

Pittsburg State University

Pittsburg State University Digital Commons

Electronic Theses & Dissertations

Spring 1-1963

A COMPARISON OF REALITY AND FUNCTIONAL EFFICIENCY ITEMS OF THIRTEEN, FOURTEEN, AND FIFTEEN-YEAR-OLD JUNIOR HIGH SCHOOL STUDENTS ON THE DRAW-A-PERSON TEST

Sam Carter

Kansas State College Of Pittsburg

Follow this and additional works at: <https://digitalcommons.pittstate.edu/etd>



Part of the [Personality and Social Contexts Commons](#)

Recommended Citation

Carter, Sam, "A COMPARISON OF REALITY AND FUNCTIONAL EFFICIENCY ITEMS OF THIRTEEN, FOURTEEN, AND FIFTEEN-YEAR-OLD JUNIOR HIGH SCHOOL STUDENTS ON THE DRAW-A-PERSON TEST" (1963). *Electronic Theses & Dissertations*. 61.
<https://digitalcommons.pittstate.edu/etd/61>

This Thesis is brought to you for free and open access by Pittsburg State University Digital Commons. It has been accepted for inclusion in Electronic Theses & Dissertations by an authorized administrator of Pittsburg State University Digital Commons. For more information, please contact digitalcommons@pittstate.edu.

A COMPARISON OF REALITY AND FUNCTIONAL EFFICIENCY ITEMS
OF THIRTEEN-, FOURTEEN-, AND FIFTEEN-YEAR-OLD
JUNIOR HIGH SCHOOL STUDENTS ON THE
DRAW-A-PERSON TEST

A Thesis Submitted to the Graduate Division in Partial
Fulfillment of the Requirements for the
Degree of Master of Science

by

Sam Carter

KANSAS STATE COLLEGE OF PITTSBURG
Pittsburg, Kansas
January, 1963

ACKNOWLEDGMENTS

The writer wishes to express his sincere appreciation to Henry Leland, Ph. D., for his guidance and constructive criticism; to Dan Smith, M. S., who along with Henry Leland participated in the reliability study; and to the Parsons Junior High School System for their cooperation.

ABSTRACT

This study was an attempt to help determine whether or not a modified Draw-A-Person test has possibilities for development into an adequate dual-purpose group screening device (intellectual and personality assessment) for psychologists working in educational, guidance, and clinical settings.

The modified DAP test used includes drawings of the same sex, opposite sex, and a self drawing. Scoring procedures are similar to Goodenough's method; however, some modifications were necessary as female drawings were scored frequently.

The Parsons, Kansas, Junior High School System, consisting of 615 seventh, eighth, and ninth grade students was used in this project. The students, with the exception of one eleven year old boy, were older than twelve and younger than seventeen years of age. Due to absences, 505 students were tested in the project.

The secondary objective of this project was to determine whether Leland's concepts of functional efficiency and reality content as related to the modified Draw-A-Person test are usable in assessment of intelligence with normal thirteen-, fourteen-, and fifteen-year-old junior high school students. The results indicated that Leland's scoring system will not differentiate among groups

of normal thirteen-, fourteen-, and fifteen-year-old junior high school students. Some evidence suggests, however, that Leland's scoring method will measure mental age through thirteen years of age and seems to have considerable potential for use as a screening device for mildly retarded individuals of any age level.

Other findings indicated that (1) the Goodenough scoring method will not differentiate among thirteen-, fourteen-, and fifteen-year-old junior high school students; (2) approximately sixteen per cent of the students drew "heads only" on all three drawings; (3) males drew males first at all three grade levels ninety-two per cent of the time or more. The percentages of females drawing their own sex first decreased with grade level; (4) the first drawing is usually the highest scoring drawing in total points, and the self drawing the lowest; and (5) relatively high percentages of students who drew at least a head and trunk for the same sex drawing omitted the body or trunk on the self drawing (from twenty to thirty per cent).

TABLE OF CONTENTS

CHAPTER	PAGE
I. EXPOSITION OF THE PROBLEM	1
Introduction to the Problem	1
Statement of the Problem	3
Dimensions of the Draw-A-Person Test	6
Objectives Concerning the Human Figure Drawing as an Intelligence Measure	7
Scope and Limitations	10
Definition of Terms	11
II. REVIEW OF THE LITERATURE	14
Using the DAM Test with Persons over Twelve Years of Age	14
Projective Aspects of Human Figure Drawing	19
Dimensions of Human Figure Drawing	24
III. PLAN AND PROCEDURE	31
Description of the Modified DAP Test	31
Test Administration	32
Scorer Reliability	35
Experimental Design	36
IV. RESULTS AND DISCUSSION	
Functional Efficiency Versus Total Content	43
The Modified Goodenough Scoring Method	47
Sex of First Figure Drawn	50
Students Scoring Highest on Their First, Second, or Self Drawings	53
Comparison of the Same-Sex and Self Drawings	55
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	57
Summary	57
Conclusions	62
Recommendations	64
BIBLIOGRAPHY	66
APPENDIX	72

LIST OF TABLES

TABLE	PAGE
I. Division of the Goodenough Scoring Scale Using System Suggested by Leland	12
II. Distribution of the Sample by Chronological Age and Sex within the School Grade for Both Schools Combined: All Drawings in This Age Range Included	37
III. Distribution by Chronological Age and Sex: All Drawings within This Age Range Included	38
IV. Distribution of the Drawings by Sex and Chronological Age: "Head Only" drawings Omitted	39
V. Mean Percentages and Standard Deviations of Functional Efficiency Content Within the Goodenough Scores of Subjects by Sex, Chronological Age, and Grade	45
VI. Mean Percentages and Standard Deviations of Functional Efficiency Content within the Goodenough Scores of Subjects by Sex and Age	45
VII. Mean Goodenough Scores and Standard Deviations of Subjects by Sex and Age . .	49
VIII. Percentages of "Head Only" Drawings for Each Sex and Grade Level	51
IX. Percentages of the Same Sex Drawn First for Each Grade Level and Sex	52
X. Percentages of First, Second, and Self Drawings Scored Highest for Each Age Level and Sex	54
XI. Percentages of Bodily Omission on Self Drawing When Not Omitted on the Same-Sex Drawing	54

CHAPTER I

EXPOSITION OF THE PROBLEM

Introduction to the Problem

There is a need in educational, guidance, and clinical centers for a dual purpose group screening device that is useful both as a projective or personality measure as well as an intelligence test. Many group intelligence instruments are satisfactory for the assessment of intelligence; however, they usually entail considerable time, expense, and are not used for personality evaluation. Two of the more adequately standardized group intelligence tests, "Lorge-Thorndike Intelligence Test" and "California Test of Mental Maturity," well illustrate this point.¹

Some other group psychological tests are adequate for personality evaluation but are expensive, time-consuming, and do not evaluate intelligence. The best example of this type of test is the "Minnesota Multiphasic Personality Inventory" which takes approximately two hours to administer, is expensive to purchase and score, and usually is not given to persons under sixteen years of age.²

¹Burros, O. K. The Fifth Mental Measurements Yearbook. New Jersey: The Gryphon Press, 1959. pp. 479-485, 463-439.

²Idem., pp. 158, 166-168.

While there is no satisfactory group, dual purpose instrument, several individual intelligence and projective tests are used extensively in this manner. The Weschler intelligence tests are used in clinical settings for personality evaluation as well as intellectual assessment.³ The Rorschach Psychodiagnostic Test,⁴ House-Tree-Person Test,⁵ and the Draw-A-Person Test⁶ are also used in clinical settings as dual-purpose instruments.

Human figure drawing appears to have great potential as a dual purpose, group test as this mode of expression has been developed by Goodenough (Draw-A-Man Test) into a group intelligence test for children⁷ and by Machover into a projective test (Draw-A-Person Test) used with children and adults.⁸

³Rapaport, D. Diagnostic Psychological Testing, Vol. I, pp. 45-318.

⁴Klopfer, B. Developments in the Rorschach Technique. New York: World Book Company, 1954. pp. 352-375.

⁵Buck, J. N. "The H-T-P Technique: A Qualitative and Quantitative Scoring Manual," Journal of Clinical Psychology, 5, 1949, pp. 37-74.

⁶The DAP test is used as a dual purpose test in many state hospitals, such as Parsons State Hospital and Training Center, Parsons, Kansas, and Topeka State Hospital, Topeka, Kansas. The test, however, has not been specifically formalized and developed as a dual purpose instrument.

⁷Goodenough, Florence L. Measurement of Intelligence by Drawings. New York: Harcourt, Brace, and World, Inc., 1926.

⁸Machover, Karen. Personality Projection in the Drawings of the Human Figure. Springfield, Illinois: Charles C. Thomas, Publisher, 1949.

Statement of the Problem

The general purpose of this study is to help determine whether or not the Draw-A-Person test can be developed into an adequate dual purpose, group screening device for psychologists working with adolescents in education, guidance, and clinical settings. The test is inexpensive and may be administered in a short time.

The Draw-A-Person test can be administered to a group, using Goodenough's directions, in approximately five to ten minutes, although there is no time limit.⁹ Approximately fifteen to twenty-five minutes are necessary if Machover's directions are used.¹⁰ The method of administration used in this study took less than forty minutes and will be discussed in detail in Chapter III. The only test materials needed are a sharpened pencil and four sheets of blank paper per student. An experienced scorer may evaluate "forty to fifty" drawings an hour using the Goodenough scoring method for intelligence.¹¹ This number, however, will vary, depending on the method used. The approximate time to interpret the DAP test projectively is ten to

⁹Goodenough, op. cit., pp. 85-86.

¹⁰Machover, op. cit., pp. 28-29. (This is an estimate.)

¹¹Goodenough, op. cit., p. 87.

fifteen minutes each according to Machover.¹² When using the DAP as a screening device, the average time could be considerably less.

The Goodenough test has been standardized for children ranging in age from three to thirteen.¹³ Stewart states:

During the twenty-five years the test has been in existence, a number of studies have confirmed that it compares favorably in test-retest reliability with the group tests of intelligence applicable in the same age range. It also compares favorably in validity, as demonstrated on the basis of its correlation with the Stanford-Binet within age groups for which it was designed, while yet possessing the advantage of being non-verbal in character.¹⁴

A considerable amount of research with different age groups has been stimulated by Goodenough's work. Mitchell has concluded that Goodenough's maximum CA divisor of 13.0 is inappropriate in calculating Draw-A-Man I. Q.'s. Her research suggests that improvement continues into, at least, the sixteenth year.¹⁵ McElwee,¹⁶

¹²Machover, op. cit., p. 28.

¹³Goodenough, op. cit., pp. 14-47.

