A COMPARISON OF PERFORMANCE ON THE DRAW-A-PERSON TEST AND ACADEMIC ACHIEVEMENT

by Lewis R. A. Lingley

Thesis presented to the Faculty of Arts of the University of Ottawa through the Institute of Psychology as partial fulfillment of the requirements for the degree of Master of Arts.

St. Louis, Missouri, 1952

ACKNOWLEDGMENTS

This thesis was prepared under the guidance of the Director of the Institute of Psychology, Reverend Father Raymond H. Shevenell, O.M.I.

Appreciation is also expressed for the kind co-operation of Dean L.C. Wuerffel, Concordia Seminary, St. Louis, Missouri, and of Dr. Ivan N. Mensh, Washington University School of Medicine, who aided in the co-ordination and presentation of the thesis.

CURRICULUM STUDIORUM

Lewis Roy Archibald Lingley
Born June 29, 1911, Truro, Nova Scotia.

Education:

B.A. in Psychology, 1947, Acadia University.

Military Service:

R.C.A.F., 1936 - . Flight Lieutenant, 1949 -

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

The amount of interest being paid by educators and psychologists to the question of achievement in our high schools and universities has been steadily increasing within the past few years. This problem seems to fall naturally into three divisions, i.e., over achievement, normal achievement, and under achievement. In general, students whose academic work closely compares with their level of intelligence (as measured by standard tests) may be said to be normal achievers. Those students whose academic work surpasses the level of achievement ordinarily expected from those of their level of intelligence may be classified as over achievers. Students whose school work falls below the level which might reasonably be expected from them, having in mind their intellectual level, are classified as under achievers.

The fact that individuals differ in ability and output was recognized some twenty-three hundred years ago. Plato described this situation in Book II of the Republic, as follows (Socrates leading the dialogue):

> "Really, it is not improbable; for I recollect, myself, after your answer, that, in the first place, no two persons are born exactly alike, but each differs from each in natural endowments, one being suited for one occupation and another for another. Do you not think so?"
>
> "I do."
>
> "...From these considerations, it follows that all things will be produced in superior quantity and quality, and with greater ease, when each man works at a single occupation in accordance with his natural gifts..."[1]

Plato proposed the giving of "actions to perform" in order to "choose out" those best suited for a military career, and from that very ancient concept, a wide variety of tests has come to be used to "choose out" those best suited for the proposed career field, e.g., Civil Service examinations.

Research in the Armed Services is constantly being carried out in order to select and refine such tests, especially those which are of value in reducing personnel wastage to the minimum. In the wider area, the time may come when the necessity of utilizing the intellectual resources of the nation to the fullest extent will be more adequately recognized than is now the case. Waste of intellectual manpower should be considered to be at least as

---

1 Clark L. Hull, Aptitude Testing, Yonkers-on-Hudson, World Book Co., 1928, xiv-535 p.

serious a matter as is the waste of any other national resource.

In this regard, Wolfle[2] recently stated that only a third of the high-school graduates enter college, and that of this third, only half of them graduate. While most of these drop-outs are in the lower-ability brackets, a significant number of them are brilliant students. When it is further borne in mind that of the half who do graduate, many have produced at a level far below their potential, this problem can be seen to be a serious one.

The present experimental investigation was designed to study relationships between academic success and performance on a projective test of performance, the Draw-a-Person test[3]. This, in turn, was designed from an exploratory study which involved a comprehensive psychological evaluation of a sample of university students. The data from the earlier study suggested that various levels of academic achievement could be differentiated on the basis of a specific part of the test battery, i.e., the Draw-a-Person test. Because this test method is relatively new, being one of the projective techniques, and because of the significance of the problem of

---

2 Dael Wolfle, "Intellectual Resources", in the Scientific American, Vol. 185, No. 3, issue of September 1951, p. 42-46.

3 Karen Machover, Personality Projection in the Drawing of the Human Figure, Springfield, Ill., Thomas, 1949, ix-181 p.

academic success, an intensive analysis of the academic and projective test data was made.

In the first chapter, a survey of the literature covering the area of over and under achievement is given. Chapter II describes the sample of students, the method of gathering data, criteria for evaluation, and variables under study. The method of scoring and evaluating the drawings is discussed in the third chapter. Chapter IV deals with the presentation and discussion of the data, which are analyzed statistically to demonstrate relationships between performance on the projective test and level of academic achievement. Relevance of the findings to earlier studies is also dealt with in this chapter.

Finally, a summary is presented, implications for further research are suggested, and conclusions.

CHAPTER ONE

A SURVEY OF THE LITERATURE

One method of dealing with the serious problem of under achievement in the academic setting would be to have a test or tests which could identify the under achievers at an early stage. Remedial counselling could then be directed towards them at the most effective time. That intelligence tests, in themselves, are not suitable for this purpose has long been known. Other personality characteristics have considerable significance in the problem of achievement, as was noted by Stone in 1922:

> Even were intelligence and potential scholarship to correlate perfectly, there would always be cases of disparity between intelligence and scholarship grades: for the idlers, the men with excessive extra-curricular burdens, and the men with unhealthy bodies or unhealthy philosophies of life skew the correlation on one hand; and the men with unusual pertinacity or disproportionate absorption in scholarly performance upset calculations on the other hand. Any statement regarding the validity of a test as a predictive measure is premature, or speculative, until the disparity has been measured and some of the factors related to the disparity ascertained[1].

---

1 Charles L. Stone, "Disparity between Intelligence and Scholarship", in the Journal of Educational Psychology, Vol. 13, 1922, p. 241-244.

