior Rating Schedule Manual of Directions (Chicago: World Book Company, 1930), p. 4.

the characters feel, and giving the possible outcome.

The procedure outlined by Murray requires two one-hour sessions, ten cards being employed during each session, although some clinicians now use abridged sets of selected cards. Four overlapping sets of twenty cards are available for boys, girls, men over fourteen, and women over fourteen. Most of the pictures in each of these sets contain a character with whom the subject can identify himself.[9]

## III. POPULATION AND SAMPLE

The study sample was composed of 134 representative freshmen and sophomore students who were taking General Psychology Fall Quarter, 1954, at Central Washington College of Education. The study sample was considered representative, having a mean of 94.52 (N = 98) compared to a mean of 95.70 (N = 593) on the total freshman and transfer student population on the American Council on Education Psychological Examination. There was only a raw score difference on the means of 1.18.[10]

The representativeness of the sample used in this

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[9]Henry A. Murray, Thematic Apperception Test Manual (Cambridge: Harvard University Press, 1943), pp. 1-20.

[10]Lloyd E. Messersmith, (unpublished study of local freshmen norms on the ACE at Central Washington College of Education, Central Washington College of Education, Ellensburg, 1954).

study may be assumed, and generalization, within limits of standard error, is justified from the findings in relation to the larger population from which the sample is drawn. This is somewhat justified by McNemar who states:

> In the absence of the obviously valid scheme for drawing the sample, the only thing one can do is to describe the sample as completely as possible with regards to the known characteristics from which it was drawn. If the sample is typical of the universe in several variables which are related to the variate being studied, it is safe to assume that it was representative.[11]

This study progresses upon the assumption that the sample used is representative of the total population from which it was drawn.

## IV. CRITERION

Success in college, for the purposes of this study, is defined as achievement in the academic aspect of college environment. The students' individual cumulative grade point average, including grades in physical education and music activity courses, is used as evidence of the achievement attained.

Success in college then, as used in this study, will refer to the relative achievement that a student attains as is indicated by his accumulative grade point average.

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[11] Q. McNemar, "Sampling in Psychological Research," Psychological Bulletin, 37:348, 1940.

It is necessary to follow the assumption made by the college in regards to scholarship standards as indicated by the college bulletin: "Students are considered to be in good standing when their scholarship, that is, their grade point average, is 1.75 or better."[12]

The questionable validity of using grade point average as a measure of over-all success in the academic aspect of college is acknowledged. Grade point average is probably the most objective measure of scholarship, since it represents the judgments of several professors in different subject areas. For the purpose of this study, GPA will be assumed to be an index of scholarship, achievement, and, hence, success in college.

The purpose of this investigation, then, is to study the relationship existing between certain non-intellectual variables and academic success.

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[12] The Quarterly for the Central Washington College of Education, Ellensburg, Washington: 42:47, 1954-1955.

# CHAPTER II

## BACKGROUND OF THEORY AND RESEARCH

Two viewpoints regarding the use of psychological tests for prediction of academic success have emerged. One involves the use of academic aptitude or classification tests in colleges such as: the American Council on Education Psychological Examination for College Freshmen, Selective Service College Qualification Test, Graduate Record Examination, Miller Analogies Test, and perhaps the Thorndike CAVD Test for predictive purposes on both undergraduate and graduate levels.[1]

The second viewpoint is predicated upon the hypothesis that personality inventories likewise are valuable for predictive purposes since they measure certain social and emotional conditions which might affect the individual's adjustment and success in college.

Finch and Nemzek found that:

> Intelligence tests do not measure all the factors affecting scholastic success, which becomes evident when one examines the correlation between mental test scores and various measures of school achievement. Coefficients of correlation between intelligence test results and

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[1]Anne Anastasi, Psychological Testing (New York: The Macmillan Company, 1954), pp. 222-227.

school marks range from .27 to .66, the median being .485.[2]

In the same study it was also found that the Bernreuter Personality Inventory measured no traits that might contribute in any important degree to successful achievement in high school.[3]

Other investigators also became interested in the relationship of non-intellectual variables to achievement such as Stagner who found that students with introvert tendencies tend to earn proportionately higher marks than extroverts in a college population.[4] It appears evident that at some points along the distribution, personality variables beyond intellectuality are advantageous in academic work, while different amounts of the same personality variables may be disadvantageous. The personality factor may operate in one direction in one case and the opposite in a different case. Stagner also indicates that:

> Extreme personality trends seem to counter balance advantages in aptitude, making for equal achievement in opposed groups. High emotionality and high self-sufficiency lead to lower achievement than would be predicted

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[2]F. H. Finch and C. L. Nemzek, "The Relation of the Bernreuter Personality Inventory to Scholastic Achievement and Intelligence," School and Society, 36:596, 1932.

[3]Ibid.

[4]R. Stagner, "The Relation of Personality To Academic Aptitude and Achievement," Journal of Educational Research, 26:655, 1933.

from achievement scores.[5]

It appears necessary that additional studies are needed to find the most efficient variables needed for prediction of academic success. The three instruments used in the present study involved a self inventory, dormitory supervisor rating, and a projective personality test.

MMPI Standardization and Scales

A major event in the recent history of personality testing has been the construction of the MMPI and its appearance in 1940. The inventory consists of 566 affirmative statements, which the subject is asked to classify into three categories: True, False, and Cannot Say. There are now two forms available. One, the individual form on which the statements are printed on separate cards which the subject sorts into three stacks, and two, the group form which is now available in which the statements are printed in a test booklet and the responses are recorded on an answer sheet. Both forms are designed for adults and for youths from sixteen and up.

The MMPI items range widely in content, covering such areas as: health, psychosomatic symptoms, neurological disorders, and motor disturbances; sexual, religious, political

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[5]Ibid.

and social attitudes; educational, occupational, family and marital questions. It is further concerned with many well-known neurotic or psychotic behavior manifestations such as obsessive and compulsive states, delusions, hallucinations, ideas of reference, phobias, sadistic and masochistic trends, and the like.[6]

Test-retest reliability coefficients from .46 to .91 have been reported on nine of the clinical scales. These were found for alternately administered Individual and Group Forms with an interval of one week between administrations. The MMPI is considered outstanding among personality inventories because of the empirical validation prior to publication. The manual explains that:

> The original normative data were derived from a sample of 700 individuals representing a cross section of the Minnesota population as obtained from visitors to the University Hospitals....In addition to these data on normal individuals, data were available on 250 pre-college and college students who as a group represented a reasonable good cross section of college entrance applicants....The scales were developed by contrasting the normal groups with carefully studied clinical cases of which 800 were available from the neuropsychiatric division of the University Hospitals when the test was published....As for validity, a high score on a scale has been found to predict positively the corresponding final clinical diagnosis or estimate in more than 60 per cent of new psychiatric admissions.[7]

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[6]Anastasi, op. cit., p. 549.

[7]S. R. Hathaway and J. C. McKinley, Minnesota Multiphasic Personality Inventory (New York: The Psychological Corporation, 1951), p. 6.