¹⁴Burros, O. K. The Fourth Mental Measurements Yearbook. New Jersey: The Gryphon Press, 1953. p. 392.

¹⁵Mitchell, Anne C. "A New Maximum C. A. for the Draw-A-Man Test," Journal of Consulting Psychology, 23, 1959, p. 555.

¹⁶McElwee, W. W. "The Reliability of the Goodenough Intelligence Test Used with Sub-Normal Children Fourteen Years of Age," Journal of Applied Psychology, 16, 1962, pp. 217-218.

Tobias, and Gorelick,¹⁷ and Berdie,¹⁸ have concluded that the Goodenough Intelligence test is valuable as an intelligence measure with mentally retarded adults.

The Machover Draw-A-Person test, while used extensively in clinical settings, has not been well validated experimentally, although it has been shown to be reliable in some respects. Swenson states, "Machover's hypotheses concerning the DAP have seldom been supported by the research reported in the past eight years . . . some evidence supports the use of the DAP as a rough screening device, and as a gross indicator of 'level of adjustment' . . . approaches to future research are suggested."¹⁹

Blum states, "The Machover DAP technique has questionable validity, but proves to be no worse than any of the other common personality assessment procedures."²⁰ Griffith and Peyman have stated that improper experimental designs have been responsible in some cases for negative results concerning the DAP test. They state that studies should be concerned with personality traits rather than diagnostic

¹⁷Tobias, J. and Gorelick, J. "The Utility of the Goodenough Scale in the Appraisal of Retarded Adults." American Journal of Mental Deficiency, 65, 1960, pp. 64-68.

¹⁸Berdie, R. F. "Measurement of Adult Intelligence by Drawings," Journal of Clinical Psychology, 1, 1945, pp. 288-295.

¹⁹Swenson, C. H. "Empirical Evaluations of Human Figure Drawings," Psychological Bulletin, 54, 1957, pp. 431-466.

²⁰Blum, R. H. "Validity of the Machover DAP Technique," Journal of Clinical Psychology, 10, 1954, pp. 120-125.

categories.²¹ Starr and Marcuse have concluded that at least some factors concerning the DAP are reliable.²²

The research mentioned above suggests the possibilities of developing an adequate dual purpose, group screening device by combining the Goodenough intelligence test and the Machover projective test. Some of the above research will be discussed further in Chapter II.

This present study is an endeavor to answer several crucial questions concerning the DAP test as a dual purpose screening device with junior high school students (ages 12-17).

Dimensions of the Draw-A-Person Test

Human figure drawing is used for intellectual and personality assessment in ways additional to Goodenough's and Machover's methods. Buck has developed a system of scoring the House-Tree-Person test which takes into consideration many qualitative as well as quantitative aspects of drawings.²³ Possibly some of his ideas could be integrated into evaluation of the DAP test. Leland has divided Goodenough's scoring items into two classes called "reality

²¹Griffith, A. V. and Peyman, D. A. R. "Eye-Ear Emphasis in the DAP as Indicating Ideas of Reference," Journal of Consulting Psychology, 23, 1959, p. 560.

²²Starr, S. and Marcuse, E. L. "Reliability in the Draw-A-Person Test," Journal of Projective Techniques, 23, 1959, p. 83.

²³Buck, op. cit., pp. 37-74.

items" and "functional efficiency items."²⁴ He postulates that the proportion of functional efficiency items to reality items will increase with maturity and may be a more important indicator of intelligence than the total points scored. Leland further hypothesizes that these proportions could be useful diagnostically to differentiate between organic and psychogenic conditions. Dye's study has shown that the proportion of functional efficiency to reality items increases with age in grade school children.²⁵ Leland's and Dye's papers will be discussed further in Chapter II as they are instrumental to this study.

Objectives Concerning the Human Figure Drawing
As an Intelligence Measure

This study is, in part, an extension of Dye's research and is an attempt to determine whether the proportion of functional efficiency to reality items continues to increase with thirteen-, fourteen-, and fifteen-year-old students. The age at which the proportion ceases to increase should be the maximum MA measurable by the scoring method. Dye has found "Females draw functionally at an

²⁴Leland, H. Procedures for Use with the DAP Test Part II, Method and Interpretation, mimeographed, Parsons State Hospital and Training Center, Parsons, Kansas, 1962.

²⁵Dye, J. E. "An Analysis of Reality Content and Functional Efficiency as Related to Maturation in Human Drawings," unpublished Master's thesis, Kansas State College of Pittsburg, Pittsburg, Kansas, 1962.

earlier age than the males and, therefore, mature intellectually or emotionally at a more rapid rate than the males, when I. Q. is normal for both sexes."²⁶

The average Goodenough intelligence score will be computed for each age level and sex. Levy's study on the Goodenough test, which includes 114 girls, ages thirteen, fourteen, and fifteen, suggests that there is a difference between the norms of the fourteen and fifteen year groups and a possible difference between thirteen and fourteen-year-old groups. Levy concludes that "the scale obviously shows a progression of development into the fifteenth year."²⁷

The percentages of junior high school students drawing heads only will be compiled for each sex and grade (seventh, eighth, and ninth). Some clinical psychologists believe that omissions of various parts of the body can be attributed to guilt, anxiety, or conflict concerning the omitted areas. Since the students in this study had reached or were rapidly approaching puberty, it was of interest to observe whether the anxiety and conflicts of this period manifested themselves in bodily omission.

Percentages of boys and girls drawing their own sex

²⁶Idem., p. 82.

²⁷Levy, Lydia R. "Function of the Goodenough Drawing Scale in a Study of High School Freshmen," unpublished Master's thesis; New York: Columbia University, 1931, p. 14.

first will be computed. Swenson,²⁸ Vytantas,²⁹ and Butler,³⁰ have contributed significant research which supports the sexual identification hypotheses. These studies will be further described in Chapter II.

Percentages of students scoring highest on their first, second, or self drawing will be computed and discussed.³¹ There was some question as to whether or not there was equal motivation on each of the three figures drawn.

The last objective of this study will be to determine whether there were any differences between the self and same-sex drawing of the junior high students concerning omission of the body. There is a possibility that the instructions, "Draw a picture of yourself," cause more anxiety than "Draw a person." The percentage of students who drew a complete figure of the same sex and a head only for the self drawing might be related to the increased anxiety caused by more specific instructions.

²⁸Swenson, C. H., Jr. and Newton, K. R. "Development of Sexual Differentiation on the Draw-A-Person Test," Journal of Clinical Psychology, 2, 1955, pp. 417-19.

²⁹Vytantas, J. B. "Sexual Identification in Children's Drawings of the Human Figure," Journal of Clinical Psychology, 16, 1960, p. 42.

³⁰Butler, R. L. and Marcuse, F. L. "Sex Identification at Different Ages Using the Draw-A-Person Test," Journal of Projective Techniques, 23, 1959, p. 299.

³¹See Chapter III for test administration procedures.

Scope and Limitations

The subjects in this study were not older than sixteen years, eleven months, or not younger than twelve years of age. All subjects were in the Parsons Junior High School System, Parsons, Kansas. Most of the junior high school population, consisting of grades seven, eight, and nine, was used in this study. There was no attempt to select subjects and only those students who were absent on the test days were not included in the study.

The directions for the Draw-A-Person test used in this study consisted of instructing the students to fill out several blanks concerning personal items and then to draw three human figures: a person, a person of the opposite sex, and last, a picture of themselves. Due to the time allotted for testing, mild pressure was applied to encourage the students to finish in forty minutes; however several students were allowed to take more time.

Due to the different facilities of the two junior high schools, different procedures were used in each school. At East Junior High School, the entire student body was tested at one sitting in the school auditorium. Each student was seated one seat apart and was given a lapboard to draw on in addition to the test materials. At West Junior High School, each class was tested separately on consecutive days in the school cafeteria. Four or less students were seated

at each table. For a more complete description of procedures, see Chapter III.

Scoring of all tests was done by one scorer only. A reliability study was performed with three scorers which is discussed further in Chapter III.

Definition of Terms

Dual purpose instrument, device or test. For the purpose of this study: a test which is capable of providing some measure of personality assessment and intellectual evaluation.

Functional efficiency and reality items. Leland has divided Goodenough's fifty-one scoring items into twenty-one reality items and thirty functional efficiency items which are presented in Table I.

The reality items are those items which represent the presence of the parts of the body and clothing related to the usual drawings of human figures. How the various essential parts of the figure are drawn makes no difference; just so they are drawn.

Conversely, the functional efficiency items are those which are based on the items being "correctly there". This is an indication of more mature drawing in the sense that it occurs later in the performance of the child and occurs at a time consistent with an increased consciousness of elements in the surrounding environment, and an awareness that these elements have to be evaluated

TABLE I

DIVISION OF THE GOODENOUGH SCORING SCALE
USING SYSTEM SUGGESTED BY LELAND³²

Reality Items*	Functional Efficiency Items
1. Head present	4b. Trunk proportions
2. Legs present	5a. Attachment of limbs (A)
3. Arms present	5b. Attachment of limbs (B)
4a. Trunk present	6b. Neck outline
4c. Shoulders present	7d. Features in two dimensions
6a. Neck present	7e. Nostrils shown
7a. Eyes present	8b. Hair detail
7b. Nose present	9b. Two articles nontransparent
7c. Mouth present	9c. Entirely nontransparent
8a. Hair present	9e. Complete costume
9a. Clothing present	10b. Number correct
9d. Four articles shown	10c. Detail correct
10a. Fingers present	12a. Proportion-head
10d. Thumb shown	12b. Proportion-arms
10e. Hand shown	12c. Proportion-legs
11a. Arm joints	12d. Proportion-feet
11b. Leg joints	12e. Two dimensions
13. Heel	14a. Coordination lines A
15a. Ear present	14b. Coordination lines B
16a. Eyebrow	14c. Coordination-head
17a. Chin and forehead	14d. Coordination-trunk
	14e. Coordination-arms and legs
	14f. Coordination features
	15b. Ear detail
	16b. Eye detail pupil
	16c. Eye detail shape
	16d. Eye detail glance
	17b. Chin and forehead detail
	18a. Profile A
	18b. Profile B

*Numbers preceding the scoring items refer to the numbers in the Goodenough Text.³³

³²Leland, op. cit.

³³Goodenough, op. cit., pp. 21-23.

qualitatively as well as quantitatively.³⁴

For a more complete discussion of reality and functional efficiency content, see Dye's research.³⁵

³⁴Leland, op. cit., pp. 3-4.

³⁵Dye, op. cit., pp. 4-9.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter will be concerned with some of the literature important to this study and is divided into three main areas: (1) discussion of human figure drawing as an intelligence measure for age levels over twelve years; (2) discussion related to the projective aspects of human figure drawing; and (3) discussion of the dimensions measured by human figure drawing.