The measuring of this disparity, and the ascertaining of some of the factors related thereto, have been the concern of several investigators since that time. Some fifteen years after Stone's work, Darley found little progress in the field of statistical evaluation of the discrepancies between intelligence and scholarship. He stated:

> In the clinical practice of student personnel work, some undetermined part of student mortality is attributed to extra-educational maladjustments that prevent students from using their unit abilities satisfactorily. While individual cases may be found wherein health, financial, social or emotional problems are judged to be directly responsible for academic deficiencies, little statistical evidence is available to demonstrate this relationship satisfactorily[2].

An evaluation of the little statistical evidence that was available was made by Harris[3] in 1940 in a review of the literature covering the period from 1930 to 1937. In one study, involving 1800 students, "discrepant failures", high on intelligence but low on examinations, were compared with "discrepant distinguished" students, low on intelligence but high on examinations. The former were found to be more

---

2 John G. Darley, "Scholastic Achievement and Measured Maladjustment", in the Journal of Applied Psychology, Vol. 21, 1937, p. 485-493.

3 D. Harris, "Factors Affecting College Grades: A review of the literature, 1930-1937", in the Psychological Bulletin, Vol. 37, 1940, p. 125-166.

frequently handicapped by mental disabilities of the "anxiety type"[4]. In another study mentioned by Harris, he quotes Neel and Mathews, who showed that "non-achievers" more often experienced conflicts about religion and life in general than did the achievers[5].

In summarizing, Harris gave as his personal opinion, "unsupported by anything resembling a regression equation and based merely on my own findings, total immersion in the results and opinions of other investigators, and some cogitation" the essential factors in student achievement. In the order of their importance:

1. Ability (or intelligence, or scholastic attitude, etc.)
2. Effort (or drive or degree of motivation, etc.)
3. Circumstances (personal, social, economic, academic, etc.)

That motivation is the most important non-intellectual factor, followed by other personal, social, and economic characteristics, is also the concensus of opinion of investigators since Harris' study. In their study of the problem of

---

4 White, H.D.J., "An Application of Mental Tests to University Students", in the British Journal of Educational Psychology, Vol. 1, 1931, p. 279-295, and Vol 2, 1932, p. 53-70, quoted by D. Harris, Op. cit. p. 131.

5 M.O. Neel and C.O. Mathews, "Needs of Superior Students", in the Journal of Higher Education, Vol. 6, 1935, p. 29-34, quoted by D. Harris, Op. cit. p. 131.

student adjustment as related to over and under achievement, Owens and Johnson[6] reported that it was possible to isolate certain measurable personality traits peculiar to the under achievers in their study. They found "social extroversion" to be conspicuous among the traits which they isolated in the under achieving group.

In line with this finding, Gough stated that a "tendency to see others in a favorable light has been found predictive of under achievement by various investigators"[7]. Eckert's work in this field provided some further confirmation of the study made by Owens and Johnson in that she found "a slight achievement trend in favor of introverts and also a tendency for the better students to hold more liberal social attitudes"[8]. She felt that the differences were sufficiently marked to warrant the inference that the superior student has a different outlook on life from the inferior student.

---

6 William A. Owens and Wilma C. Johnson, "Some Measured Personality Traits of Collegiate Underachievers", in the Journal of Educational Psychology, Vol. 40, No. 2, 1949, p. 41-46.

7 Harrison G. Gough, "Factors Relating to the Academic Achievement of High-School Students", in the Journal of Educational Psychology, Vol. 40, No. 2, 1949, p. 65-78.

8 Ruth E. Eckert, "Analyzing the Superior College Student", in School and Society, Vol. 41, 1935, p. 69-72.

In a roughly parallel investigation of over achievement conducted by Heston[9] it was found that over achievers were characterized by social introversion, lack of confidence, good family adjustment, and emotional instability. Griffiths[10], using the Bell Adjustment Inventory, found that adjustment scores of men with brilliant academic records were not significantly different from those of men on probation. Men with unsatisfactory Bell scores were found to have grade averages insignificantly different from those with good adjustment. One of the most recent studies in this direction is that of Kahn and Singer. They concluded that on a group basis:

> Individual and group intellectual measures differentiate between the superior and inferior groups adequately. However, the overlap of intellectual level precluded the possibility of individual prediction, and only measures of personality adjustment, qualitatively treated, could account for the fact that students of high intelligence fail consistently and that students relatively low in intelligence achieve high academic success[11].

---

9 J.C. Heston, Unpublished Ph.D. thesis, in the library of DePauw University, quoted by Owens & Johnson, Op. cit. p. 43.

10 G.R. Griffiths, "The Relationship between Scholastic Achievement and Personality Adjustment of Men College Students", in the Journal of Applied Psychology, Vol. 29, 1945, p. 360-367.

11 Harris Kahn and Erwin Singer, "An Investigation of Some of the Factors Related to Success or Failure of School of Commerce Students", in the Journal of Educational Psychology, Vol. 40, No. 2, 1949, p. 107-117.

Their observation that only measures of personality adjustment qualitatively treated could account for the discrepancy between those high on intelligence and low on examinations, and vice versa, is of importance when viewed in connection with the present study. Kahn and Singer could find no readily apparent reason for some of the differences observed, and suggested that further study be undertaken to determine the nature of the relationships between academic success and certain personality characteristics, as well as to determine whether similar differences might be found in other college groups.

CHAPTER TWO

CHOICE OF SUBJECTS AND TEST BATTERY

With a view to determining experimentally the relationships between academic success and certain personality measurements, the author selected 110 subjects from a group of nearly two hundred freshmen students. These students were being evaluated as regards anxiety and adjustment, as part of a United States Air Force research project. The names of these students were first arranged in alphabetical order, and every other name was then selected. To complete the quota required, every tenth student was selected from the remainder. The students taking part were motivated by the fact that this was part of a defense research project and by the fact that they were paid for their time. All subjects were examined on three different occasions, once by the author who administered the test battery, and once by each of two psychiatrists.