Since the publication of the MMPI in its initial form, a number of new scales have been developed, largely by independent investigators who had not participated in the construction of the original test. These scales vary widely in nature and specificity of the criteria which they were designed to predict. This mushroom growth of the new empirically derived scales reflects the readiness with which the MMPI item pool lends itself to such uses. The range and variety of the original items make them suitable for a wide diversity of applications.[8]

Recent investigators have attempted to use the MMPI and other personality tests in college personnel programs. For purposes of guidance, the counselor of college students is concerned not only with determining the capacity of his advisees for college work, but also to discover their interests in and attitudes toward the courses prescribed. Thus far no single test, or battery of tests, measures all the factors essential for success in the various college curricula or over-all college success. The most serious weakness is found in tests for evaluating personality characteristics, interests, and attitudes, all of which are highly important for effective work. Portenier supports extension of measures

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[8]Anastasi, op. cit., p. 555.

for use in prediction by stating:

> Probably the single most important reason why our predictions of educational success are no more accurate than they now are is that we base them far too much on the measurements of ability alone and neglect the influence of personality traits.[9]

In discussing the field of personality, interest, attitude, and character tests, the phrase, "modes of adjustment" is often used. This phrase admittedly is very broad in scope but highly pertinent because it is truly indicative of the numerous ways in which a person approaches a goal. A valid personality test should appraise the total circumstances of life that have affected the person tested. It is becoming increasingly more apparent to college workers that many students fall short of realizing their full capacities because of lack of social adjustment. To meet this condition, more and more colleges and universities are instituting and developing counseling services. Because of the increased cost of such service and the extended time involved, it has become evident that any device which improves the efficiency of counseling is highly desirable. Since the signs of latent personality disturbances are not often revealed in overt behavior, devices which would aid counselors in selecting from

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[9]L. G. Portenier, "Personality Tests in a University Guidance Program," Journal of Educational Psychology, 39: 479, 1948.

a large population the individuals having problems of personal and social adjustment, or who are likely to develop these problems, would be very helpful. Hawkes, for instance, found that better adjusted individuals, as measured by the MMPI participate in more social activities.[10]

Gilliland and Colgin found in a study sample of 600 college students that 233 or 39 per cent received a high score (70 or above) in one or more categories, 14 per cent were high in two categories, and 7 per cent were high in three categories. The investigators felt the reason for such scores might be that college students could be less inhibited as they are not applying for a job and might answer more freely. The authors also indicated that the mean reliability for the nine components of the test is .61 which is too low to be used for predictive purposes for individual students without other supporting evidence.[11]

Clark studied the relationship that exists between the MMPI and college major subjects. The mean scores on the clinical subscales of the MMPI for male and female college students grouped by college major subject were compared

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[10]G. R. Hawkes, "Use of the MMPI in Screening College Students for Counseling Purposes," Journal of Educational Psychology, 41:119, 1940.

[11]A. R. Gilliland and R. Colgin, "Norms, Reliability, and Forms of the MMPI," Journal of Consulting Psychology, 15:436, 1951.

scale by scale with mean scores for a total male college population and a total female college population.

> Fifteen differences were found at the 1% level of confidence, eight of which were on the Mf scale. These relatively few differences seem to indicate that the MMPI should rarely be used for 'counseling into' a college major and it also may have a very restricted use in vocational counseling.[12]

A similar study by Dobson and Stone of 814 freshmen men and 310 freshmen women found that 273 or 33.5 per cent of the men and 88 or 27.42 per cent of the women showed maladjusted scores in one or more areas. These figures included all scores two sigmas above or below the mean, indicating that many students had abnormal scores in more than one area.[13]

A finding which suggests that the MMPI might measure factors in school success which are not measured by academic aptitude tests is indicated by Winfield's study.[14] Using 175 white male veterans, it was indicated that there is very little relationship between the MMPI and the Form I of the

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[12]J. H. Clark, "Interpretation of the MMPI Profiles of College Students: Comparison by College Major Subject," Journal of Clinical Psychology, 9:384, 1953.

[13]W. R. Dobson and D. R. Stone, "College Freshman Responses on the Minnesota Multiphasic Personality Inventory," Journal of Educational Research, 44:614, 1951.

[14]Don L. Winfield, "An Investigation of the Relationship Between Intelligence and the Statistical Reliability of the Minnesota Multiphasic Personality Inventory," Journal of Clinical Psychology, 8:148, 1952.

Wechsler-Bellevue. Clark found correlations of .064 to .369, or some low moderate relationships, between grade point average and the MMPI with a special scale which was used to separate achievers and under-achievers in college.[15]

Owens and Johnson on a 300 item scale containing only diagnostic items from the MMPI, supported Stagner's earlier findings using the Bernreuter, that over-achievers were characterized by social introversion and lack of confidence, good family adjustment and emotional instability.[16] They also found indications that:

> Under-achievers seem to be too socially active to spend large amounts of time in the solitary study essential to academic achievement on the college level. Their good adjustment in other areas would constitute evidence congruent with this point of view; and their slight tendencies to depression, worry, and psychic tension might be thought of as consequences of poor achievement rather than as contributing to it.[17]

MMPI Si Scale

A new scale for the MMPI, the Si, has recently been introduced that "...aims to measure the tendency to withdraw

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[15]J. H. Clark, "Grade Achievement of Female College Students in Relation to Non-Intellective Factors: MMPI Items," Journal of Social Psychology, 37:279, May, 1953.

[16]William A. Owens and Wilma C. Johnson, "Some Measured Personality Traits of Collegiate Under-Achievers," Journal of Educational Psychology, 40:43, January, 1949.

[17]Ibid.

from social contact with others."[18] Drake and Thiele found when testing the validity of the Si scale that it "...significantly differentiated known groups of women students varying in the degree of participation in campus activities at the University of Minnesota."[19] Activities used as a criterion for participation were "...Literary, Dramatics, Debating, Music and Art, Athletics, and Student Government."[20] It should not be assumed, however, that the student who does not participate in recognized extra-curricular activities is socially introverted since he may be participating in other activities. Factors other than lack of desire or effectiveness may prevent participation in recognized activities. The size of the college community could also influence the participation of the student in extra-curricular activities, indicating the social and cultural influences of those groups. They found that 124 students in no activities had a mean of 53.153 on the Si scale with a S. D. of 11.025 compared to 70 students in two or more activities who had a mean of 48.171 with a S. D. of 8.920. It was concluded that:

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[18]Hathaway and McKinley, op. cit., p. 21.

[19]L. E. Drake and W. B. Thiele, "Further Validations of the Social I. E. Scale for the Minnesota Multiphasic Personality Inventory," Journal of Educational Research, 41:552, March, 1948.

[20]Ibid., p. 555.

> The difference is highly significant with the activity-participating group deviating toward the extrovert end of the scale....and (the Si) might be considered a valid measure of social introversion-extroversion when activity-participation is used as a criterion.[21]

Gough also experimented with the Si scale and found statistically significant indications "...that students with higher Si scores (the introverted end) tend, on the average, to participate in fewer activities."[22] The Eta correlation of .369 indicates that a fairly good prediction of number of activities could be made from the Si with a properly fitted curve as the regression was curvilinear.[23] Gough suggests that:

> Achievers, introversion, dominance, self-sufficiency, good motivation, liberal social attitudes, and lack of maladjustment were all characteristics found among achievers while a more penetrating analysis revealed that curricular satisfaction, maturity of goals, efficiency of planning and working and adequate personal and social orientations pertain to better achievement in high school.[24]

Items which reflect lack of emotional tension, immaturity, social extraversion, disinclination to admit

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[21] Ibid., pp. 555-56.