The history of human figure drawing has been reviewed by Goodenough,³⁶ Blizzard,³⁷ and Whitehead.³⁸ A comprehensive survey of drawing for diagnostic purposes was performed by Senerchia in 1930.³⁹

Using the DAM Test with Persons over Twelve Years of Age

There is conflicting evidence as to the worth of human figure drawing for assessment of intelligence with

³⁶Goodenough, op. cit., pp. 1-13.

³⁷Blizzard, T. B. "Diagnostic Limitations of the Draw-A-Man Test with the Mentally Retarded," unpublished Master's thesis, Kansas State College of Pittsburg, 1960.

³⁸Whitehead, Bessie M. "A Normative Study of Some Developmental Aspects of the Human Figure Drawings of Children," unpublished Master's thesis, Kansas State College of Pittsburg, 1961, p. 34.

³⁹Senerchia, F. "Drawings of the Sane and Insane: A Survey of the Literature," unpublished Master's thesis, New York: Columbia University, 1930.

age levels over twelve.

Cohen has stated:

The Goodenough Intelligence Test, as it stands, is not a fine enough measure of intelligence above the tenth year to warrant its clinical use above that age . . . the norms given by Dr. Goodenough at the upper ranges are too high . . . A careful study of the eleven and twelve-year-old children on the present scale is necessary in order to establish true norms at those ages . . . An extension of the Goodenough Intelligence Test is needed in order to bring out the true differences in merit between the drawings of older children.⁴⁰

Dyett has tentatively concluded that there is no correlation between intelligence and the DAM test when used with college students.⁴¹ He has also found (1) some significant sex differences in many points of the Goodenough scale; (2) some qualitative sex differences; (3) and that the average intelligence rating for those who drew full face drawings was higher than for those who drew profile drawings.

Levy has concluded that "the Goodenough scale shows a development of progress through the fifteenth year, with a possible deterioration in the thirteenth year."⁴² (Median score for thirteen-year-old students was 35.25; fourteen

⁴⁰Cohen, D. N. "The Goodenough Drawing Scale Applied to Thirteen Year Old Children," unpublished Master's thesis, New York: Columbia University, 1933, p. 28.

⁴¹Dyett, E. G. "The Goodenough Drawing Scale Applied College Students," unpublished Master's thesis, New York: Columbia University, 1931, p. 30.

⁴²Levy, op. cit., p. 14.

year-olds, 36.8; fifteen-year-olds, 40.63). She has also concluded that the scale measures something other than verbal intelligence due to the low but positive correlation of .378 found between the Goodenough and Terman Group Tests. She also states that further research is needed in order to expand the Goodenough scale and provide for finer gradation in scoring.

Mitchell, in a study with 536 mentally retarded patients states, "The results indicate that a maximum CA division of 13.0 is inappropriate in calculating Draw-A-Man I.Q.; the significant MA increment after age 13.0 should be counterbalanced by a corresponding CA increment."⁴³ She further states that the children tested showed growth through the sixteenth year.

McElwee, in his study concerning the reliability of the Goodenough Intelligence Test has found that it "can be used just as satisfactorily with sub-normal children over twelve years of age as it can with younger children."⁴⁴

Carkhuff's recent study with mentally retarded adults suggests a correlation of .74 between the WAIS F.S. and the Goodenough DAM Intelligence Test. He used 36 male and female noninstitutionalized, suspected mental defectives

⁴³Mitchell, loc. cit., p. 555.

⁴⁴McElwee, op. cit., p. 218.

whose WAIS F.S. I.Q.'s ranged from below 41 to 89. The age range was from 17 to 64 with a mean age of 32 years.⁴⁵

Tobias and Gorelick have found that the Goodenough test has high reliability and compares favorably with other tests when used with mentally retarded adults.⁴⁶ He also concludes that the Goodenough test seems to predict work efficiency as well as the WAIS F.S. I.Q. score but not as well as the WAIS performance scale score.

Lorge, Tuckman, and Dunn have concluded from their study that drawings of aged adults show increasing loss of intactness.⁴⁷ They were less complete, less integrated, poorly proportioned, bizarre, and showed poor motor control and sex differentiation. This sample was not representative of the general population.

Berdie has used a short scoring form for the Goodenough test using only twenty of the fifty-one points, and concluded that the test is useful with adults of limited intelligence.⁴⁸ He further concludes that dull, normal,

⁴⁵Carkhuff, R. S. "The Goodenough Draw-A-Man Test as a Measure of Intelligence in Noninstitutionalized Subnormal Adults," Journal of Consulting Psychology, 26, 1962, p. 477.

⁴⁶Tobias and Gorelick, loc. cit., pp. 64-68.

⁴⁷Lorge, I., Tuckman, H. and Dunn, M. B., "Human Figure Drawing by Younger and Older Adults," Journal of Clinical Psychology, 14, 1958, p. 54.

⁴⁸Berdie, loc. cit., pp. 288-95.

borderline, and defective adults, like children, draw what they know, rather than what they see. His short form correlated plus .95 with the entire test.

Gunzburg, using Berdie's shortened scale with adult mental defectives, has stated:

It was suggested that a shortened Goodenough scale as previously published by Berdie would indicate the non-verbal intelligence level of the Weschler test if scored from "non-pathological" drawings.

The presence of pathological features in the drawings suggest that it is unlikely to indicate the appropriate intelligence level on the basis of a Goodenough score and also points to the probably presence of clinical pathology of some kind, ranging from maladjustment to psychoses or organic brain damage.⁴⁹

Jones and Rich have evidence to suggest that the Goodenough test could be used as an estimate of I. Q. in aged adults.⁵⁰ Correlations ranged from .47 to .65 with Weschler FS, VS, and PS scores (forty subjects were used).

The review of literature in this section has suggested that the Goodenough DAM test is useful in assessment of intelligence of mentally subnormal individuals over twelve years of age. The literature is contradictory

⁴⁹Gunzburg, H. S. "Scope and Limitations of the Goodenough Drawing Test Method in Clinical Work with Mental Defectives," *Journal of Clinical Psychology*, 9, 1955, pp. 8-15.

⁵⁰Jones, A. W. and Rich, T. A. "The Goodenough Draw-A-Man Test as a Measure of Intelligence in Aged Adults," *Journal of Consulting Psychology*, 21, 1957, pp. 235-8.

concerning the usefulness of the DAM test with normal persons over ten years of age. Some evidence has suggested that performance on the DAM test improves significantly up to at least age fifteen or sixteen and also implies that Goodenough's scoring norms are inaccurate at the higher age levels (11-12).

It is concluded that the DAM test can be used as a rough group intelligence screening device to spot low level, mentally retarded adults. It is apparent that further research is needed to refine the DAM scoring technique for use with normal individuals over ten years of age.

Projective Aspects of Human Figure Drawing

This section primarily is a review of the literature on the concept of identification as it is related to the Draw-A-Person test.

Machover has stated:

Some subjects are so identified with the opposite sex that they are unable to draw their sex image . . . From the standpoint of sexual identification, it is assumed to be most normal to draw the self-sex first. From an empirical point of view, it is of interest that evidence of some degree of sexual inversion was contained in records of all individuals who drew the opposite sex first in response to the instruction, draw a person.⁵¹

⁵¹Machover, op. cit., p. 101.

Several studies have been conducted in an attempt to determine whether the concept of identification enters into the sex and type of figures drawn.

Butler and Marcuse, in a study involving 1,544 girls and boys ranging in age from five to eighteen, have found that there is a steady increase in the percentages of males drawing males first from age five to eighteen.⁵² Five-year-old males drew males first 69.2 per cent of the time and eighteen-year-old males drew males first 94.1 per cent of the time. The females drew females first 58.8 per cent of the time at age five and 36.4 per cent of the time at age eighteen. The females seemed to reach their maximum at six years (87.7 per cent drew females first) and did not taper off sharply until age seventeen, when 43.5 per cent drew females first. Percentages of other pertinent age levels were: twelve-year-old boys, 84.9; thirteen-year-old boys, 94.9; fourteen-year-old boys, 96.1; fifteen-year-old boys, 97.9; twelve-year-old girls, 72.5; thirteen-year-old girls, 70.4; fourteen-year-old girls, 73.8; fifteen-year-old girls, 75.5). It was concluded that the growing awareness among females of the dominance of the male sex in Western civilization was the reason for the declining number of females drawn first by the older girls.

⁵²Butler and Marcuse, loc. cit., p. 299.

Swenson and Newton found that sexual differentiation increased with age in the DAP drawings of 163 grade school students (grades one--eight) and twenty-two college students.⁵³ Males consistently drew a higher percentage of their own sex first than did the females. The college girls drew approximately the same percentage of females first as did the grade school students.

Haworth and Normington have developed a sexual differentiation scale for the DAP test and state, "the scale appears to provide a developmental index of psycho-sexual maturity, but further investigation is needed to determine to what extent the ability to differentiate between the sexes in figure drawings can be considered a measure of sex role identification."⁵⁴ Children from seven to twelve years showed an increasing ability to differentiate, girls performing consistently better: the CA appears more important than the MA. Haworth and Normington's findings are related possibly to Leland's concepts which are discussed later in this chapter. The increased ability to differentiate could be linked to improved functional efficiency in Leland's terms.

Vytantas' study with the House-Tree-Person test

⁵³Swenson and Newton, loc. cit., pp. 417-419.

⁵⁴Haworth, Mary R. and Normington, Cheryl J. "A Sexual Differentiation Scale for the DAP Test," Journal of Projective Techniques, 25, 1961, pp. 441-449.

provides support for the sexual identification hypothesis as it is applied to human figure drawing.⁵⁵ One thousand drawings by children from ages four to fourteen years, eleven months, were examined. In general, both sexes preferred to draw their own sex and this preference increased after nine years of age.

Hunt and Feldman with sixty-five college students in lower division psychology classes, found that when instructed to draw a nude human figure, all of the students drew their own sex.⁵⁶

G. M. Fisher has found that mentally retarded male adults tend to draw the male figure first statistically less frequently than do normal adults, but mentally retarded male children are no different than normal children. He states, "It was suggested that minimal intelligence is required to differentiate between the sexes and to identify with one's own sex, but that near-normal intelligence is required to learn the culturally-approved sex-role identification."⁵⁷ It was hypothesized that the first-drawn sex can reflect the actual incorporation of the role of a

⁵⁵Vytantas, loc. cit., p. 42.

⁵⁶Hunt, R. G., and Feldman, M. J. "Body Image and Ratings of Adjustment on Human Figure Drawing," Journal of Clinical Psychology, 18, 1960, p. 35.