The psychological test series consisted of a battery of eight tests, one of which (no. 8) was filled out by each subject prior to his first appointment. The battery consisted

of the following:

1. Rorschach Test
2. Digit Span (Sub-test no. 3 of the Wechsler-Bellevue Intelligence Scale)
3. Grey Walter Test of Imagery
4. Draw-a-Person Test (A projective technique for investigating personality dynamics)
5. Reaction Time (A measure of speed of reaction time when the subject is required to switch off one of two lights)
6. Rosenzweig P-F Study (Revised Form for Adults)
7. Mirror Drawing (A test of visual-motor performance in a new and unfamiliar learning situation)
8. Taylor Scale (Items selected from the Minnesota Multiphasic Personality Inventory, especially those dealing with manifest anxiety symptoms)

In addition, a Test Behavior Observation Guide describing motivation, co-operation, and personal mannerisms was filled out for each subject, along with a rating of anxiety level (i.e., absent, minimum, moderate, or maximum) during the three hours of psychological testing.

Of the eight psychological tests administered, the Rorschach and the Taylor Scale were selected as the bases for the psychologist's ratings of anxiety because of their more unequivocal value in assessing the personality factors under investigation. Observation of behavior during testing was a third variable entering the final anxiety score.

In evaluating the amount of anxiety portrayed by Rorschach responses, each record was scored with relation to a check list of anxiety signs, which was then rated on a scale of from 1 to 6. The Taylor Scale (on which normative material was available) was the second test used to make an

anxiety rating of from 1 to 8. The final evaluation turned in by the psychologist was the sum of the Rorschach and Taylor ratings, together with the rating of anxiety during testing, which was then converted to an 8-point scale.

The adjustment rating was made on the basis of a second evaluation of the Rorschach test by means of the Munroe inspection technique[1] and by means of ratings given on the Draw-a-Person test and the Rosenzweig Picture-Frustration Study. The Munroe method for analysis provided a system of weights ranging from 1 to 3 points, so that each factor could be marked as absent or present in varying degree. On the basis of the patterning of factors, as well as the actual numerical score (total number of points), the adjustment rating was derived.

The Draw-a-Person test was rated on a three-point scale. The drawings of the 110 students were arranged into three groups, i.e., a normal group, a borderline group, and a maladjusted group, as indicated by their drawings. The instructions given to the psychologist in this connection were:

> Using your best clinical judgment, arrange the drawings into three groups, in order to rate the adjustment of the students as indicated by their drawings. Normal drawings are to be classified as 0-type, drawings which might indicate maladjustment are to be classified as 2-type, and borderline drawings are to be classified as 1-type.

---

1 Ruth Munroe, "The Inspection Technique: A Method of Rapid Evaluation of the Rorschach protocol", in the Rorschach Research Exchange, Vol. 8, 1944, p. 46-70.

The scores obtained on the three measures listed were then totalled, and were translated to an eight-point scale. This latter was the final (mal)adjustment rating.

After the scoring of the test results was completed, the students were then divided into three groups, i.e., over achievers, normals, and under achievers. This division was effected by taking the results obtained by the students on the American Council on Education Psychological Examination, 1948 Edition, and arranging them in rank order from one to 110. The results of the first semester examinations were then obtained and were similarly arranged in rank order from one to 110. Attention is drawn to the fact that all students taking part in this investigation took the same subjects during the semester. Their standing on these subjects was determined on a quality point basis, this being a ratio of their total number of quality points to their total number of credits[2].

The rank orders obtained on the examinations were then subtracted from the A.C.E. results. For example, the student in first place on the A.C.E. rating was in eighty-fifth place as regards class standing. This student was accordingly classified as an under achiever. The highest

---

2 Concordia Theological Seminary Bulletin, 1951-52, St. Louis, Missouri, p. 27.

over achieving student was in eighty-ninth place on the A.C.E. rating and in twenty-second place in class standing. This student was thus given an over achievement rating of sixty-seven. In a similar manner, differences were obtained for all of the 110 students. Such differences were found to be as high as sixty-seven for over achieving students, and as low as ninety-seven for under achieving students.

Thirty-five per cent of the student group, ranging from a score of +15 to +67 were designated as over achievers. The mean over achieving score for this group was 33.3. Thirty-five per cent of the student group, ranging from a score of -10 to -97 were designated as under achievers. The mean under achieving score for this group was -35.6. The remaining thirty per cent of the student group, ranging from a score of +14 to -9, with a mean of +5, were classified as normal achievers. This distribution placed forty students in the over achieving group, thirty in the normal group, and forty in the under achieving group. It can be seen from the mean scores that there is approximately the same amount of over as under achievement.

The results of the psychological test battery were then carefully scrutinized and it was found that one test, and only one test, significantly differentiated between the over and under achievers. This test was the Draw-a-Person test, responses to which were obtained through the following

instructions:

> This test is a drawing test; however, I am not interested in your drawing ability. You have five minutes for this part of the test and the instructions are--Draw a Person. Begin.

When the first drawing was completed, or the five minutes had expired, the student was given a second sheet of paper and was told, "Now I would like you to draw a person of the sex opposite to the one you just completed. Begin." Upon completion of the drawing, or expiration of the five minutes, it was required to be given to the examiner. The only question which occurred with any frequency was, "Should I draw the whole person?" This question was replied to by saying, "It is all up to you," or a similar non-directive reply. After all of the students had completed the test battery, the drawings were evaluated as will be described in the next chapter.

Upon completion of the scoring, an inspection of the distribution of scores suggested that the test appeared to differentiate between over and under achievers. It was hypothesized that the scored drawings of over and under achieving students were a measure of social introversion and social extroversion, respectively.

As a cross-validation study of the data obtained with the 110 students, a second sample of fifty students was evaluated by the same criteria. The one difference in the experimental procedure between the two groups was in the group

administration of the Draw-a-Person test to the second sample.