[22] Harrison G. Gough, "A Research Note on the MMPI Social I. E. Scale," Journal of Educational Research, 43: 139, October, 1949.

[23] Ibid.

[24] Harrison G. Gough, "Factors Relating to the Academic Achievement of High School Students," Journal of Educational Psychology, 40:75, February, 1949.

personal problems, and a tendency to see others in a favorable light, have all been predictive of under-achievement by other investigators. It cannot be assumed that this scale will be valid in college, because different factors are considered for grades in high school.[25]

Gough also found a correlation of -.58 between the Si scale and socio-economic status. This suggests that students of high socio-economic status tend to secure scores at the extraverted end of the Si continuum.[26]

MMPI Re Scale

The flexibility of the MMPI made it possible for Gough to construct a Social Responsibility Scale (Re) using 32 selected items from the MMPI and 24 empirically derived items. Gough suggests that:

> The responsible person might be one who shows a ready willingness to accept the consequences of his own behavior, dependability, trustworthiness, and a sense of obligation to the group. Others would define the responsible person as 'you can depend on him,' 'he is a straight shooter,' 'he always does his part.'[27]

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[25] Ibid.

[26] H. G. Gough, "A New Dimension of Status: 1. Development of a Personality Scale," American Sociological Review, 13:401-09, 1948.

[27] Harrison G. Gough, Herbert McClosky and Paul E. Meehl, "A Personality Scale For Social Responsibility," The Journal of Abnormal and Social Psychology, 47:74, January, 1952.

This does not necessarily require that the person needs to assume a position of leadership or be directing group activity in order to be classified as responsible. A correlation of this MMPI scale with the total scale was .84, S. E. .14 in the college sample, indicating relatively high reliability. A mean for 16 of the most responsible students in the college sample was 23.56 with a S. D. of 3.50 compared to a mean of 18.00, with a S. D. of 2.92 for 16 of the least responsible students in the college sample.[28]

Haggerty-Olson-Wickman Behavior Rating Schedule

A means of identifying children with behavior problems was studied by Haggerty who tested 800 students in Minnesota schools. Haggerty indicates that:

> The stream of behavior children which day by day flows through a child guidance clinic suggests to any careful observer two things: first that in our schools there are a far larger number of behavior children than most of us would have believed, and second, that the variety of behavior symptoms ranges through many forms.[29]

It should be considered that there can be considerable subjectivity involved in teacher or counselor ratings of students. The Haggerty study found that behavior of undesirable character appeared more or less frequently in 51

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[28] Ibid., p. 78.

[29] M. E. Haggerty, "The Incidence of Undesirable Behavior in Public School Children," Journal of Educational Research, 12:103, September, 1925.

per cent of the entire group of 800 students tested with 32 per cent listed as personality disorders.[30]

The importance of social and emotional development is also becoming recognized along with the need for intellectual and physical training. Since education is turning serious attention to preparing the child for life, the subject of child behavior takes on a new significance with added emphasis on the location of behavior problems in children. Wickman indicates that:

> Behavior....is a socially evaluated and socially regularized product; and behavior problems represent conflicts between individual behavior and social requirements for behavior.[31]

It is to be noted, according to Wickman, that the very existence of a behavior problem is designated by personal or social attitude. There can be no problems in behavior, in the active sense, unless someone reacts to them as such. Moreover, any form of conduct in a child or adult may become a problem if it is regarded and treated as undesirable behavior by the social group in which the individual happens to live.[32]

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[30] Ibid., p. 106.

[31] E. K. Wickman, Children's Behavior and Teachers' Attitudes (New York: The Commonwealth Fund Division of Publications, 1928), p. 3.

[32] Ibid.

A natural outgrowth of the search for ways and means of locating these undesirable behavior traits of children was the behavior rating scale in which the rating is done by counselors, teachers, parents, or others rather than by the student himself. The Haggerty-Olson-Wickman Behavior Rating Schedule (HOW) is a rating scale that aims to measure intellectual, physical, social and emotional traits. However, the authors caution that "unwise and untrained persons may use the scales so that they increase maladjustment rather than correct the conditions that the resultant scores reveal."[33]

The HOW is organized into two schedules, A and B. "A" is a behavior problem record of 15 problem areas which are checked in any four columns according to frequency of occurrence by an individual. Standardized weightings have been assigned to each problem to assist in scoring. Schedule B consists of a graphic five-point rating scale for 35 traits classified in four groups--intellectual, physical, social, and emotional. For a given trait, each position on the scale is weighted in terms of its predictive relation to the problem tendency score on Schedule A.

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[33]M. E. Haggerty, W. C. Olson, and E. K. Wickman, Haggerty-Olson-Wickman Behavior Rating Schedule Manual of Directions (Chicago: World Book Company, 1930), p. 1.

In general, extremes of a trait (such as quiet-talkative) receive higher problem-weightings than intermediate positions. The HOW does not purport to identify feelings of insecurity in children, but it does constitute a measure of maladjustment. In the sense that behavior problems may be a manifestation of feelings of insecurity, the total scores derived from Schedule B could bear some relationship to insecurity. To secure a behavior score for an individual, one simply adds up the scores of the scores on which he is rated. The larger the score, the greater the number of personality difficulties; the smaller the score, the fewer personality difficulties.[34]

Reference is made to reliability in Buros' Yearbook by the statement: "A re-rating correlation of .86 and a split half correlation of .92 are reported for elementary school children on Schedule B."[35]

Jordan relates that reliability coefficients are reported only for the 35 rated items of Schedule B with reliabilities reported for the split half procedure of .92. When a correlation is made between the ratings of different teachers, it turns out to be .60 and between one teacher's

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[34]A. M. Jordan, Measurement in Education (New York: McGraw-Hill Book Company, Inc., 1953), p. 485.

[35]Oscar Krisen Buros, Mental Measurement Yearbook (New Jersey: Highland Park, 1941), p. 1222.

rating and the average ratings of three or four teachers, the coefficient is .70. However, if reliability were computed as with other measures, the same rater would rate a group of subjects the second time which might also make the reliability too high on account of the memory factor. Jordan suggests that:

> It would seem therefore that rerating gives a too high reliability coefficient and ratings by different raters a too low one. The coefficient somewhere between the two more nearly approximates the truth. The true coefficient in this case falls perhaps between .60 and .92 or in the neighborhood of .75 or .80.[36]

It might serve a better purpose to mention that the higher reliability is a coefficient of internal consistency, as would be expected, and the lower reliability coefficient is a coefficient of rater equivalence.

One of the methods of validation was to check Schedule A against Schedule B. Correlation coefficients vary from .56 to .92 in nursery, elementary, and high school populations with a correlation of .62 reported between Schedule A and Schedule B.[37]

With respect to validity, Jordan mentions that a composite score on Schedules A and B correlated .76 with the frequency with which a group of children were referred

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[36]Jordan, op. cit., p. 489.