⁵⁷Fisher, G. M. "Sexual Identification in Mentally Retarded Male Children and Adults," American Journal of Mental Deficiency, 65, 1960, pp. 420-25.

given sex and/or the learned, culturally-approved sex-role identification.

Fisher has also examined the first drawn figure of 744 mentally subnormal females from age seven to seventy-two years and found that the frequency of female figures first was affected by intelligence but not by age. He has stated, "The development of sexual identification, as reflected by the sex of the first-drawn figure, is different in the retardate than in the individual of normal intellect."⁵⁸

Whitaker has investigated the Draw-A-Person test to identify homosexual and effeminate men. He states, "The results support the theoretical expectation, based on psychoanalytic and projective test concepts of psychosexual identity, that psychosexual identity is projected into free choice drawings."⁵⁹

Hammer investigated the sex of the figure drawn for eighty-four male sex offenders at Sing Sing Prison with the House-Tree-Person test. Seventy-five per cent of the homosexuals, eighty-eight per cent of the homosexual pedophiles, and eighty-seven per cent of the rapists drew male figures first.⁶⁰

⁵⁸Fisher, G. M. "Sexual Identification in Mentally Subnormal Females," American Journal of Mental Deficiency, 66, 1961, pp. 266-269.

⁵⁹Whitaker, L. "The Use of an Extended Draw-A-Person Test to Identify Homosexual and Effeminate Men," Journal of Consulting Psychology, 25, 1961, p. 485.

⁶⁰Hammer, E. F. "Relationship Between Diagnosis of Psychosexual Pathology and Sex of the First-Drawn Person," Journal of Clinical Psychology, 10, 1954, pp. 168-169.

Armstrong and Hauch, in their study, found some support for Machover's position concerning the meaning of the first-drawn figure.⁶¹

Levi has found: "Subjects with arm disability are particularly sensitive to the arms in a drawing and subjects with leg disability are particularly sensitive to the legs in a drawing. Subjects with a variety of low back ailments, often thought to be psychogenic, appear to be closer to the nondisabled control in their reactions than do either of the other two groups."⁶²

The majority of the aforementioned studies support Machover's statements concerning identification and the implications of the first figure drawn. There is certainly a need for more research in this area, especially that concerning masculine and feminine characteristics and drawings.

Dimensions of Human Figure Drawing

There are many dimensions of personality expressed in human figure drawing. Lipman states,

⁶¹Armstrong, R. G. and Hauch, P. A. "Sexual Identification and the First Figure Drawn," Journal of Consulting Psychology, 25, 1961, pp. 51-54.

⁶²Levi, Aurelia. "Orthopedic Disability as a Factor in Human Figure Perception," Journal of Consulting Psychology, 25, 1961, pp. 253-254.

We little realize how complex a matter the knowledge of our body can actually be. Yet there is evidence that a disturbance of body-imagery can be found in virtually every case of neurosis or psychoses A person's drawing of himself reveals in an amazing variety of details the complex interpretation of body image within his world. Parts of himself are transposed, rejected, ignored, or borrowed from others according to the demands of his psychic economy.⁶³

Lipman also stresses the idea that the body image is constantly changing and that there are tendencies which threaten to disrupt or dissolve it. He says,

If we close our eyes and remain as motionless as possible, our body seems to slip away, to fade into nothingness. If we want to maintain it as a unity, we must forcibly exert ourselves, for directed action is a necessary condition for all perception.⁶⁴

Lipman's article serves well as an introduction to the dimensions of human figure drawing.

The remainder of this chapter will be concerned with research exploring various demensions of human figure drawing.

The House-Tree-Person test has been developed to some extent by Buck. He found that items of detail, proportion,

⁶³Lipman, M. "Aesthetic Presence of the Body," Journal of Aesthetics, 15, 1957, pp. 427-428.

⁶⁴Lipman, idem., p. 426.

and perspective served best to differentiate between adults of seven predetermined intelligence levels.⁶⁵ Buck has also developed a more qualitative system of analysis consisting of ten major categories. These are: (1) concepts; (2) details; (3) proportions; (4) perspective; (5) time; (6) comments; (7) live quality; (8) self-criticism; (9) attitudes; and (10) drive.⁶⁶

Buck states:

Appraisal of the quality of the quantity serves to enrich the H-T-P protocol by providing (1) for a qualitative extension of the quantitative values, and (2) an objectification of a portion of the qualitative material making for more accurate comparison of (a) achromatic and chromatic sets and (b) sets in longitudinal relationship.⁶⁷

Singer has evidence that the H-T-P test, using Buck's directions, did aid in differentiating a population of thirty-four schizophrenics and a group of forty male college students. The students tended to include more details while the schizophrenics drew a minimum of extra details or included bizarre details such as writing on their test

⁶⁵Buck, J. N. "The H-T-P, a Measure of Adult Intelligence and a Projective Device," Virginia State Hospital Board's Mental Hygiene Survey, 9, 1946, pp. 3-5.

⁶⁶Buck, J. N., loc. cit., pp. 37-74.

⁶⁷Buck, J. N. "The Quality of the Quantity of the H-T-P," Journal of Clinical Psychology, 7, 1951, p. 352.

papers. There was more erasing and shading by the college students.⁶⁸

Quirk's research suggested that Buck's method of scoring the H-T-P test was unreliable for intellectual purposes with adolescents. She concludes, "This instrument's usefulness in estimating intelligence with this age group is, therefore, highly questionable."⁶⁹

Dunn and Lorge have developed a Gestalt scale for the appraisal of human figure drawings. They state,

Since the current orientation to the drawing of the human figure is that it be appraised on a holistic basis, an attempt was made to develop a product scale for the evaluation of the maturity of human figure drawings as a total representation.⁷⁰

The correlations between the product scale appraisal and estimates of intelligence were high, suggesting that the holistic product scale has merit. The procedure is also time-saving as approximately one hundred drawings can be scored per hour by a qualified rater.

Marcus' study on the DAP with college students revealed some interesting areas for future research. He

⁶⁸Singer, R. H. "A Study of Drawings Produced by a Group of College Students and a Group of Hospitalized Schizophrenics," unpublished Master's thesis, University of Pennsylvania State College, 1950, p. 76.

⁶⁹Quirk, Evelyn. "The Reliability and Validity of the H-T-P as a Measure of Intelligence in Adolescents," unpublished Master's thesis, 1958, University of Toronto.

⁷⁰Dunn, M. and Lorge, J. "A Gestalt Scale for the Appraisal of Human Figure Drawings," American Psychologist, 9, 1954, p. 357.

found that female fast readers seem to make their drawings more complete with details and elaborations pertaining to the organs of communication. The slow female readers emphasized clothing and hair details. The male slow readers drew very broad shoulders. The slow readers as a group tended to omit the pupil and drew square jaws, which was possibly a way of reinforcing the chin.⁷¹

Leland has hypothesized that by dividing Goodenough's fifty-one scoring items into twenty-one reality items and thirty functional efficiency items, human figure drawing has added diagnostic possibilities. In discussion of the scoring system, Leland states:

. . . a point is earned for a head being present which would be a reality point, but two points are earned at the functional level, one for head proportion and one for head coordination. Therefore, it is possible to earn two functional points to one reality point on the head. However, the head must have been there first This definitely puts the functional performance at a higher level in terms of the fact that its scoring follows the reality scoring. Taking this at its face value, we are going to have to presume that functional efficiency is a more mature and higher mode of performance⁷²

Dye's research, an outgrowth of Leland's work, is summarized below:

⁷¹Marcus, "Behavioral Differences on the Machover Draw-A-Person Test Between Slow and Fast College Readers," unpublished Master's thesis, University of Denver, 1956, p. 87.

⁷²Leland, op. cit., p. 4.

(1) Females begin to draw with a predominance of functional efficiency at age 12, grade 7, when the IQ is normal.

(2) Males begin to draw with a predominance of functional efficiency later than age 12, grade 7, when the IQ is normal.

(3) Females draw functionally at an earlier age than the males, and therefore, mature intellectually or emotionally at a more rapid rate than the males, when the IQ is normal for both sexes.

(4) Age 6 males and females draw with about the same percentage of Reality Content which is the dominant percentage of score; therefore, both sexes are reality oriented at age 6, within all age groups.

(5) Males and females of sub-normal IQ's are retarded in maturation when compared to normal males and females.

(6) Females of sub-normal IQ's are reality oriented through age 12.

(7) Functional efficiency is the major contributing factor in the drawings of normal females at age 12.

(8) Functional efficiency is not the major contributing factor in the drawings of normal IQ males or sub-normal IQ's of either sex before the thirteenth year of age.⁷³

Dye's research is instrumental to the present study and will be discussed further in Chapters IV and V.

The literature in the chapter has indicated that human figure drawing has many dimensions useful for the purposes of psychological diagnoses. The need for further exploration and integration of these dimensions is also

⁷³Dye, op. cit., pp. 82-83.

suggested. Certain qualities of the drawings were found to be important in intellectual, personality, and even reading ability evaluation. Leland's functional efficiency and reality content of human figure drawing appears to have considerable possibilities for intellectual evaluation with children and, perhaps, older persons with normal intelligence. The main secondary objective of this study is to determine if Leland's hypothesis concerning functional efficiency and reality content is useful with thirteen-, fourteen-, and fifteen-year-old junior high school students.

CHAPTER III

PLAN AND PROCEDURE

Once the objectives of the project had been determined, it was decided to use Parsons Junior High Schools for sample population. This consisted, at the time, of 615 seventh, eighth, and ninth grade adolescents, age twelve through sixteen. (Due to absences, 505 students were tested for the project).

The school superintendent was first contacted and was very cooperative; he, in turn, contacted both junior high school principals. Meetings with the principals were arranged and the details of procedure were ironed out. The Parsons Junior High School System cooperated fully with this study.

Description of the Modified DAP Test

The modified DAP test and scoring method in this study is based on the Goodenough scoring system and a modification of the Machover DAP directions. The Goodenough scoring method was used for scoring male drawings.⁷⁴ Female drawings were also scored, necessitating some changes in the Goodenough scoring method.⁷⁵ The modified Draw-A-Person

⁷⁴Loc. cit., pp. 91-110.

⁷⁵See Appendix I.

test is similar to the Machover DAP test except that three drawings were always required.⁷⁶ The subjects were asked to fill out an identification sheet and then were instructed to (1) "draw a person," (2) "draw a person of the opposite sex", and (3) "draw a picture of yourself." The subjects were encouraged to finish in forty minutes, but there was no time limit.

Test materials for each student consisted of three sheets of blank paper and one mimeographed sheet for identification purposes; these were all stapled together. The identification sheet used at East Junior High School (the first school tested) required each student to fill in his birth date, sex, grade level, and school only. However, several "cartoon-like drawings" indicated clowning on the part of some students. In an effort to obtain maximum cooperation, the students at West Junior High School were required to fill in their names in addition to the other information.