CHAPTER THREE

PROCEDURE FOR EVALUATING THE DRAWINGS

In order to sort the drawings most closely in accordance with the instructions, all were arranged on a table and were carefully examined. It was found impossible to make an adequate initial sort of the drawings into three categories, as this number was too few for the purpose. The drawings were therefore given a preliminary sort into five rather loose categories. Some of the drawings were extremely well done, showed care on the part of the person who drew them, and gave no indication of any maladjustment. At the other end of the scale were those drawings which were hastily done, showed little or no care, and indicated that the person doing them was either unwilling or unable to handle the task. Drawings which seemed to indicate little or no maladjustment were tentatively scored 1, and those indicating maladjustment were tentatively scored 5. Several 1-type drawings were easily selected, as were several of the 5-type drawings. (See Appendix 1). The 1-type drawings were distinguished by having all of the following characteristics:

1. the whole person
2. some evidence of artistic ability, even if minimal
3. good proportion
4. a neat drawing
5. an adequate five-minute interpretation and comprehension of the total person, with no preoccupation with shading of any one detail

A sketch or etching of the person, with or without facial features, was accepted as a 1-type drawing, if it showed some artistic ability, and indicated that the subject was more accustomed to drawing people in that way.

At the other end, some of the poorest, or 5-type drawings were examined, and were found to have two or more of the following characteristics:

1. lacking in good proportion
2. marked timidity of approach, i.e., extremely faint lines
3. inattention to detail, a poor effort, obviously not at home with the drawing of persons
4. marked difficulty identifying with the person drawn, i.e., may be a convict, "zoot-suiter", or bizarre cartoon-type drawing; may show some artistic ability yet the drawing seems to express contempt or cynicism
5. may be a part-type drawing, usually with an austere, blank, or forbidding face
6. an inadequate five-minute comprehension of the total person, i.e., subject unwilling or unable to cope with the problem in the time allotted

With these two groups (1- and 5-type) thus tentatively established, it was then found that there were a few clear-cut borderline-type drawings which did not fit either of the 1- or 5-type categories. (See Appendix 1). These drawings were distinguished by the following characteristics:

1. may be the whole person, ordinarily classifiable as a 1-type drawing, but some part, such as an arm or leg missing
2. more difficult to identify with than 1-type drawing
3. may be a part-type drawing, i.e., head, or head and shoulders
4. type of person drawn has a more pleasant expression than the forbidding or austere type found in some of the 5-type drawings

This initial tentative classification clearly accounted for eight of the 1-type drawings, six of the 3-type drawings, and eleven of the 5-type drawings.

The remaining eighty-five drawings then were studied with reference to the above categories and were placed either between the 1-type and 3-type drawings, or between the 3-type and 5-type drawings. Drawings with only one hand missing, but otherwise classifiable as a 1-type drawing, were marked 2 → 1. If, however, they seemed more nearly to approach the border-line type of drawing, they were scored as 2 → 3. In a similar manner, the drawings placed between the 3-type and 5-type drawings were scored either as 4 → 3, or 4 → 5. This procedure gave seven groups of drawings, viz.,

1. 1-type
2. 2 → 1 type
3. 2 → 3 type
4. 3-type
5. 4 → 3 type
6. 4 → 5 type
7. 5-type

All of the drawings were then marked as belonging to one or the other of the seven categories listed. This scoring was considered accurate, in accordance with the instructions given. The drawings were later examined by two graduate students in psychology and no significant disagreement with the scoring was expressed. In this regard, attention is drawn

to the study of Albee and Hamlin[1], who found that clinically unsophisticated students in an abnormal psychology class gave judgments "which did not differ significantly from the judgments of the clinicians". The mean judgments of twenty-eight students in their study showed a correlation of .90 with the clinician's judgments. They concluded that psychologists could agree consistently with each other in inferring adjustment from drawings, and that the judgments so obtained possessed a reasonable degree of validity.

The problem of reducing the seven categories to the three groups required was met by scoring all drawings in the first two categories as 0-type, all drawings in the next three categories as 1-type, and all drawings in the last two categories as 2-type. A final evaluation of the 110 drawings indicated that they clearly fell into the three groups, and were differentiated as noted. These scoring criteria were then applied to the cross-validation sample.

---

1 George W. Albee and Roy M. Hamlin, "Judgment of Adjustment from Drawings: The Applicability of Rating Scale Methods", in the Journal of Clinical Psychology, Vol. 6, No. 4, issue of October 1950, p. 363-365.

CHAPTER FOUR

EXPERIMENTAL DATA AND THEIR ANALYSIS

The characteristics of the experimental and cross-validation groups are as shown in Table I. It will be seen that the two groups are closely comparable as regards age, A.C.E. scores, and quality point ratings on the first semester examinations. In view of this comparability, the following chapter will deal more specifically with this first group. Results of the Draw-a-Person test scores of the first group, examined in the light of over and under achievement, are as shown in Table II. These results were examined by the chi-square technique and were found to be significant at the .01 level of confidence. Table III gives the comparison of Draw-a-Person test results and over and under achievement groupings for the cross-validation sample.