[37]Arthur E. Traxler, Techniques of Guidance (New York: Harper and Brothers, 1945), p. 150.

by teachers to the office of an elementary school principal, while a correlation of .71 was found between the Wennetka Scale for Rating School Behavior and HOW, indicating that the HOW might be used with some degree of confidence.[38] Validity coefficients ranged from -.54 to .24 between HOW and the Wolff Security Test (Revised). The HOW correlated .29 at the three-year-old level to .92, which is significant at the one per cent level of confidence, for five-year-olds.

The HOW correlated .50 to .89 with teachers' nominations where the teacher picked the three least secure and the three most secure students in her class. The higher correlation is significant at the one per cent level of confidence.[39]

Thematic Apperception Test

The use of projective tests such as the TAT to sample personality characteristics has been advocated by many experimenters in recent years. The TAT, according to its author, Murray:

> ...is a method of revealing to the trained interpreter some of the dominant drives, emotions, sentiments, complexes, and conflicts of personality. Special value resides in its power to expose the underlying inhibited tendencies which the subject or patient is not willing

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[38]Jordan, op. cit., pp. 489-91.

[39]William E. Martin, "Identifying the Insecure Child: II. The Validity of Some Suggested Methods," The Journal of Genetic Psychology, 80:32, 1952.

> to admit, or can not admit because he is unconscious of them.[40]

It is expected that TAT pictures will serve as a sort of screen upon which the subject projects his characteristics, ideas, attitudes, aspirations, fears, and worries in his efforts to make up a story to fit the picture.[41]

Test materials consist of 19 ambiguous pictures and one blank card which have been found to effectively stir the imagination, force the subject to deal with certain human situations in his own way, and gives the test administrator the advantage of using a standard instrument. The pictures use two psychological tendencies, according to Murray: one, "...people interpret an ambiguous situation in conformity with their past experiences and present wants," and two, "...they draw on their experiences and express their sentiments and needs consciously and unconsciously."[42] Tomkins further describes the TAT as follows:

> The test is based on the well known fact that an individual confronted with an ambiguous social situation and required to interpret it is likely to reveal his own personality in this process, since while interpreting the objective situation, the individual is apt to be less defensive, less aware of the scrutiny of the

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[40]Henry A. Murray, Thematic Apperception Test Manual (Cambridge: Harvard University Press, 1943), p. 1.

[41]Anastasi, op. cit., pp. 598-605.

[42]Murray, op. cit., p. 2.

> examiner, and consequently more likely to reveal much of his inner thoughts.[43]

In scoring, there is no such thing as a wrong answer since each person's response is peculiar to him and reflects his own way of thinking and feeling.[44] Responses have to be scored and analyzed in an individual manner in such a way that a trustworthy assessment of personality might take place with a reasonable degree of reliability. "In analyzing content of stories," according to Harsh and Schrickel, "it is possible to classify press and thema, to note repetition or consistency from one picture to another, and to evaluate the idiosyncracy of interpretations relative to norms for the cultural group."[45]

At present, little can be said for the reliability of the TAT as responses reflect the fleeting mood as well as the present life situation of the subject. Murray indicates reasons for this might be that:

> TAT stories offer boundless opportunities for the projection of one's own complexes or pet theories, and the amateur psychanalyst who is disrespectful of solid

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[43] Silvan S. Tomkins, The Thematic Apperceptive Test (New York: Grune and Stratton, 1947), p. 2.

[44] Morris Krugman, "Science Contributes The Psychological Test--Panacea or Myth?" Child Study, 1946, p. 2.

[45] Charles M. Harsh and H. G. Schrickel, Personality Development and Assessment (New York: The Ronald Press Company, 1950), p. 436.

> facts is only too apt to make a fool of himself if, in interpreting the TAT, he gives free run to his imagination. The future of the TAT hangs on the possibility of perfecting the interpreter (psychology's forgotten instrument) more than it does on perfecting the material.[46]

The reliabilities, as reported by Tomkins, and scored by his method, on a test-retest study are: .80 with a two month interval, .60 with a six month interval, and .50 with a ten month interval with a study sample of 45 women 18 to 20 years of age.[47] This is a general group trend and probably is not necessarily that of all individuals.

The TAT has also been used to measure changes occurring between three groups of students: "A" received non-directive counseling, "B" received directive counseling, and "C" was a control group. The TAT was administered at the beginning and then re-administered after an interval of counseling. The results, as measured by the TAT and influenced by other extraneous factors, indicated there was little change in the score between the two methods of counseling.[48]

Harrison and Rotter, using a three-point scale (+ = 1, ? = 2, - = 3) found a correlation of .73 between

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[46]Murray, op. cit., p. 6.

[47]Tomkins, op. cit., p. 6.

[48]H. B. Carlson and M. G. Vandever, "Effectiveness of Directive and Non-Directive Counseling in Vocational Problems as Measured by the T.A.T. Test," Educational and Psychological Measurement, 2:212-23, 1951.

two raters, and using a five-point scale (+ + = 1, + = 2, ? = 3, - = 4, -- = 5), found a correlation of .77 between two raters. On both studies, five pictures were projected on a screen for thirty seconds and subjects then wrote a story for seven and one-half minutes about what they had seen.[49]

Dollard and Mowrer have developed a method of scoring case histories, purporting to measure changes resulting from social case work. This scoring method has been investigated as a means of scoring TAT stories in this study. This method is known as the Discomfort-Relief-Quotient (DRQ). It might prove to be a valuable method of locating tension levels in TAT stories. There are at present three methods of scoring which can be used--Word, Clause or Thought Units, and Sentence. The DRQ measures drive, primary or secondary, single or summated, continuous or serial. It can apply to the client or any other individual. It is a record of all the tensions that creep into the story, yet it does not tell us what kind of drive is operating.

The Sentence scoring method, the method used in this study to score the TAT, scores drive arousing sentences -, drive reducing sentences +, neutral sentences zero. The

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[49]Ross Harrison and Julian B. Rotter, "A Note on The Reliability of the Thematic Apperception Test," Journal of Abnormal and Social Psychology, 40:97-98, 1945.

scorer reads each sentence in terms of whether the information it contains (a) disturbs, (b) relieves, or (c) fails to affect him decisively one way or another. The scorer should rehearse the sentence to himself; as he does so, the sentence produces tension or relaxing responses in the scorer, or he experiences no change in tension level. Dollard and Mowrer report a reliability of .81 using the Sentence method of scoring.[50] Reliabilities of .30 to .96 have been reported by other investigators using Sentence scoring as well as the other mentioned methods.[51] Evidence points, then, to the realization that once a reliable method of scoring is perfected for this instrument, it will probably be increasingly used in more diagnostic and predictive situations.

One of the most striking observations observed in this review of the literature was the great amount and degree of contradictory results obtained by different investigators. It seems evident then, that additional empirical evidence of the relationship between the selected non-intellectual variables and grades is needed in order that better and more

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[50]John Dollard and O. Herbert Mowrer, "A Method of Measuring Tension in Written Documents," The Journal of Abnormal and Social Psychology, 42:3-32, January, 1947.

[51]Tomkins, op. cit., p. 4.

efficient prediction might be made possible for guidance and counseling purposes.