Test Administration

Since each school offers different facilities, separate procedures were used with each school.

All students present at East Junior High School on the test day were tested in one forty-minute activity period,

⁷⁶Machover, loc. cit., pp. 28-29.

which began at 2 p.m. and ended at 2:40 p.m. Testing occurred in the school auditorium; lap boards were placed in every other seat and students were given test blanks as they entered the auditorium. Each subject was asked to bring a sharpened pencil to the assembly.⁷⁷

The principal introduced the examiner after the students had taken their seats. It was explained that a series of studies concerning various age groups' abilities to draw were being conducted and that this age group was of particular interest. The students were asked to turn to the identification page and fill out the information requested. The subjects were cautioned not to look at another person's paper as original drawings were important to the study.

Subjects were then instructed to "draw a person." These instructions caused some confusion and had to be repeated several times. Subjects asked questions as: "What sex do I draw?" and "Is it necessary to draw a whole person?". These questions were answered with noncommittal replies: "Do as you wish." or "Any way you want to."

Approximately seven to ten minutes later the examiner asked those students not finished to hold up their hands; most students had completed their drawings in ten minutes. The students were subsequently instructed to turn to the

⁷⁷Only one student failed to bring an adequate pencil. The examiner provided him with a pencil.

second page and "draw a person of the opposite sex," or if they had drawn a female first, draw a male, and vice-versa. Approximately seven to ten minutes later, subjects again were asked to signify by hand whether they had completed the second drawing or not. Again, most had finished and they were instructed to turn to the third page and "draw a picture of yourself." This instruction brought an amused reaction from the students, but they completed the self drawing in ten to twelve minutes.

Students who had not finished the first and second drawings when further directions were given, were asked to stop and listen and then to proceed with their unfinished drawings.

Upon completion of the third drawing, students were asked to pass their tests forward and were dismissed, in less than forty minutes, to go to their next class.

Procedure used at West Junior High School was somewhat different. Each class was tested separately in the school cafeteria. The ninth, eighth, and seventh-graders were tested consecutively in three days. Testing was administered during the activity period from 2 p.m. to 2:40 p.m. Test blanks were placed on the cafeteria tables with sharpened No. 2 pencils; not more than four students were placed at one table.⁷⁸

⁷⁸The tables were designed to seat six people.

The test instructions utilized at East Junior High School were repeated, but students were permitted to leave following completion of their self drawing. They handed their test blanks to either the examiner or a faculty member as they left. There was slightly less confusion at this junior high school since smaller groups were being tested. Members of the faculty of both schools were present at the test sessions and aided in maintaining discipline.

Scorer Reliability

Since a large number of students were involved in this study, it was feasible to use one scorer: the examiner. The examiner and two expert scorers⁷⁹ conducted a reliability study which consisted of each scorer scoring the same ten drawings independently; the three scorers discussed each drawing and reached an agreement concerning individual points. The reliability study indicated agreement on most points but there was some discrepancy concerning "coordination points" and point 9e, "costume complete without incongruities."⁸⁰

⁷⁹H. Leland, Ph.D. and D. Smith of Parsons State Hospital and Training Center, Parsons, Kansas.

⁸⁰Goodenough, op. cit., pp. 99, 104-106.

The scorers concluded that the coordination points would be scored strictly: unintentional drawing errors or slight assymetries would discredit the point in question. It was also concluded that point 9e would be scored leniently: if there were no incongruities in the clothing and shoes, shirts with sleeves, and entire essential dress were present, the point was credited. "School boy" or "school girl" dress was adequate in gaining the point.

Experimental Design

Statistical Analysis

The main, secondary objective of this study was to determine whether or not "functional efficiency" on the DAP test continues to increase as a result of maturation past the twelfth year of chronological age with junior high school students. Students of both junior high schools were combined and divided into ten groups on the basis of age, sex, and grade: thirteen-year-old seventh-grade girls; thirteen-year-old seventh-grade boys; thirteen-year-old eighth-grade girls; thirteen-year-old eighth-grade boys; fourteen-year-old eighth grade girls; fourteen-year-old eighth grade boys; fourteen-year-old ninth-grade girls; fourteen-year-old ninth-grade boys; fifteen-year-old ninth-ninth-grade girls; fifteen-year-old ninth-grade boys.

All drawings of students between the ages of thirteen

years and fifteen years, eleven months, twenty-nine days, in the above groups were used. Eight students within this age range were not in any of the ten groups: they were omitted from this analysis. See Table II for numerical description of the sample used.

TABLE II

DISTRIBUTION OF THE SAMPLE BY CHRONOLOGICAL AGE
AND SEX WITHIN THE SCHOOL GRADE FOR BOTH
SCHOOLS COMBINED: ALL DRAWINGS
IN THIS AGE RANGE INCLUDED

Grade	Age and Sex						Total
	13M	13F	14M	14F	15M	15F	
7	42	32	2	1			77
8	58	48	37	36	2	3	184
9			45	47	31	50	173
Total	100	80	84	84	33	53	434

The same students were also divided into six groups on the basis of age and sex. Table III describes this distribution. It was hypothesized that the proportion of "functional efficiency" to total items would increase with age and grade.

The proportion of "functional efficiency" to total items was converted into percentage scores and the groups were compared by the statistical technique, analysis

of variance.⁸¹

TABLE III

DISTRIBUTION BY CHRONOLOGICAL AGE AND SEX: ALL DRAWINGS
WITHIN THIS AGE RANGE INCLUDED

Age	Sex		Total
	M	F	
13	100	80	180
14	84	84	168
15	33	53	86
Total	217	217	434

As somewhat different procedures were used with each school, a comparison by analysis of variance based on total items was computed between schools in order to determine whether the different administration procedures affected the test results significantly. The two schools were divided into six groups depending upon school and age (13, 14, 15). It was found that there were no differences between schools in this respect as the F value was 1.71.

Lydia Levy had found some evidence suggesting that improvement on the DAM test with normal individuals continues through the fifteenth, and possibly the sixteenth year,

⁸¹ Edwards, A. L. Statistical Methods for the Behavioral Sciences. New York: Rinehart and Company, 1954. pp. 315-365.

using the Goodenough scoring method.⁸² Due to the small number of subjects in her study, it was decided to combine both schools to compare the thirteen-, fourteen-, and fifteen-year-old students of each sex on the basis of total points alone, using the modified Goodenough scoring method. Analysis of variance was used to check for differences between schools and for differences among age levels and sexes of the combined schools. Only drawings which consisted of at least a head and trunk were used in this statistical analysis. See Table IV for a numerical description of the sample used.

TABLE IV

DISTRIBUTION OF THE DRAWINGS BY SEX AND CHRONOLOGICAL AGE:
"HEAD ONLY" DRAWINGS OMITTED

Age	Sex		Total
	M	F	
13	90	61	151
14	77	79	156
15	30	49	79
Total	197	189	386

General

Since research concerning the value of the modified DAP test is limited, several other comparisons were made

⁸²Levy, loc. cit., p. 14.

and presented in tabular form in an attempt to clarify certain basic assumptions.

The percentages of junior high school students drawing heads only were compiled for each sex and grade (seventh, eighth, and ninth). Some clinical psychologists believe that omissions of various parts of the body can be attributed to guilt, anxiety, or conflict concerning the omitted areas.⁸³ Since the students in this study had reached or were rapidly approaching puberty, it was of interest to observe whether the anxieties and conflicts of this period manifested themselves in bodily omission. All students tested in both schools were used in this table and with the exception of one student, ranged in age from twelve years to sixteen years, eleven months, and twenty-nine days.⁸⁴

In an attempt to further clarify Swenson's,⁸⁵ Vytantas',⁸⁶ and Butler's⁸⁷ researches concerning the meaning of the first figure drawn, as it is related to sex and maturation, the numbers of students drawing their own sex

⁸³Machover, op. cit., p. 10.

⁸⁴One seventh grade student was eleven years, six months old.

⁸⁵Swenson, loc. cit., pp. 417-419.

⁸⁶Vytantas, loc. cit., p. 42.

⁸⁷Butler, loc. cit., p. 299.

first were compiled for each grade and sex. All students tested in both schools were used in this table.

It was of interest to observe whether there was a tendency to score highest on the first, second, or third drawing. The number of students whose first, second, or third drawings were considered best by Goodenough's criteria were compiled for each grade level and sex. Blizzard has found that with younger children there is a definite tendency to score highest on the self drawing, possibly due to increased anxiety caused by the directions.⁸⁸ Increased anxiety at the pubescent level could conceivably cause a lower total score for the self drawings.

The last table compiled will be to illustrate any differences between the self and same-sex drawing of the junior high students concerning omission of the body. There is a possibility that the instruction, "Draw a picture of yourself," causes more anxiety than the instruction, "Draw a person." This anxiety could manifest itself at this age by bodily omission. The number of students of each grade and sex who drew at least a head and trunk for the same-sex drawing were tabulated. Those who drew at least a head and trunk for the same-sex and who drew only a head or a head and neck for the self-drawing were tabulated and both

⁸⁸ Blizzard, op. cit., p. 19.

are presented in table form. The percentages of students who drew at least a head and trunk for the same-sex and who drew a head or head and neck only for the self drawing probably represent the increased amount of anxiety caused by the more specific directions.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter will be a presentation and discussion of the results concerning the statistical analysis and tabled data described in Chapter III. The seven areas of study will be discussed in the following order: (1) statistical analysis concerning functional efficiency versus total content; (2) statistical analysis concerning total points only; (3) tabled data concerning students drawing heads only on all three drawings; (4) tabled data concerning percentages of students drawing their own and opposite sex first; (5) tabled data illustrating the numbers of students scoring highest on their first, second, or third drawing; (6) tabled data depicting differences between the same-sex and self drawing concerning bodily omission; and (7) tabled data illustrating percentages of males and females scoring highest on male and female drawings.

Functional Efficiency Versus Total Content

Analysis of variance was used to check for differences on the modified DAP test concerning the percentages of functional efficiency to total items among ten groups of junior high students differing in age, sex, and grade level. The percentage of functional efficiency to total items

was compiled for each student's highest scoring drawing (total points) and was used as his score in this statistical analysis. The ten groups were: thirteen-year-old seventh-grade girls; thirteen-year-old seventh-grade boys; thirteen-year-old eighth-grade girls; thirteen-year-old eighth-grade boys; fourteen-year-old eighth-grade girls; fourteen-year-old eighth-grade boys; fourteen-year-old ninth-grade girls; fourteen-year-old ninth-grade boys; fifteen-year-old ninth-grade girls, and fifteen-year-old ninth-grade boys. (See Table II for the distribution of the sample.) The same students were also divided into six groups on the basis of age and sex, and analysis of variance was again performed. The six groups were: thirteen-year-old girls; thirteen-year-old boys; fourteen-year-old girls; fourteen-year-old boys; fifteen-year-old girls; and fifteen-year-old boys. (See Table III for the distribution of sample by age and sex.)