Careful consideration of the results, evaluated with reference to the previous literature dealing with this topic, seemed to indicate that the over achievers have a less mature comprehension of social relations and are not as socially extroverted as are the under achievers. This latter group, having a greater social fluency, which may be indicated by their O-type drawings, would seem to associate more with people, and less with their books. This idea is supported by

TABLE I.-

Characteristics of Experimental and Cross-Validation Samples

	Experimental Group		Cross-Validation Group	
	Mean	Sigma	Mean	Sigma
Age	20.9	1.2	20.7	1.06
Intelligence (A.C.E.)	131.6	22.58	132.8	21.18
Quality Point Rating	1.93	.36	1.95	.43

TABLE II.-

Comparison of Draw-a-Person test results with level of achievement (experimental group, 110 students)

	0-type	1-type	2-type
40 Over Achievers	6	20	14
30 Normal Achievers	8	15	7
40 Under Achievers	17	18	5
Totals	31	53	26

TABLE III.-

Comparison of Draw-a-Person test results with level of achievement (cross-validation group, 50 students)

	0-type	1-type	2-type
18 Over Achievers	4	4	10
14 Normal Achievers	6	4	4
18 Under Achievers	7	10	1
Totals	17	18	15

Owens and Johnson[1], and their conclusions are here restated:

1. it was possible to isolate certain measurable personality traits peculiar to the under achievers in their study
2. conspicuous among the traits which were isolated in the under achieving group was social extroversion

The group studied by these two psychologists consisted of 164 male freshmen in Engineering at Iowa State College, who were ranked by means of the A.C.E. Psychological Examination and the results of the Fall Quarter examinations. The hypothesis suggested by them was that under achievers "were too socially oriented, and probably too socially active to spend large amounts of time in the solitary study essential to achievement on the college level". The good adjustment of their group in other areas constituted evidence congruent with this point of view.

In the present study, it was not found, on the basis of the psychological examinations, or by the psychiatric evaluation of the students, that over achievers and under achievers could be distinguished by any other than the Draw-a-Person test. The mean adjustment rating of the over achievers, as a group, was found in the present study to be exactly the same as for the under achieving group, as psychiatrically determined. With earlier studies, as with the present, maladjustment, per se, was not found to relate

---

1 William A. Owens and Wilma C. Johnson, Op. cit., p. 43.

significantly to over and under achievement. It was considered, therefore, that a 2-type drawing may be a reflection of a self which is uneasy when it comes to relating well with people. This is due, it is considered, to the fact that the person may not yet have achieved that maturity which enables fluent interpersonal relations. In this regard, it is stated by Machover that:

> The activity elicited in response to "draw a person" is indeed a creative experience, as will be testified by the individual who is drawing. Wide and concentrated experience with drawings of the human figure indicates an intimate tie-up between the figure drawn and the personality of the individual who is doing the drawing.
>
> (...) Successful drawing interpretation has proceeded on the hypothesis that the figure drawn is related to the individual who is drawing with the same intimacy characterizing that individual's gait, his handwriting, or any other of his expressive movements[2].

If the individual is not "at home" with the task of drawing people, this may be a reflection of a lack of that social maturity which enables fluent interpersonal relations. As no other factors could be found in either the psychological tests or the psychiatric ratings to account for the difference between the over and under achievers, the hypothesis of Owens and Johnson was considered acceptable, and was enlarged upon

---

2 Karen Machover, Op. cit., p. 5.

by the present author, as follows:

> Under achievers are too socially oriented, and probably too socially active, to spend large amounts of time in the solitary study essential to achievement at the college level. This social extroversion may be expressed in their drawings, and, conversely, the social introversion of the over achievers may also be expressed in their drawings.

As a check upon this hypothesis, the results of the psychiatric evaluation of the first group were again examined. Of thirty-four students rated by a psychiatrist on introversive tendencies, 13 were found to have 0-type drawings, and 11 were found to have 2-type drawings. There would thus seem to be little psychiatric support for the hypothesis that the drawings might be a reflection of either introversion or extroversion in the social sphere.

In order to determine whether the drawings showed any correlation with maladjustment ratings as determined by both psychiatrists, the drawings of fifty-one students who were classified by both psychiatrists as being well-adjusted were examined. The results of this examination showed that of the fifty-one students, 0-type drawings were produced by 16, 1-type drawings were produced by 20, and 2-type drawings were done by 15 of them. The possibility of measuring student adjustment by means of drawings is thus seriously in doubt. The mean adjustment rating on an 8-point scale of the thirty-one students with 0-type drawings, as psychiatrically determined, was 2.8, and for the twenty-six students with

2-type drawings, as psychiatrically determined, was 2.77. As the drawings thus seemed to have no relation to adjustment, a further study of the drawings in the light of intellectual level, as measured by the A.C.E. Psychological Examination, was suggested. The results of this examination are as shown in Table IV. These results clearly indicate that the drawings reflect the intellectual level of the students to a significant degree. The further evaluation of figure drawing as a means of measuring adult intelligence is therefore suggested.

Within the group of thirty-six highest scoring students (A.C.E.) there were 21 under achievers. As many of them did 0-type drawings, the presence of such a large number of 0-type drawings in the under achieving group may thus partly be explained. In a similar manner, it is felt that the 2-type drawings of the lowest third of the class may thus be accounted for in the over achieving group. In this lowest third of the class, there were 23 over achieving students, 11 of whom had 2-type drawings.

A study of the relationship between the A.C.E. and Quality Point rankings of the students was made and a correlation of .43 was obtained, significant at the .01 level. While lack of motivation played a part in the under achievement of many of the students (of the 40 under achievers, 11 lacked the highest motivation as determined from their self-ratings), a large part of the variation between the obtained

TABLE IV.-

Comparison of Draw-a-Person test results with intellectual level (as measured by A.C.E. Psychological Examination)

	0-type	1-type	2-type
36 Highest Scoring	15	15	6
38 Medium Scoring	11	22	5
36 Lowest Scoring	5	16	15
Totals	31	53	26

.43 correlation and a greater degree of correlation is as yet unaccounted for. Interestingly, of the 20 students who lacked the highest motivation, not one did a 2-type drawing, an inverse relationship not consistent with a priori hypothesis.