# CHAPTER III

## PROCEDURE

The purpose of this investigation is to study the inter-relationships existing between non-intellectual variables and academic success. This has been elaborated in Chapter I. The three instruments used to measure non-intellectual areas were discussed in Chapter II.

The MMPI and TAT were administered during regular class periods to 134 students enrolled in four of the five 1954 Fall Quarter General Psychology classes. For several students MMPI's could not be completed in class and in some cases students were absent. In these cases the investigators contacted the students individually and arranged for completion of the MMPI. Students were given an explanation of the general nature and purpose of the study. They were asked to indicate their place of residence on the top of the MMPI Answer Sheet so that a list of those students living in residence halls could be compiled. The students living in residence halls were then rated by their residence hall supervisors on the HOW Fall Quarter, 1954, and two months later in Winter Quarter, 1955.

The answer sheets obtained for the MMPI were scored carefully by hand and profiles were made for each student. The answer sheets were also scored with a key made from the

last 32 items taken from Gough's Re Scale and raw scores were placed on the profile sheets.[1]

Scores on the Si and Re Scales were then placed in frequency distributions, and the means and standard deviations were computed. These distributions are appended for use in normative study.

The HOW, the standard rating scale used to measure problem tendencies of dormitory residents, has two sections, A and B. Schedule A is a list of behavior problems which have been listed in the order of their frequency as reported for elementary children. Schedule B consists of a graphic rating scale for each of thirty-five intellectual, physical, social, and emotional traits. Only the Social and Emotional parts of Schedule B were used in this study.

Below the scale for each trait appear five descriptive phrases to assist the rater in making a quantitative judgment. An example would be item number 15 of Division

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[1]Harrison G. Gough, Herbert McClosky, and Paul E. Meehl, "A Personality Scale For Social Responsibility," The Journal of Abnormal and Social Psychology, 47:76, January, 1952.

III (Social) of Schedule B:[2]

| | | | | |
|---|---|---|---|---|
| speaks very rarely (3) | usually quiet (1) | upholds his end of talk (2) | talks more than his share (4) | jabbers (5) |

Reworded directions, similar to those printed in the HOW Manual, but more applicable to dormitory supervisors were mimeographed and distributed to the supervisors.[3] The residence hall supervisors used the standard printed test forms for reading items regarding the student and wrote the number of their impression for that trait on a mimeographed sheet provided for that purpose (Appendix B).

The residence hall supervisors did not see the results of their first ratings. There was an interval of two months between the first and second ratings. All tabulating of the ratings was done by the investigator. Resulting raw scores from each administration were arranged in frequency distributions. Means and standard deviations were computed for each division and the total of both divisions. These distributions can be found in Appendix A.

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[2]M. E. Haggerty, W. C. Olson, and E. K. Wickman, Haggerty-Olson-Wickman Behavior Rating Schedule Manual of Directions (Chicago: World Book Company, 1930), p. 5.

[3]Ibid., p. 7.

The HOW scoring system is arranged so that the lower the raw score the less problem tendencies that individual displays, as judged by his residence hall supervisor. Higher scores indicate that more problem tendencies are displayed.

Six TAT cards were projected for each class by opaque projector on a 60 by 60 inch beaded screen in a darkened room for thirty seconds. The six cards projected were:

1. A young boy is contemplating a violin which rests on a table in front of him.

2. Country scene: in the foreground is a young woman with books in her hand; in the background a man is working in the fields and an older woman is looking on.

4. A woman is clutching the shoulders of a man whose face and body are averted as if he were trying to pull away from her.

10. A young woman's head against a man's shoulder.

13MF. A young man is standing with a downcast head buried in his arms. Behind him is the figure of a woman lying in bed.

18GF. A woman has her hands squeezed around the throat of another woman whom she appears to be pushing backwards across the banister of the stairway.[4]

Following the thirty second viewing, the lights were then turned on and subjects were given six minutes to write a story about the picture just projected. The following standard test directions were read and also written on the

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[4]Henry A. Murray, Thematic Apperception Test Manual (Cambridge: Harvard University Press, 1943), pp. 19-20.

chalkboard:

> Tell what has led up to the event shown in the picture, describe what is happening at the moment, what the characters are feeling and thinking; and then give the outcome.[5]

For students absent during class administration, a similar procedure was used individually using the cards themselves without the opaque projector. All stories then were checked for length and scorability by a third investigator. These were coded and returned to the two investigators for scoring by the DRQ Sentence scoring method discussed in Chapter II. The two investigators, working separately, scored and later correlated the two resulting DRQ scores.

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[5] Ibid., p. 3.

# CHAPTER IV

## RESULTS

The relationship existing between the selected non-intellectual variables and academic success in college was investigated using Pearson Product Moment correlations to obtain additional empirical data that might be of use in guidance programs.

### Reliability[1] of Measures

The reliability of the three measures shown in Table I are all significant. The HOW Social scale proved to be significantly stable with an r of .89 when used to rate students living in residence halls. There was a two month interval between ratings. The Emotional division of the HOW also proved to be significantly stable with an r of .78. An r of .78 for the total of HOW Social and Emotional divisions likewise is significant at the one per cent level of confidence. The stability of the HOW Social, Emotional, and the total of the Social and Emotional divisions is sufficiently high to suggest their value as assessment

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[1]Reliability, as used in this study, is interpreted two ways: (1) coefficient of stability refers to fluctuation of scores on same or similar measures over a period of time, and (2) coefficient of equivalence refers to the extent to which measures taken at the same time are equal.

TABLE I

RELIABILITY COEFFICIENTS OF TWO NON-ACADEMIC VARIABLES AND THE CRITERION MEASURE

| | |
|---|---|
| **NON-ACADEMIC VARIABLES** | |
| Haggerty-Olson-Wickman Behavior Rating Schedule B[1] | |
| Social | .89 ± .02 |
| Emotional | .78 ± .04 |
| Total: (Social and Emotional) | .78 ± .04 |
| Thematic Apperception Test[2] | .40 ± .10 |
| **CRITERION MEASURE** | |
| Grade Point Average[3] | .67 ± .02 |

[1]Stability coefficients using Fall Rating with Winter Rating with two month interval between ratings.

[2]Equivalence coefficient between two readers using DRQ scoring procedure.

[3]Stability coefficient using Fall GPA with Winter GPA.

instruments and possible value in prediction studies.

The TAT was scored by the DRQ scoring technique by two scorers working separately. The r of .40 indicates that there was moderate agreement between the two researchers in their scoring.

The moderate stability of Grade Point Average is indicated by the stability coefficient, r .67, when Fall Quarter grades were correlated with Winter Quarter grades as is shown in Table I.

Inter-relationships between Non-Academic Variables

The inter-relationships among two divisions of the HOW Schedule B with each other and with the total of both divisions for Fall Quarter indicates that all are significantly equivalent. The r's of .89 and over, shown in Table II, suggests that the divisions are highly equivalent. Correlations are of such magnitude that one might be reasonably substituted for the other. Since Division III (Social) of the HOW was the most stable, it was used for further correlations in the study.