The F value obtained by analysis of variance for the ten groups, based on age, sex, and grade level, was 1.03 which is not significant at the .05 level of confidence. The null hypothesis that there were no differences among the ten groups differing in age, grade, and sex, was not able to be rejected.

The F value obtained for the six groups based on age and sex only was found to be 1.97 which was not significant at the .05 level of differences among the six groups differing in age and sex and was not able to be rejected.

The means and standard deviations of the groups are presented in Tables V and VI. The standard deviations

TABLE V

MEAN PERCENTAGES AND STANDARD DEVIATIONS OF FUNCTIONAL EFFICIENCY CONTENT WITHIN THE GOODENOUGH SCORES OF SUBJECTS BY SEX, CHRONOLOGICAL AGE, AND GRADE

Age and Grade Level	$\bar{X}_F\%$	M	S.D.	$\bar{X}_F\%$	F	S.D.
Gr. 7, Age 13	50.8		5.9	51.8		6.2
Gr. 7, Age 13	51.0		5.4	52.2		5.9
Gr. 8, Age 14	51.3		5.7	52.3		4.3
Gr. 9, Age 14	51.9		4.4	51.5		4.3
Gr. 9, Age 15	52.2		6.3	52.4		4.1

TABLE VI

MEAN PERCENTAGES AND STANDARD DEVIATIONS OF FUNCTIONAL EFFICIENCY CONTENT WITHIN THE GOODENOUGH SCORES OF SUBJECTS BY SEX AND AGE

Age	$\bar{X}_F\%$	M	S.D.	$\bar{X}_F\%$	F	S.D.
13	51.4		5.8	52.0		6.0
14	51.3		5.2	51.9		4.7
15	52.6		5.4	52.4		3.6

of the groups suggest that the test does reflect individual differences at the thirteen-, fourteen-, and fifteen-year-old levels even though it does not distinguish between these levels. The standard deviations for thirteen-, fourteen-, and fifteen-year-old students are not dissimilar to the standard deviations obtained by Dye with six to twelve-year-old children using the same scoring method.⁸⁹

Only one of Dye's four twelve-year-old groups had a mean percentage of functional efficiency items over fifty per cent. The means for the four groups were: twelve-year-old females, 50.2 per cent and 46.8.⁹⁰ Dye divided his sample of twelve-year-old students into four groups on the basis of sex and an I.Q. score. Therefore, to make his data comparable to that of the present study, both of his twelve-year-old groups for each sex should be combined; consequently, the overall functional efficiency mean percentage for twelve-year-old males was 44.0% and for females was 48.3%. The thirteen-year-old students in the present study obtained mean scores of 51.4 for the males and 52.0 for the females.

In an effort to determine whether the relatively large mean difference between Dye's 12-year-old students and the present 13-year-old students could have been due to differences in scoring technique, twenty of Dye's 12-year-old

⁸⁹Dye, op. cit., p. 57.

⁹⁰Dye, op. cit., p. 57.

students' test papers were re-scored by the present scorer and a "sign test" computed to check for a constant difference in scoring.⁹¹ It was found that neither scorer was consistently higher or lower than the other. On the basis of this it seems probable that Leland's system is of considerable value through age thirteen in intellectual assessment with normal persons.

As considerable evidence suggests that the Goodenough scoring system has not proven to be valuable in assessment of M. A. over the age of approximately ten years,^{92, 93} Leland's concepts of functional efficiency and reality content should extend this ten year level and prove to be of considerable value in the assessment of I.Q. with children from the ages of six to thirteen.⁹⁴

The Modified Goodenough Scoring Method

An analysis concerning the modified Goodenough scoring method with the total points was performed as there is conflicting evidence concerning the usefulness of the DAM test with thirteen-, fourteen-, and fifteen-year-old students of normal intelligence. Lydia Levy has found evidence

⁹¹Siegel, Sidney, Nonparametric Statistics for the Behavioral Sciences. Boston: McGraw-Hill Book Co., 1956, pp. 68, 75.

⁹²Levy, loc. cit., p. 14. ⁹³Cohen, loc. cit., p. 28.

⁹⁴The age range for the Goodenough DAM test is listed as "Ages 4-10" in the Psychological Corporation test catalog, New York: The Psychological Corporation, 1962, p. 33.

which suggests that, "the Goodenough scale shows a development of progress through the fifteenth year, with a possible deterioration in the thirteenth year."⁹⁵ She obtained median scores of 35.3 in the thirteen-year group; 36.8 in the fourteen-year group, and 40.63 in the fifteen-year-old group.

Analysis of variance was used to check for differences in total points scored by the Goodenough method for six groups of students differing in age and sex only. The groups were: thirteen-year-old females; thirteen-year-old males, fourteen-year-old females; fourteen-year-old males; fifteen-year-old females; fifteen-year-old males. All of the drawings in this age range were used with the exception of drawings with "heads only" on all three figures. The F value was found to be 1.73 which is not significant at the .05 level of confidence. The null hypothesis that there are no differences among thirteen-, fourteen-, and fifteen-year-old males and females on the basis of total points scored by the Goodenough scoring method, could not be rejected. This analysis indicates that the Goodenough scoring method will not differentiate groups of thirteen-, fourteen-, and fifteen-year-old male and female junior high school students from each other. The means and standard deviations of the present analysis are presented in Table VII.

⁹⁵Levy, loc. cit., p. 14.

TABLE VII

MEAN GOODENOUGH SCORES AND STANDARD DEVIATIONS
OF SUBJECTS BY SEX AND AGE

Age	Sex					
	\bar{X}	M	S.D.	\bar{X}	F	S.D.
13	37.9		8.8	38.7		5.1
14	36.8		6.4	38.3		4.8
15	38.3		4.7	38.5		4.4

Bodily Omission

As the percentages of persons omitting the body on the modified DAP test are not known and due to the significance attributed to bodily omission, it was decided to compile the percentages of each grade and sex drawing heads only.⁹⁶ The groups were: seventh-grade males; seventh-grade females; eighth-grade males; eighth-grade females; ninth-grade males and ninth-grade females. All students who took the test were used in this table. All students were older than twelve years of age and younger than seventeen years of age with the exception of one eleven-year-six-months old, seventh-grade boy.

⁹⁶Heads or heads and necks only must have been drawn on all three drawings before the drawings met the classification of "heads only" for this table.

The seventh-grade students were found to draw "heads only" more than twice as often as the eighth and ninth-grade students. This high percentage might possibly be due to the different methods of administration. The seventh-grade students at West Junior High School were tested on the third day of testing at that school and were aware, to a degree, of testing procedure ahead of time. A large number of these students asked if they could draw heads only as if they had planned to previously, then proceeded to draw an excessive number of heads-only drawings. There actually was very little difference in bodily omission among the grade levels at East Junior High School where the entire school was tested at one session. The somewhat high percentages of students drawing heads only at all three grade levels might be an indication of the increased anxieties of puberty, as Dye's study with younger students revealed few "head only" drawings. Similar research with other age levels is needed. Table VIII is a presentation of the percentages of head only drawings for both schools combined.

Sex of First Figure Drawn

Butler and Marcuse have found that there is a steady increase in the percentages of males drawing males first, from ages five to eighteen years. They also found that females drew females first 58.8 per cent of the time at age five and only 36.4 per cent of the time at age eighteen.

TABLE VIII

PERCENTAGES OF "HEAD ONLY" DRAWINGS
FOR EACH SEX AND GRADE LEVEL

Grade	Sex	N	"Heads only"	Percentages of "head only" drawings
7	M	97	26	27
7	F	75	23	31
8	M	94	3	3
8	F	75	12	16
9	M	71	10	14
9	F	93	5	5
Total		505	79	15.6

It was concluded that the growing awareness among females of the dominance of the male sex in Western civilization was the reason for the declining number of females drawn first by the older girls.⁹⁷ Their conclusions were extremely interesting and as the data was at hand, it was decided to see if similar trends were present in the current population.

All students tested in both schools were used in this table and were divided into groups on the basis of grade level (seventh, eighth, ninth) and sex. The students were

⁹⁷Butler and Marcuse, loc. cit., p. 299.

all older than twelve years and younger than seventeen years, with the exception of one eleven-year-six months old, seventh-grade male student. The results obtained are consistent with Butler's and Marcuse's data. There appears to be a definite increase with age in females drawing male figures first. All three groups of males drew high percentages of their own sex first. Table IX illustrates the percentages and numbers of students involved.

TABLE IX

PERCENTAGES OF THE SAME SEX DRAWN FIRST
FOR EACH GRADE LEVEL AND SEX

Grade	Sex	N	Same sex drawn first	Opposite sex drawn first	Percentages drawing same sex first
7	M	97	91	6	94
7	F	75	58	17	77
8	M	94	90	4	96
8	F	75	56	19	75
9	M	71	65	6	92
9	F	93	61	34	66
Total		505			

Students Scoring Highest on Their First,
Second, or Self Drawings

Past research has suggested that younger children tend to score highest on the self-drawing when administered on an individual basis.⁹⁸ Some psychologists believe that this is the result of increased pressure caused by the more specific directions and by the individual testing situation.⁹⁹ When scoring the drawings of the students in this study there seemed to be a tendency to score more total points on the first drawing rather than on the self drawing. As this trend was counter to what was expected, Table X was compiled to illustrate how often each of the three drawings was scored. All students tested in both schools, with the exception of those drawing heads only for all three drawings, were used.

The table clearly indicates that students of these age levels score highest on the first drawing most often, score highest on the second drawing the next, and highest on the self drawing least often. The generally low scoring self-drawings were possibly caused by increased anxiety created by the directions which, at this age, could manifest itself in bodily omission. Table XI reveals that a

⁹⁸Blizzard, loc. cit., p. 19.

⁹⁹Leland and the psychology staff of Parsons State Hospital and Training Center have expressed this opinion verbally.