To determine further whether or not a relationship existed between social introversion/extroversion and drawing type, a sociometric study of the 110 students was carried out. In this study, each of the students taking part in the experimental investigation was given a list containing the names of the 110 students, and was asked to rate them on a 4-point basis of social introversion/extroversion. The results of this study showed that of the thirty-nine most extroverted students, 14 did 0-type drawings, while 10 did 2-type drawings. Of the forty least extroverted students, 11 did 0-type drawings, while 8 did 2-type. The results of this sociometric study would thus lend support to the lack of correlation found between drawing type and introversion/extroversion, as psychiatrically determined. In addition, the most extroverted students did just as well scholastically as did the least extroverted.

A final note of interest is provided by the fact that of the 110 students taking part in this study, only ten drew just the head of a person in response to the test instructions. Of this ten, 1 student was in the top third of the class (A.C.E. rating), 3 were in the mid-group, and the remaining 6

were in the bottom third of the class. Five of this group were classified as over achievers, two as normal achievers, and three as under achievers. The drawing of only the head in response to "Draw a Person" thus seems a function of lesser intelligence.

CONCLUSIONS AND SUGGESTIONS

The present study consisted of a sample of 110 students who were taking part in a United States Air Force Research Project designed to measure anxiety proneness and level of adjustment. A psychological test battery and the evaluation of two psychiatrists from the Washington University School of Medicine, Department of Neuropsychiatry, were used for this purpose. A study of the results, with particular reference to the Draw-a-Person test, was made. This test was scored on a three-point basis, in accordance with instructions to differentiate the students into three groups on the basis of adjustment. Drawings of students which suggested normal adjustment were scored as 0-type, drawings indicative of borderline adjustment were scored as 1-type, and those drawings which indicated maladjustment were scored as 2-type. As a result of the work done in connection with this project, it is considered, for the particular sample of students selected, in the light of the technique employed, and on the basis of the results presented, that the following conclusions may be

drawn:

1. in a group of students given a 5-minute Draw-a-Person test, scored as was done in this study, a significantly greater number of over achievers will produce 2-type drawings, while the under achieving students will tend to produce a significantly greater number of 0-type drawings;

2. the over and under achievement apparently measured by the Draw-a-Person test is an artifact of the intelligence level of the students;

3. the Draw-a-Person test, originally introduced in the present study as a measure of personality adjustment, was found to be not a measure of adjustment, but rather one of intelligence;

4. no significant correlation exists between adjustment ratings obtained by the Draw-a-Person test and psychiatric ratings of adjustment, or between drawing type and social introversion/extroversion as sociometrically determined by the experimental group;

5. no significant correlation exists between 2-type drawings and social introversion, as psychiatrically determined;

6. students regarded by their classmates as socially extroverted do as well scholastically as those students regarded as socially introverted.

In summary, it would appear that a complex of variables still remains which relate to the problem of student achievement. The present study identified as significant the factors of intelligence and motivation, and as not significant because of their variability the factors of social introversion/extroversion and maladjustment as defined by psychiatric, psychologic and peer ratings.

BIBLIOGRAPHY

Albee, George W. and Roy M. Hamlin, "Judgment of Adjustment from Drawings: The Applicability of Rating Scale Methods", in the Journal of Clinical Psychology, Vol. 6, No. 4, issue of October 1950, p. 363-365.

A brief report showing the high degree of consistency among judges measuring adjustment by means of the Draw-a-Person test. Lacks any reference to the intellectual level of the subjects whose drawings were judged.

Darley, John G., "Scholastic Achievement and Measured Maladjustment", in the Journal of Applied Psychology, Vol. 21, 1937, p. 485-493.

A summary of the author's Ph.D. thesis dealing with the subject, as titled. A scholarly work, from which Darley concludes that apart from maladjustment, failing work may result from a choice of curriculum not consonant with the abilities or interests of the individual student.

Griffiths, G.R., "The Relationship between Scholastic Achievement and Personality Adjustment of Men College Students", in the Journal of Applied Psychology, Vol. 29, 1945, p. 360-367.

A further addition to the literature dealing with the topic of student adjustment and achievement. The author undertakes to determine whether or not there is a significant relationship between personality adjustment and academic achievement on the basis of results obtained from the Bell Adjustment Inventory.

Harris, D., "Factors Affecting College Grades: A review of the literature, 1930-1937", in the Psychological Bulletin, Vol. 37, 1940, p. 125-166.

Comprehensive review of the experimental literature in this field covering the period stated. Bibliography of 328 references.

Kahn, Harris, and Erwin Singer, "An Investigation of Some of the Factors Related to Success or Failure of School of Commerce Students", in the Journal of Educational Psychology, Vol. 40, No. 2, 1949, p. 107-117.

A scholarly attempt to further the progress being made in this field. The authors were not able to account for the differences between intelligence and scholarship which they observed.

Machover, Karen, Personality Projection in the Drawing of the Human Figure, Springfield, Illinois, Thomas, 1949, ix-181 p.

The principal reference in connection with the Draw-a-Person test. Much speculation and theory, with little validation.

Munroe, Ruth, "The Inspection Technique: A Method of Rapid Evaluation of the Rorschach protocol", in the Rorschach Research Exchange, Vol. 8, 1944, p. 46-70.

The author gives a method of objectively evaluating a Rorschach protocol to determine level of adjustment. Of value, but care should be taken if the method is employed with a population unlike that used by the author.

Owens, William A. and Wilma C. Johnson, "Some Measured Personality Traits of Collegiate Underachievers", in the Journal of Educational Psychology, Vol. 40, No. 2, 1949, p. 41-46.

The authors attempt to identify from responses to standardized personality inventories some characteristics and modes of adjustment of collegiate under achievers. Of value only insofar as such tests are a valid measure.

Stone, Charles L., "Disparity between Intelligence and Scholarship", in the Journal of Educational Psychology, Vol. 13, 1922, p. 241-244.

One of the earliest reported studies attempting to account for the difference between intelligence and scholastic achievement. The author suggests the type of tests which might be used for this purpose.