In order to discover the extent to which the selected instruments measure the same factors, inter-correlations between measures were obtained from test scores made by the study sample. The results shown in Table III indicate that there is a moderate relationship existing between the HOW

TABLE II

INTER-CORRELATIONS AMONG TWO DIVISIONS OF HAGGERTY-OLSON-WICKMAN BEHAVIOR RATING SCHEDULE B[1]

| MEASURES | Emotional | Social plus Emotional |
|---|---|---|
| Social | .91 ± .02 | .89 ± .02 |
| Emotional | | .94 ± .01 |

[1]Fall rating inter-correlations.

TABLE III

INTER-CORRELATIONS AMONG NON-ACADEMIC VARIABLES

| MEASURES | MMPI Si | MMPI Re | TAT DRQ |
|---|---|---|---|
| HOW (Social) | .03 ± .10 | .08 ± .11 | .52 ± .11 |
| MMPI Si | | .06 ± .08 | .55 ± .08 |
| MMPI Re | | | .27 ± .11 |

Social and TAT as is shown by an r of .52. The r of .55 indicates that there is also a moderate relationship between the MMPI Si and TAT. An r of .27 between the MMPI Re and TAT show that these instruments are not measuring the same traits to a significant degree.

The r of .03 between HOW Social and the MMPI Si shows these two measures are unrelated in this study. The results in Table III show that the MMPI Re scale is measuring something different from any of the variables used in this study. No coefficient of any relationship for the MMPI Re is significant.

The study of non-academic variables suggests that there is a significantly positive relationship between the tension score on TAT and introversion revealed on the MMPI Si scale. The tension score on the TAT is also significantly positively related to the highest ratings on social behavior.

Relationship between Non-Academic Variables and Achievement Criterion

The relationship between non-intellectual variables and the achievement criterion, Grade Point Average, are shown in Table IV. Inasmuch as each finding involves a different viewpoint, each will be discussed separately.

The results show that there is very little relationship between HOW Social and GPA. Table IV also shows that

TABLE IV

RELATIONSHIP BETWEEN FOUR NON-ACADEMIC VARIABLES AND GRADE POINT AVERAGE

| MEASURES | Fall GPA | Winter GPA | Average[1] |
|---|---|---|---|
| HOW (Social) | .11 ± .11 | .12 ± .11 | .12 ± .11 |
| MMPI Si | -.01 ± .09 | -.15 ± .09 | -.08 ± .09 |
| MMPI Re | .34 ± .08 | .12 ± .08 | .24 ± .08 |
| TAT DRQ | .34 ± .11 | .09 ± .12 | .22 ± .11 |

[1]Conversion of a Pearson r into a corresponding Fisher's Z coefficient.

there is a -.01 to -.15 correlation between the MMPI Si and GPA, indicating that these measures have no significant relationship with GPA.

The average r of .24 (using Fisher's Z) for the MMPI Re and GPA indicates a moderate relationship which is significant at the one per cent level of confidence. The correlation for Winter Quarter was .12, but reached the magnitude of .34 for Fall Quarter. The r of .34 for Fall, .09 for Winter, and an average of .22 shows a moderate relationship between the DRQ scored TAT and GPA. The average r is significant at the five per cent level of confidence. The implications of the results are discussed in the following chapter.

# CHAPTER V

## DISCUSSION AND IMPLICATIONS

When viewed in terms of the original hypothesis, that non-intellectual variables have some relationship with grades, certain aspects of the study should be considered separately.

### Reliability of Measures

The reliability of the HOW, as administered by residence hall supervisors using a two month interval was found to be very high. The divisions of the HOW are highly stable as shown by stability coefficients of .78 and .89. Coefficients of equivalence of .89 to .94 indicates that the divisions of the HOW used in this study are sufficiently highly related that they might be interchanged. The results indicate that the HOW can be used reliably and might be used to help locate problem tendencies in students.

The stability coefficient of .40 for the TAT, as scored by two separate investigators using the DRQ scoring technique, was significant at the one per cent level. Scoring might be improved through more detailed training and practice in scoring. Similar scoring techniques might be applied in areas beyond the single Discomfort Relief dimension. Different motives were in evidence in the stories

and might be scored for tension in each of these different areas.

The relatively low stability of grades probably influenced, to some degree, the correlation between the non-intellectual variables and grades used in this study. Considering that grades are often used as a criterion of success in college and that stability was found to be only in the .60's, further study of the problem of the criterion of success seems needed.

Inter-relationships between Non-Academic Variables

The results indicate that there is some relationship between certain non-academic measures and no relationship between others. Moderate correlations between the TAT and HOW Social, and MMPI Si, suggest that these instruments are measuring, somewhat, similar traits. The relationship between the MMPI Si and MMPI Re scales indicate that there is very little relationship between the two scales, suggesting that they probably are not measuring the same thing. Introversion tendencies evidently have no relationship to social responsibilities as measured by the two MMPI scales. High scores on the DRQ scored TAT, indicating tension, correlated moderately high with the extroversion end of the continuum as measured by the MMPI Si scale. Low scores on the HOW, indicating desirable behavior, as rated by

residence hall supervisors, correlated with moderate magnitude with high scores on the DRQ scored TAT. The results suggest that tension, as measured by the DRQ scored TAT, have some relationship to desirable social behavior as judged by residence hall supervisors. Investigation of this problem may merit more study.

Relationship between Non-Academic Variables and Achievement Criterion

The relationship existing between the non-academic variables and grades differed according to the variable and will be discussed separately.

The HOW Social was shown to have no relationship to grades. An average correlation coefficient for Fall and Winter Quarters of -.08 showed that the MMPI Si had no relationship with the criterion. Although these measures do not predict college grades, this does not negate their possible value in measuring college success of the criterion broadly defined.

The average r of .24 shows that there is a low but significant (one per cent level) relationship between the MMPI Re and grades. The TAT, scored by the DRQ method, is also correlated with grades as is shown by the average r of .22 which is significant at the five per cent level. It has been previously found that entrance tests correlated in

the .40's with grades at this college.[1] Additional measures might increase efficiency of prediction. These two measures, provided they are not closely correlated with academic aptitude tests such as the American Council on Education Psychological Examination Test, might prove to be a valuable addition as parts of a multiple prediction battery using multiple regression techniques. Further study of this problem seems needed, and this investigation has provided data which might be used at least on a preliminary basis.

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[1]John O'Donahue, "The Relationship Between Freshman Examination Scores and Academic Success in the Curriculum of Central Washington College of Education" (unpublished Master's thesis, Central Washington College of Education, Ellensburg, 1951), p. 56.

# CHAPTER VI

## SUMMARY

Two methods of predicting academic success are with academic and non-academic measures. The purpose of this investigation was to study the inter-relationships existing between certain non-academic variables and the relationship with these variables to academic success.

The Minnesota Multiphasic Personality Inventory (MMPI) and the Thematic Apperception Test (TAT) were administered during regular class periods to 134 students enrolled in four of the five 1954 Fall Quarter General Psychology classes. The students living in residence halls were then rated by their residence hall supervisor on the Haggerty-Olson-Wickman Behavior Rating Scale (HOW) Fall Quarter, 1954, and two months later in Winter Quarter, 1955.

All data on the relationship between variables was found by Pearson Product Moment technique. The purpose was to gain additional empirical data that might be of use in guidance programs.