TABLE X

PERCENTAGES OF FIRST, SECOND, AND SELF DRAWINGS SCORED
HIGHEST FOR EACH AGE LEVEL AND SEX

Grade	Sex	Drawings Scored Highest			N Total
		First	Second	Self	
7	M	56 (76%)	16 (21%)	2 (3%)	74
7	F	46 (72%)	17 (26%)	1 (2%)	64
8	M	57 (60%)	21 (22%)	17 (18%)	95
8	F	38 (51%)	26 (35%)	10 (14%)	74
9	M	43 (61%)	10 (14%)	18 (25%)	71
9	F	50 (54%)	33 (35%)	10 (11%)	93
Total		290	123	58	471

TABLE XI

PERCENTAGES OF BODILY OMISSION ON SELF DRAWING WHEN
NOT OMITTED ON THE SAME-SEX DRAWING

Grade	Sex	% of Self Drawings With		
		Head and Trunk of Same-Sex Drawings	No Trunk (Self Drawings)	No Trunk
7	M	75	30	40
7	F	59	25	42
8	M	84	23	27
8	F	71	23	32
9	M	67	20	30
9	F	91	26	29
Total		447		

considerable percentage of the self drawings were head only drawings while the same-sex drawings of those same students were more complete. Other possible contributing factors to the lower scoring self drawing are fatigue, and/or lack of the specific reinforcement which occurs in individual testing. The smaller percentage of second drawings scored supports this hypothesis.

Comparison of the Same-Sex and Self Drawings

It has been hypothesized by Leland that the more specific directions, "Draw a picture of yourself," cause anxiety which can manifest itself in various ways. With younger children, an increased total score is usually a manifestation of the increased pressure. Older children and adolescents might possibly manifest this anxiety by omissions of various types including bodily omission. In an attempt to answer some of these possibilities, it was decided to compare the self drawings with the same-sex drawings for each grade (seventh, eighth, and ninth) and sex. On the basis of bodily omission, the same-sex drawings which consisted of at least a head and trunk were compiled. The self drawings were then examined and all "head" and "head and neck only" drawings were tabulated. The results are presented in Table XI and indicate high percentages of bodily omission on the self drawings even

when the same-sex drawings consist of a head and trunk.

The high percentage of bodily omission on the self drawings suggests that the self drawing does reflect anxieties which do not appear in the same magnitude on the same-sex drawing. The same-sex drawing possibly reflects the individual's unconscious feelings about himself while the self drawing may reflect his conscious feelings and anxieties. It is possible, however, that fatigue and/or lack of specific reinforcement were also responsible, or at least partially responsible, for the high percentages of bodily omissions on the self drawings. The encouragement given to finish in forty minutes might also have contributed to the high percentage of "head only" drawings. Further research is needed for clarification purposes.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study is an attempt to help determine whether or not the modified Draw-A-Person test can be developed into an adequate dual-purpose group screening device (intellectual and personality assessment) for psychologists working in education, guidance, and clinical settings.

The literature suggests that: (1) the Goodenough DAM test is useful in assessment of intelligence with children from four to ten years of age, and with mentally subnormal individuals over ten years of age; (2) Machover's basic concepts concerning identification in human figure drawings are correct; however, adequately conducted research is lacking; and (3) human figure drawing has many dimensions and has shown to reflect such traits as reading ability.

The Parsons, Kansas, junior high school system, which consisted of 615 seventh, eighth, and ninth grade students, was used in this project. The students, with an exception of an eleven-year, six-month old boy, were older than twelve years and younger than seventeen years of age. Due to absences, only 505 students were tested for the project.

The modified DAP test and the methods of administration and scoring used are described in detail in Chapter III.

The major secondary objective of this project was to determine whether Leland's concepts of functional efficiency and reality content are usable in assessment of intelligence with normal thirteen-, fourteen-, and fifteen-year-old junior high school students.

The students were divided into ten groups according to age, grade, and sex.¹⁰⁰ The percentage of functional efficiency content was computed for each student and analysis of variance was performed. The F value was found to be 1.03 which was not significant at the .05 level of confidence. It was concluded that there were no differences among the ten groups concerning functional efficiency and reality content. See Table II for a distribution of the sample, Table V for functional efficiency mean percentages and standard deviations, and Chapter IV for a discussion of the results.

The students were subsequently divided into six groups according to age and sex only.¹⁰¹ The functional efficiency

¹⁰⁰Thirteen-year-old seventh-grade girls; thirteen-year-old seventh-grade boys; thirteen-year-old eighth-grade girls; thirteen-year-old eighth-grade boys; fourteen-year-old eighth-grade girls; fourteen-year-old eighth-grade boys; fourteen-year-old ninth-grade girls; fourteen-year-old ninth-grade boys; fifteen-year-old ninth-grade girls; fifteen-year-old ninth-grade boys.

¹⁰¹Thirteen-year-old females; thirteen-year-old males; fourteen-year-old females; fourteen-year-old males; fifteen-year-old females; fifteen-year-old males.

scores were used again and analysis of variance performed. The F value was 1.97 which was not significant. It was concluded that there were no differences among the six groups concerning functional efficiency and reality content. See Table III for a description of the sample and Table VI for mean functional efficiency percentages and standard deviations.

It was observed that the twelve-year-old students in Dye's study obtained mean functional efficiency percentages of 44.0 per cent and 48.3 per cent for males and females, respectively. The thirteen-year-old students in the present study obtained mean percentages of 51.4 and 52.0 for males and females, respectively. The present examiner rescored twenty of Dye's twelve-year-old Draw-A-Person tests and compared his results with Dye's results by means of the sign test to check for possible scoring differences. It was found that neither scorer was consistently higher or lower than the other.¹⁰²

The conclusion was tentatively drawn that Leland's scoring system is capable of measuring mental age from six to thirteen and possibly to fourteen with males.

It was decided to check for differences in total points scored by the Goodenough method as some evidence¹⁰³ has

¹⁰²Siegel, loc. cit., pp. 68-75.

¹⁰³Levy, loc. cit., p. 14.

suggested that performance on the Draw-A-Man test continues to improve into the fourteenth and fifteenth year.¹⁰⁴ The students were divided once more into six groups according to age and sex and analysis of variance was performed. The F value was found to be 1.73 which is not significant at the .05 level of confidence. This analysis indicates that the Goodenough scoring method will not differentiate among thirteen-, fourteen-, and fifteen-year-old male and female junior high school students. See Table IV for a description of the sample and Table VII for mean Goodenough's scores and standard deviations.

The percentages of students omitting the body on all three drawings of the modified Draw-A-Person test were compiled for each grade and sex (seventh, eighth, and ninth). All students tested were included in this table and only one of the 505 students tested was not over twelve years of age and under seventeen years of age. The seventh-grade students were found to draw "heads only" more than twice as often as the eighth and ninth-grade students. All three grade levels drew a surprisingly high percentage of "heads only." See Table VIII for the percentages and the accompanying discussion in Chapter IV.

¹⁰⁴The majority of evidence, however, indicates that Goodenough's upper norms are inaccurate and that the Draw-A-Man test, using Goodenough's method of scoring should have a maximum mental age level of ten rather than thirteen.

All students tested were also checked for the sex of the first drawn figure and were divided into six groups on the basis of grade level (seventh, eighth, and ninth) and sex. There appears to be a definite increase with age in females drawing male figures first: the seventh-grade girls drew males first, seventeen per cent of the time; eighth-grade girls, nineteen per cent; and ninth-grade girls, thirty-four per cent. All three groups of males drew males first at least ninety-two per cent of the time. These results support Butler's and Marcuse's study¹⁰⁵ which is discussed in Chapters II and IV. See Table IX for the tabular results.

The numbers of students scoring the highest total number of points on their first, second, or self drawing were tabulated. Students having heads only for all three drawings were omitted from this part of the project. Table X clearly indicates that students of these age levels score highest on the first drawings most often, higher on the second drawing next, and lowest on the self drawing. See Chapter IV for a discussion of possible factors entering into these results.

A comparison of the same-sex and self-drawings was also made for each grade level and sex on the basis of

¹⁰⁵Butler and Marcuse, loc. cit., p. 299.

bodily omission of the self drawing. The same-sex drawings, which consisted of at least a head and trunk, were compiled for all students tested. The self drawings, of those compiled, were then examined and all "head" and "head and neck" only drawings were tabulated. The results are presented in Table XI and indicate high percentages of bodily omission (from 20 to 30 per cent) on the self drawings even when the same-sex drawings consist of at least a head and trunk. See Table XI for a description of the results and Chapter IV for a discussion of the results.

Conclusions

Relating to Leland's Scoring System

1. Leland's scoring system was found not to differentiate among thirteen-, fourteen-, and fifteen-year-old junior high school students.

2. This conclusion is based on a comparison of Dye's data with the present findings and suggests:

(a) Leland's scoring system will probably measure mental age through thirteen years and possibly through fourteen years with females; (b) Leland's scoring method has possible value as a group screening device to spot mentally-retarded persons, even mildly retarded persons of any age level above six years.¹⁰⁶

¹⁰⁶With children between the ages of four and ten, the Goodenough method is equally valid.

Relating to Goodenough's Scoring Method

1. The Goodenough scoring method is probably not useful with thirteen-, fourteen-, and fifteen-year-old junior high school students in intellectual assessment.

General

1. Bodily omission occurs a considerable percentage of the time with junior high school students and seems to reflect the anxieties of this period.

2. The sex first drawn by junior high school students seems to be that which has been the dominant or authority figure for them. Males drew males first at all three grade levels, 92 per cent of the time or more. The percentages of females drawing their own sex first decreased with grade level and possibly reflects the growing awareness among females of the dominance of the male sex in Western Civilization.¹⁰⁷

3. In terms of total points, junior high school students within their age level score highest on the first drawing and lowest on the self drawing. Anxiety resulting from the more specific instructions is possibly related to this. It is also possible that the lack of reinforcement, which is present in an individual testing situation, is

¹⁰⁷Butler and Marcuse, loc. cit., p. 299.

responsible for these results.

4. Relatively high percentages of students (from twenty to thirty per cent) who drew at least a head and trunk for the "same-sex" drawing, omitted the body or trunk on the self drawing. Anxiety resulting from the more specific instructions in conjunction with the age level involved is possibly a factor. Fatigue and/or lack of reinforcement might also be a factor contributing to or responsible for these results.

5. Group administration of the modified Draw-A-Person test seems to have considerable value as a projective instrument and should be especially useful as a screening device.

Recommendations

The possibilities of human figure drawing as a dual-purpose screening device have been suggested. As very few studies have been conducted with the modified Draw-A-Person test, there is an obvious need for research in both intellectual and personality areas with this test. This would include: research with Leland's concepts of functional efficiency and reality content in intellectual and personality assessment;¹⁰⁸ research with Machover's statements concerning projection on the Draw-A-Person test;¹⁰⁹

¹⁰⁸Leland, op. cit., pp. 1-13.

¹⁰⁹Machover, op. cit., pp. 4-158.

and other areas of research such as that performed by Marcus which indicated that the Draw-A-Person test possibly has value in assessing reading ability.¹¹⁰

Specific Recommendations

1. As there are not yet sufficient intelligence norms for Leland's scoring method for ages up to and including twelve, studies of this type are needed.