Wolfle, Dael, "Intellectual Resources", in the Scientific American, Vol. 185, No. 3, issue of September 1951, p. 42-46.

Informative article emphasizing the necessity of more effective utilization of national intellectual resources.

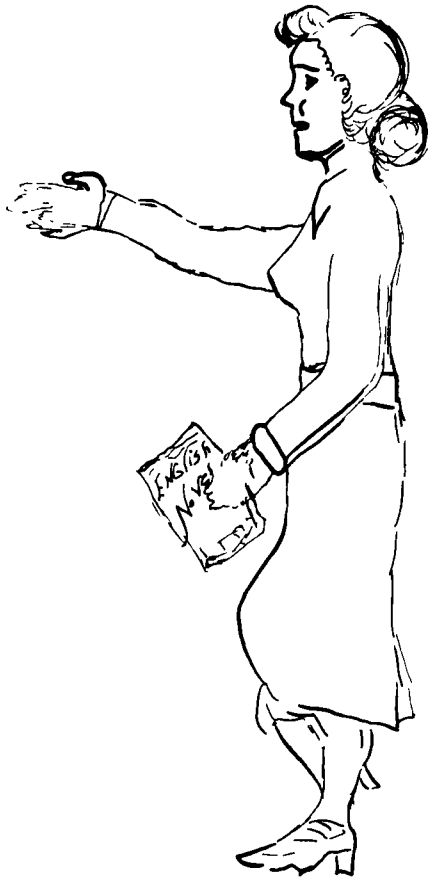
APPENDIX 1

SAMPLES OF THE THREE TYPES OF STUDENT DRAWINGS

0-TYPE

DRAWING 1
STUDENT 5
TIME 4 MINS
(HALF SIZE)

0-TYPE



DRAWING 2
STUDENT 5
TIME 4 MINS
(HALF SIZE)

0-TYPE

DRAWING 1
STUDENT 86
TIME 5 MINS
(FULL SIZE)

0-TYPE

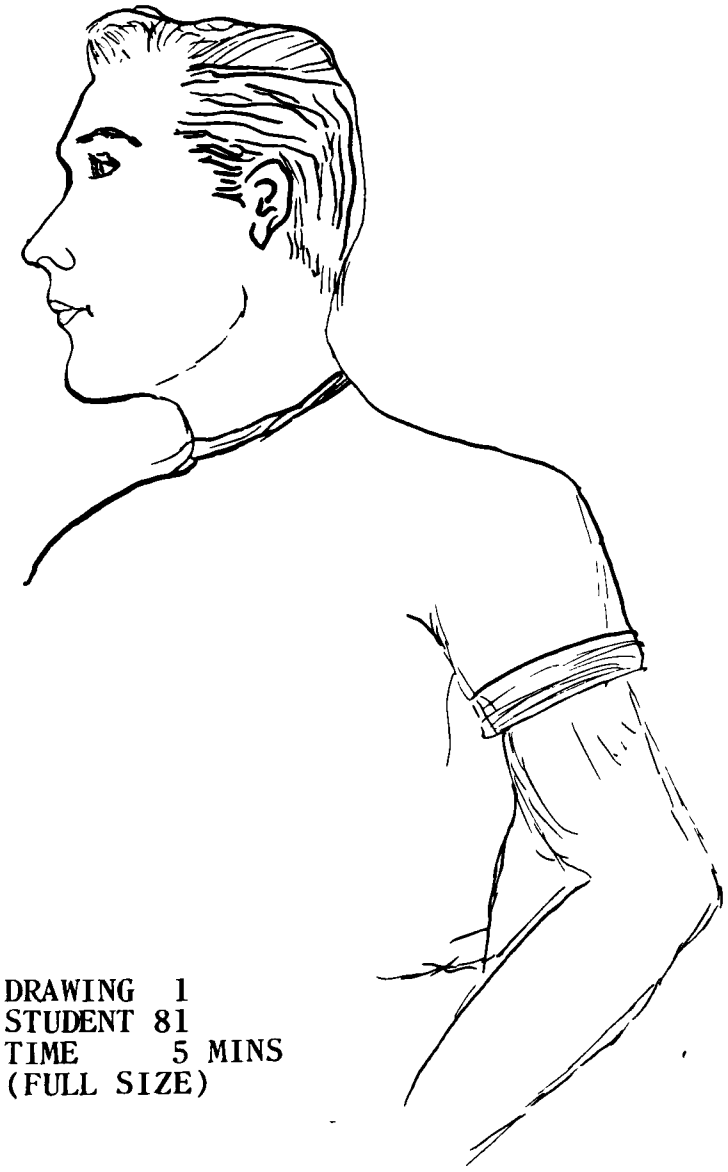
DRAWING 2
STUDENT 86
TIME 5 MINS
(FULL SIZE)

APPENDIX 1

1-TYPE
DRAWING 1
STUDENT 39
TIME 5 MINS
(HALF SIZE)

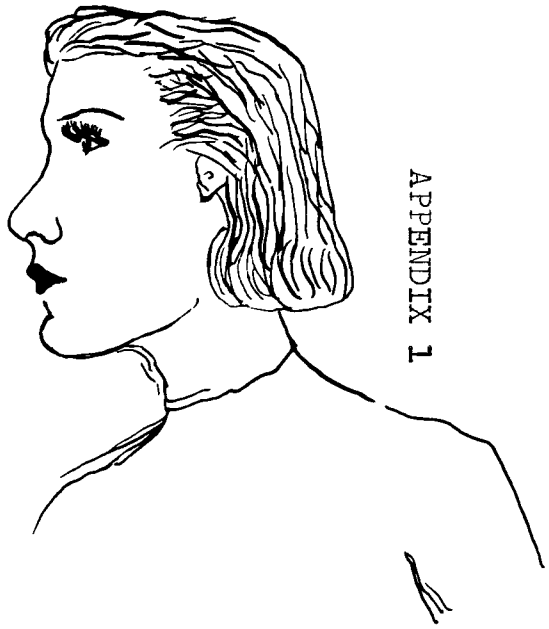
1-TYPE
DRAWING 2
STUDENT 39
TIME 5 MINS
(HALF SIZE)