The reliability of the measures used in the study fluctuated from instrument to instrument. Findings show that the HOW is very reliable, or temporally stable, when administered by residence hall supervisors with a two month interval between ratings. The Social and Emotional parts

of Schedule B of the HOW are correlated sufficiently high to allow interchange as is shown by coefficients of equivalence ranging from .89 to .94. The reliability is sufficiently high to suggest that the HOW might be used by residence hall supervisors to help locate problem tendencies in students.

The reliability, or rater equivalence, of the TAT proved to be significant and moderately high when scored by two investigators using the Sentence scoring method of the Discomfort Relief Quotient (DRQ) technique. The r of .40 is significant at the one per cent level and is of a magnitude to suggest that this method of scoring TAT stories is worthy of study towards improvement through detailed training and scoring procedures.

Only moderate stability of grades was shown by an r of .67 between Fall and Winter Quarters. This suggests that further study of the use of grades as a single criterion of school success seems needed.

Study of inter-relationships show that there is some relationship between certain non-academic measures used in this investigation and no relationship between others. Correlations in the .50's between the TAT and HOW Social as well as MMPI Si and HOW Social show that these two instruments are measuring somewhat similar traits.

The relationship that exists between the non-academic variables and the criterion, grades, varies according to the

instrument. An insignificant relationship was shown between grades and the HOW Social as well as the MMPI Si scale. An r of .24, significant at the one per cent level, shows a low but definite correlation between grades and the MMPI Re. The DRQ scored TAT correlated .22 with grades. This is significant at the five per cent level of confidence. These two non-academic measures are, fortunately for prediction purposes, not highly correlated with each other.

If subsequent studies show that these two measures are unrelated to academic aptitude tests such as the ACE, they may prove to be valuable additions to a multiple prediction battery for predicting college success.

# BIBLIOGRAPHY

# BIBLIOGRAPHY

## A. BOOKS


Anastasi, Anne. Psychological Testing. New York: The Macmillan Company, 1954.

Buros, Oscar Krisen. Mental Measurement Yearbook. New Jersey: Highland Park, 1941.

Campbell, William Giles. Form and Style in Thesis Writing. New York: Houghton Mifflin Company, 1954.

Edwards, Allen L. Statistical Analysis of Students in Psychology and Education. New York: Rinehart and Company, Inc., 1951.

Guilford, J. P. Fundamental Statistics in Psychology and Education. New York: McGraw-Hill Book Company, Inc., 1950.

Haggerty, M. E., W. C. Olson, and E. K. Wickman. Haggerty-Olson-Wickman Behavior Rating Schedule Manual of Directions. Chicago: World Book Company, 1930.

Harsh, Charles M. and H. G. Schrickel. Personality Development and Assessment. New York: The Ronald Press Company, 1950.

Hathaway, S. R. and J. C. McKinley. Minnesota Multiphasic Personality Inventory. New York: The Psychological Corporation, 1951.

_____, and Elio D. Monachesi. Analyzing and Predicting Juvenile Delinquency with the MMPI. Minneapolis: The University of Minneapolis, 1953.

Jordan, A. M. Measurement in Education. New York: McGraw-Hill Book Company, Inc., 1953.

Murray, Henry A. Thematic Apperception Test Manual. Cambridge: Harvard University Press, 1943.

The Quarterly for the Central Washington College of Education, 1954-1955, Vol. 46, No. 4. Ellensburg, Washington: Central Washington College of Education, July, 1954.

Tomkins, Silvan S. The Thematic Apperceptive Test. New York: Grune and Stratton, 1947.

Traxler, Arthur E. Techniques of Guidance. New York: Harper and Brothers, 1945.

Wickman, E. K. Children's Behavior and Teachers' Attitudes. New York: The Commonwealth Fund Division of Publications, 1928.

Williamson, E. G. How to Counsel Students. New York: McGraw-Hill, 1939.

## B. PERIODICALS

Byrns, R. K. "Scholastic Aptitude and Freshman Achievement," School and Society, 35:713-18, 1932.

Calvin, Allen and James McConnell. "Ellis on Personality Inventories," Journal of Consulting Psychology, 17: 462-64, 1953.

Carlson, H. B. and M. G. Vandever. "Effectiveness of Directive and Non-Directive Counseling in Vocational Problems as Measured by the TAT Test," Educational and Psychological Measurement, 2:212-23, 1951.

Carter, Homer L. and Dorothy J. McGinnis. "Some Factors Which Differentiate College Freshmen Having Lowest and High Point Hour-Ratios," Journal of Educational Research, 46:219-26, 1952.

Clark, J. H. "Interpretation of the MMPI Profiles of College Students: Comparison by College Major Subject," Journal of Clinical Psychology, 9:382-84, October, 1953.

_____. "Grade Achievement of Female College Students in Relation to Non-Intellective Factors: MMPI Items," Journal of Social Psychology, 37:275-81, May, 1953.

Dobson, W. R. and D. R. Stone. "College Freshman Responses on the Minnesota Multiphasic Personality Inventory," Journal of Educational Research, 44:611-18, April, 1951.

Dollard, John and O. Herbert Mowrer. "A Method of Measuring Tension in Written Documents," The Journal of Abnormal and Social Psychology, 42:3-32, January, 1947.

Drake, L. E. and W. B. Thiele. "Further Validations of the Social I. E. Scale for the Minnesota Multiphasic Personality Inventory," Journal of Educational Research, 41:551-56, March, 1948.

Ellis, Albert. "The Validity of Personality Questionnaires," Psychological Bulletin, 46:385-440, 1946.

_____. "Recent Research with Personality Inventories," Journal of Consulting Psychology, 17:45-49, 1953.

_____, and Herbert S. Conrad. "The Validity of Personality Inventories in Military Practice," Psychological Bulletin, 45:385-426, 1948.

Finch, F. H. and C. L. Nemzek. "The Relation of the Bernreuter Personality Inventory to Scholastic Achievement and Intelligence," School and Society, 36:594-96, 1932.

Gilliland, A. R. and R. Colgin. "Norms, Reliability, and Forms of the MMPI," Journal of Consulting Psychology, 15:435-38, 1951.

Gough, H. G. "A New Dimension of Status: 1. Development of a Personality Scale," American Sociological Review, 13:401-09, 1948.

_____. "A Research Note on the MMPI Social I. E. Scale," Journal of Educational Research, 43:138-41, October, 1949.

_____. "Factors Relating to the Academic Achievement of High School Students," Journal of Educational Psychology, 40:65-78, February, 1949.

_____, Herbert McClosky, and Paul E. Meehl. "A Personality Scale for Social Responsibility," The Journal of Abnormal and Social Psychology, 47:73-80, January, 1952.

Haggerty, M. E. "The Incidence of Undesirable Behavior in Public School Children," Journal of Educational Research, 12:102-22, September, 1925.

Harris, Daniel. "Factors Affecting College Grades: A Review of the Literature, 1930-1937," Psychological Bulletin, 37:125-66, 1940.

Harrison, Ross and Julian B. Rotter. "A Note on the Reliability of the Thematic Apperception Test," Journal of Abnormal and Social Psychology, 40:97-99, 1945.

Hartson, L. D. "The Validation of the Rating Scales Used With Candidates for Admission to Oberlin College," School and Society, 36:413-16, 1932.