2. The norms for Leland's scoring method with students thirteen-, fourteen-, and fifteen-years of age are also very small. More comprehensive norms with persons of all ages older than twelve are also recommended; especially norms for thirteen- and fourteen-year-old persons are needed.

3. More research with the modified Draw-A-Person test as a group screening device for spotting mentally retarded persons of all age levels is recommended and could be conducted in conjunction with recommendations 1 and/or 2.

4. It is equally important that research be conducted with functional efficiency and reality content in the area of personality diagnosis.¹¹¹ Research concerning the diagnosis of organicity should prove profitable.

¹¹⁰Marcus, loc. cit., p. 87.

¹¹¹See Leland's unpublished paper for a more lengthy description of ideas for future research. Leland, loc. cit., pp. 1-13.

BIBLIOGRAPHY

BIBLIOGRAPHY

Books

- Burros, O. K. The Fourth Mental Measurements Yearbook.
New Jersey: The Gryphon Press, 1953.
- _____. The Fifth Mental Measurements Yearbook. New
Jersey: The Gryphon Press, 1959.
- Edwards, A. L. Statistical Methods for the Behavioral
Sciences. New York: Rinehart and Company, 1954.
- Goodenough, Florence L. Measurement of Intelligence by
Drawings. New York: Harcourt, Brace and World,
Inc., 1926.
- Klopfer, B. Developments in the Rorschach Technique.
New York: World Book Company, 1954.
- Machover, Karen. Personality Projection in the Drawings
of the Human Figure. Springfield, Ill.: Charles
C. Thomas, Publishers, 1949.
- Rappaport, D. Diagnostic Psychological Testing, Vol. I.
Chicago: The Yearbook Publishers, Inc., 1946.
- Siegel, Sidney. Nonparametric Statistics for the
Behavioral Sciences. McGraw-Hill Book Co., Inc.,
1956.

Catalogs

- Bennett, G. K. (President). The Psychological Corporation
Test Catalog, 1962. New York: The Psychological
Corporation, 1962.

Periodicals

- Armstrong, R. G. and Hauch, P. A., "Sexual Identification
and the First Figure Drawn," Journal of Consulting
Psychology, 25, 1961, pp. 51-54.

- Berdie, R. F., "Measurement of Adult Intelligence by Drawings," Journal of Clinical Psychology, 1, 1945, pp. 288-295.
- Blum, R. H., "Validity of the Machover DAP Technique," Journal of Clinical Psychology, 10, 1954, pp. 120-125.
- Buck, J. N., "The H-T-P, a Measure of Adult Intelligence and a Projective Device," Virginia State Hospital Board's Mental Hygiene Survey, 9, 1946, pp. 3-5.
- _____. "The H-T-P Technique: A Qualitative and Quantitative Scoring Manual," Journal of Clinical Psychology, 5, 1949, pp. 37-74.
- _____. "The Quality of the Quantity of the H-T-P," Journal of Clinical Psychology, 7, 1951, p. 352.
- Butler, R. L. and Marcuse, F. L., "Sex Identification at Different Ages Using the Draw-A-Person Test," Journal of Projective Techniques, 23, 1959, p. 2.
- Carkhuff, R. S., "The Goodenough Draw-A-Man Test as a Measure of Intelligence in Institutionalized Subnormal Adults," Journal of Consulting Psychology, 26, 1962, p. 477.
- Dunn, M. and Lorge, I., "A Gestalt Scale for the Appraisal of Human Figure Drawing," American Psychologist, 9, 1954, p. 357.
- Fisher, G. M., "Sexual Identification in Mentally Retarded Male Children and Adults," American Journal of Mental Deficiency, 65, 1960, pp. 42-45.
- _____. "Sexual Identification in Mentally Subnormal Females," American Journal of Mental Deficiency, 66: 1961, pp. 266-269.
- Griffith, A. V. and Peyman, D. A. R., "Eye, Ear Emphasis in the DAP as Indicating Ideas of Reference," Journal of Consulting Psychology, 23, 1959, p. 560.
- Gunzburg, H. C., "Scope and Limitations of the Goodenough Drawing Test Method in Clinical Work with Mental Defectives," Journal of Clinical Psychology, 9, 1955, pp. 8-15.

- Hammer, E. F., "Relationship Between Diagnosis of Psycho-Sexual Pathology and the Sex of the First Drawn Person," Journal of Clinical Psychology, 10, 1954, pp. 168-169.
- Haworth, Mary R. and Normington, Cheryl J., "A Sexual Differentiation Scale for the DAP Test," Journal of Projective Technique, 25, 1961, pp. 441-449.
- Hunt, R. G. and Feldman, M. J., "Body Image and Ratings of Adjustment on Human Figure Drawings," Journal of Clinical Psychology, 16, 1960, p. 35.
- Jones, A. W. and Rich, T. A., "The Goodenough Draw-A-Man test as a Measure of Intelligence in Aged Adults," Journal of Consulting Psychology, 21, 1957, pp. 235-238.
- Levi, Aurelia, "Orthopedic Disability as a Factor in Human Figure Perception," Journal of Consulting Psychology, 25, 1961, pp. 253-254.
- Lipman, M., "Aesthetic Presence of the Body," Journal of Aesthetics, 15, 1957, pp. 427-428.
- Lorge, I., Tuckman, J. and Dunn, M. B., "Human Figure Drawing by Younger and Older Adults," Journal of Clinical Psychology, 14, 1958, p. 54.
- McElwee, E. W., "The Reliability of the Goodenough Intelligence Test Used with Subnormal Children Fourteen Years of Age," Journal of Applied Psychology, 16, 1962, pp. 217-218.
- Mitchell, Anne C., "A New Maximum C. A. for the Draw-A-Man Test," Journal of Consulting Psychology, 23, 1959, p. 555.
- Starr, S. and Marcuse, Florence, "Reliability in the Draw-A-Person Test," Journal of Projective Techniques, 23, 1959, p. 83.
- Swenson, C. H., Jr. and Newton, K. R., "Development of Sexual Differentiation on the Draw-A-Person Test," Journal of Clinical Psychology, 2, 1955, pp. 417-419.
- . "Empirical Evaluations of Human Figure Drawings," Psychological Bulletin, 54, 1957, pp. 431-366.
- Tobias, J. and Gorelick, J., "The Utility of the Goodenough Scale in the Appraisal of Retarded Adults," American Journal of Mental Deficiency, 65, 1960, pp. 64-68.

Vytantas, J. B., "Sexual Identification in Children's Drawings of the Human Figure," Journal of Clinical Psychology, 16, 1960, p. 42.

Whitaker, L., "The Use of an Extended Draw-A-Person Test to Identify Homosexual and Effeminate Men," Journal of Consulting Psychology, 25, 1960, p. 482.

Unpublished Works

Blizzard, T. B., "Diagnostic Limitations of the Draw-A-Person Test with the Mentally Retarded," unpublished Master's thesis, Kansas State College of Pittsburg, 1960, pp. 26-28.

Cohen, D. N., "The Goodenough Drawing Scale Applied to Thirteen Year Old Children," unpublished Master's thesis, Columbia University, New York, 1933, p. 28.

Dye, J. E., "An Analysis of Reality Content and Functional Efficiency as Related to Maturation in Human Drawings," unpublished Master's thesis, Kansas State College of Pittsburg, 1962.

Dyett, E. G., "The Goodenough Drawing Scale Applied to College Students," unpublished Master's thesis, Columbia University, New York, 1931.

Leland, H., "Procedures for Use with the DAP Test, Part 11, Method and Interpretation," mimeographed, Parsons State Hospital and Training Center, Parsons, Kansas, 1962.

Levy, Lydia R., "Function of the Goodenough Drawing Scale in a study of High School Freshmen," unpublished Master's thesis, Columbia University, New York, 1931.

Marcus, Murry, "Behavioral Differences on the Machover Draw-A-Person Test between Slow and Fast College Readers," unpublished Master's thesis, University of Denver, Colorado, 1956.

Quirk, Evelyn, "The Reliability and Validity of the H-T-P as a Measure of Intelligence in Adolescents," unpublished Master's thesis, 1958, University of Toronto, Canada.

- Senerchia, Fred F., "Drawings of the Sane and Insane: A Survey of the Literature," unpublished Master's thesis, Columbia University, New York, 1930.
- Singer, R. H., "A Study of Drawings Produced by a Group of College Students and a Group of Hospitalized Schizophrenics," unpublished Master's thesis, University of Pennsylvania State College, 1950.
- Whitehead, Bessie M., "A Normative Study of Some Developmental Aspects of the Human Figure Drawings of Children," unpublished Master's thesis, Kansas State College of Pittsburg, 1961, p. 34.

APPENDIX

SPECIAL INSTRUCTIONS FOR SCORING FEMALE DRAWINGS ON THE DAP

Many aspects of the Goodenough Draw-A-Man Test will not apply to the female drawing, since in keeping with our concept that the patients draw themselves best, it is necessary that certain modifications in the scoring instructions be made so that a female self-drawing may be scored with some degree of consistency.

The following suggestions are offered:

Items:	1	9a	14c
	2	9c	14d
	3	9d	14f
	4a	9e	16a
	4c	10a	16b
	6a	10b	16c
	6b	10c	16d
	7a	10d	17a
	7b	10e	17b
	7c	11a	18a
	7d	12e	18b
	7e	13	
	8a	14a	
	8b	14b	

will be scored according to present Goodenough instructions.

Item 4b: The trunk is presumed to stop below the waist at a distance equal to one-half of the distance above the waist. If there is no waist indicated in any manner, and clothing is present, one-fourth of the distance down from either the neckline or the bottom of the head, if there is no neck present, to the bottom of the drawing will be considered the waist.

Item 5a: This may be credited if legs, or just feet under an evening dress, are present, and not obviously incorrectly attached.

Item 5b: As in 5a for legs.

Item 9b: A dress must clearly indicate that it is a blouse and skirt in order to count as two pieces. Thus, there must be a clear collar, buttons must stop at the belt, or there must be some indication of difference in design.

Item 11b: This item may be scored if the legs show any taper or inward angulation.

Item 12a: The trunk is to be figured in accordance with the instructions given in Item 4b.

Item 12b: As above in reference to the trunk.

Item 12c: This will be credited if waist is indicated, and item 4b and 11b can be awarded.

Item 12d: This should be credited if feet shown below an evening gown are not obviously out of proportion (see 4b and 5a above.)

Item 14e: This should be credited if legs are covered by a dress, but arms are shown properly and 5a has been credited.

Item 15a: This point may be credited if the hairdo is one which under normal circumstances would cover the ears and 8b has been credited.

Item 15b: This is not credited in terms of 15a above, but must be earned in terms of Goodenough's instructions.