1-TYPE



DRAWING 1
STUDENT 81
TIME 5 MINS
(FULL SIZE)

1-TYPE



DRAWING 2
STUDENT 81
TIME 5 MINS
(FULL SIZE)

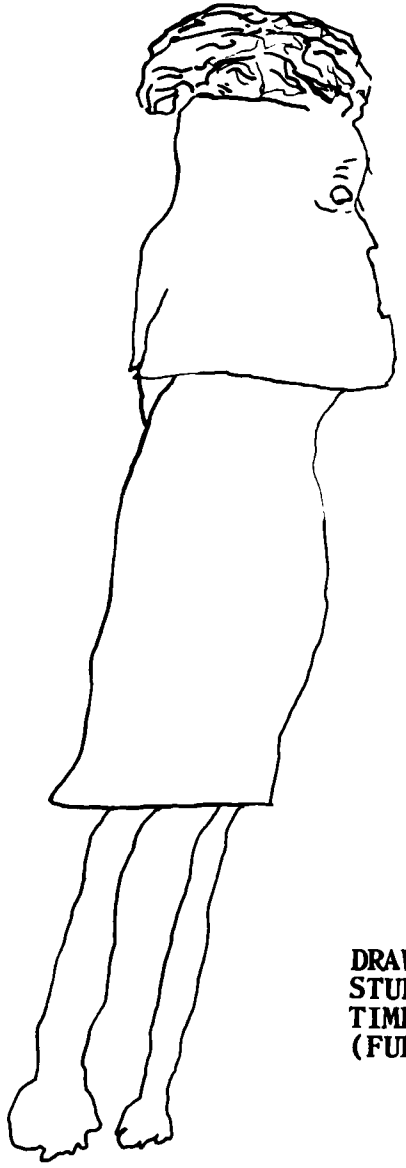
2-TYPE

DRAWING 1
STUDENT 6
TIME 2 MINS
(FULL SIZE)

2-TYPE

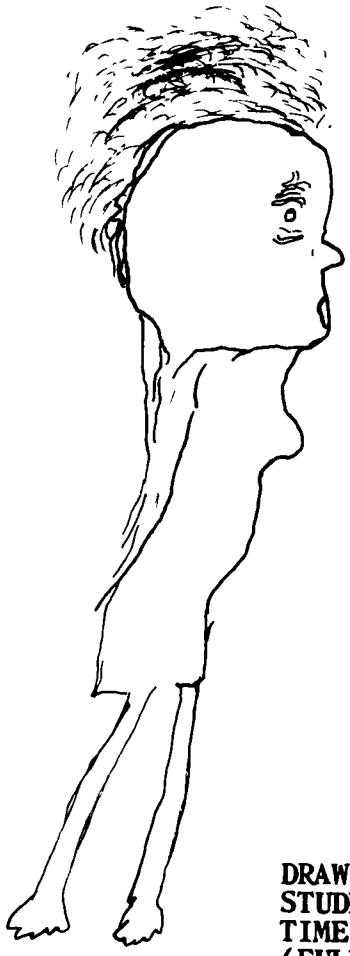
DRAWING 2
STUDENT 6
TIME 3 MINS
(FULL SIZE)

2-TYPE



DRAWING 1
STUDENT 60
TIME 5 MINS
(FULL SIZE)

2-TYPE



DRAWING 2
STUDENT 60
TIME 5 MINS
(FULL SIZE)

APPENDIX 2

ABSTRACT OF

A Comparison of Performance on the Draw-a-Person Test and Academic Achievement[1].

As one member of a team of six taking part in a United States Air Force research project, the author was able to make an experimental investigation of the problem of over and under achievement, i.e., relationship of intellectual ability to academic performance, as it affected 110 first-year university students. A battery of eight psychological tests was given, and a one-hour interview by each of two psychiatrists.

The students were rated as over achievers, normal achievers, and under achievers by comparing their rank orders on the A.C.E. Psychological Examination with the results of their first semester examinations. These results were then compared with the psychiatric appraisal of each student and with the various elements of the test battery. Significant correlations were found only with the adjustment ratings derived from the Draw-a-Person test. This test was scored on a three-level basis, i.e, normal adjustment, borderline adjustment, and maladjustment. An intensive examination of the results of this test, however, indicated that it was not

---

1 M.A. Thesis presented by Lewis R.A. Lingley, in 1952, to the Faculty of Arts of the University of Ottawa, 41 pages.

related to adjustment in any observable way, but, instead, significantly discriminated between students of various levels of intelligence. The mean adjustment rating on an 8-point scale of 31 students who were considered to be normally adjusted, as judged from their drawings, was 2.8. This mean rating was not significantly different from that of the 26 students whose drawings indicated maladjustment, and whose mean psychiatrically determined adjustment rating was 2.77. Drawings indicating normal adjustment were done in a ratio of 3 to 1 in favor of the more intelligent students (as rated by the A.C.E.). Similarly, drawings indicating maladjustment were done three times as often by those students in the bottom third of the class (A.C.E. rating).

The level of motivation of the students was found to be a factor in their achievement, but apart from this, no non-intellectual factor could be discovered which might have any exclusive bearing on their work. The conclusion was reached that a variety of factors inter-relate in this regard, and their satisfactory isolation has yet to be done. With this particular group, in the light of the technique employed, the Draw-a-Person test was found to be a measure of intelligence, and not of (mal)adjustment, as defined. A re-evaluation of the interpretations of Draw-a-Person test results, with this in mind, is suggested.