_____. "Further Validation of the Rating Scales Used With Candidates for Admission to Oberlin College," School and Society, 46:155-60, 1937.

Hawkes, G. R. "Use of the MMPI In Screen College Students for Counseling Purposes," Journal of Educational Psychology, 41:116-21, 1940.

Krugman, Morris. "Science Contributes the Psychological Test--Panacea or Myth?" Child Study, Summer, 1946.

McNemar, Q. "Sampling in Psychological Research," Psychological Bulletin, 37:348, 1940.

Martin, William E. "Identifying the Insecure Child: II. The Validity of Some Suggested Methods," The Journal of Genetic Psychology, 80:25-33, 1952.

Miller, A. J. "Is the Exceptionally Able College Student Socially Adjusted?" School and Society, 45:862-64, 1937.

Odell, C. W. "The Effect of Early Entrance Upon College Success," Journal of Educational Research, 26:510-12, 1933.

Owens, William A. and Wilma C. Johnson. "Some Measured Personality Traits of Collegiate Under-Achievers," Journal of Educational Psychology, 40:41-46, January,

Patthoff, E. F. "Predicting the Ultimate Failure of College Students on the Basis of Their First Quarter Records," School and Society, 33:203-04, 1931.

Portenier, L. G. "Personality Tests in a University Guidance Program," Journal of Educational Psychology, 39:479-87, 1948.

Rogers, H. W. "The Reliability of College Grades," School and Society, 45:758-60, 1937.

Ryan, D. G. "A Study of the Observed Relationship Between Persistence Test Results, Intelligence Indices, and Academic Success," Journal of Educational Psychology, 29:573-80, 1938.

Seeman, Julius. "Organizing a Thesis Proposal," The American Psychologist, 9:794-97, 1954.

Stagner, R. "The Relation of Personality to Academic Aptitude and Achievement," Journal of Educational Research, 26:1648-660, 1933.

Winfield, Don L. "An Investigation of the Relationship Between Intelligence and the Statistical Reliability of the Minnesota Multiphasic Personality Inventory," Journal of Clinical Psychology, 8:146-48, 1952.

## C. UNPUBLISHED MATERIALS

Bolander, H. "A Study of the Minnesota Multiphasic Personality Inventory as an Indicator in the Prediction of College Success." Unpublished Master's thesis, The University of Oregon, Eugene, 1947.

Messersmith, Lloyd E. Unpublished study of local Freshman norms on the ACE at Central Washington College of Education, Ellensburg, 1954.

O'Donahue, John. "The Relationship Between Freshman Examination Scores and Academic Success in the Curriculum of Central Washington College of Education." Unpublished Master's thesis, Central Washington College of Education, Ellensburg, 1951.

# APPENDIX A

## DISTRIBUTION OF SCORES ON PREDICTOR VARIABLES

DISTRIBUTION OF RAW SCORES FOR THE SOCIAL AND EMOTIONAL PARTS OF SCHEDULE B OF THE HAGGERTY-OLSON-WICKMAN BEHAVIOR RATING SCHEDULE[1]

| X | SOCIAL f | EMOTIONAL f |
|---|---|---|
| 40-42 | 0 | 1 |
| 37-39 | 0 | 1 |
| 34-36 | 3 | 3 |
| 31-33 | 0 | 2 |
| 28-30 | 4 | 2 |
| 25-27 | 5 | 3 |
| 22-24 | 23 | 10 |
| 19-21 | 23 | 10 |
| 16-18 | 16 | 24 |
| 13-15 | 8 | 25 |
| 10-12 | 2 | 3 |
| | N = 84 | N = 84 |
| | M = 20.99 | M = 19.19 |
| | S.D. = 4.61 | S.D. = 6.29 |

[1]A low score indicates fewer behavior problems than a high score.

DISTRIBUTION OF RAW SCORES FOR THE COMBINED SCORES OF THE SOCIAL AND EMOTIONAL PARTS OF SCHEDULE B OF THE HAGGERTY-OLSON-WICKMAN BEHAVIOR RATING SCHEDULE[1]

| X | FALL HOW TOTAL f |
|---|---|
| 70-74 | 2 |
| 65-69 | 2 |
| 60-64 | 2 |
| 55-59 | 3 |
| 50-54 | 4 |
| 45-49 | 3 |
| 40-44 | 10 |
| 35-39 | 32 |
| 30-34 | 18 |
| 25-29 | 8 |

N = 84

M = 40.70

S.D. = 9.61

[1]A low score indicates fewer behavior problems than a high score.

DISTRIBUTION OF RAW SCORES ON THE MMPI Si SCALE[1]

| X | MMPI Si f |
|---|---|
| 50-54 | 2 |
| 45-49 | 1 |
| 40-44 | 7 |
| 35-39 | 10 |
| 30-34 | 11 |
| 25-29 | 23 |
| 20-24 | 35 |
| 15-19 | 30 |
| 10-14 | 14 |
| 5-9 | 1 |
| | N = 134 |
| | M = 24 |
| | S.D. = 9.00 |

[1]A high score indicates a tendency to withdraw from social activities.

DISTRIBUTION OF RAW SCORES ON THE MMPI Re SCALE[1]

| X | MMPI Re f |
|---|---|
| 29-30 | 2 |
| 27-28 | 9 |
| 25-26 | 11 |
| 23-24 | 23 |
| 21-22 | 25 |
| 19-20 | 33 |
| 17-18 | 17 |
| 15-16 | 8 |
| 13-14 | 3 |
| 11-12 | 3 |
| | N = 134 |
| | M = 20.97 |
| | S.D. = 3.63 |

[1]A high score indicates high Social Responsibility as defined by Gough.

# APPENDIX B

## DIRECTIONS FOR THE ADMINISTRATION OF THE HAGGERTY-OLSON-WICKMAN BEHAVIOR RATING SCHEDULE B

Dear

This is part of a study of college students living in the dormitories on campus and how well they are adjusting to their college and dormitory environment. The need is evident for a better understanding of student behavior for counseling purposes. Your cooperation in filling out this inventory will be appreciated. The summary of the study will be available to you as soon as it is compiled. It is desired that each house counselor rate the students named on the accompanying blanks on Division III and IV of the attached Haggerty-Olson-Wickman Behavior Rating Schedule.

DIRECTIONS FOR USING THIS INVENTORY:

1. Please do not consult any other person in making your judgments about the student you are rating.

2. When rating a person on a particular trait, disregard all other traits but that one. Many ratings are rendered valueless because the rater allows himself to be influenced by the general favorable or unfavorable impression that he has formed of that person.

3. In making your rating, disregard the small numbers which appear below the descriptive phrases until after you have picked the phrase that best describes the person you are rating.

4. Read and satisfy yourself that you have picked the description that best fits the trait on which you are rating the particular student. Indicate your rating by writing the number (which you find written below the description on the published form) on the corresponding space provided on the accompanying mimeographed sheet.

5. It is suggested that you make your ratings in pencil so

that you can easily reconsider and make changes if you desire.

6. The masculine pronoun "he" applies to both male and female for your convenience in rating.

STUDENT BEHAVIOR RATING INVENTORY

Name of student_____Dormitory_____

Name of House Counselor
or House Mother_____Date_____

15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____
31. _____
32. _____
33. _____
34. _____
35. _____