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DIAGNOSTIC LIMITATIONS OF THE DRAW-A-PERSON TEST WITH THE MENTALLY RETARDED

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

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CHAPTER I

INTRODUCTION

The historical survey in Goodenough's Measurement of Intelligence by Drawings[1] reviews this area since 1885 and indicates a continued interest of investigators in many parts of the world in the drawings of children. A recurrent theme suggested in most of the published observations was that some characteristics of the drawings were subject to a developmental process and showed significant maturational changes. More recently, this general feeling has grown to include personality factors as a major aspect of drawing behavior to the point where current emphasis has now shifted from the formal aspects of scoring, necessary in the evaluation of intelligence, to the more dynamic aspects of drawing behavior such as subjective interpretations of this behavior as it pertains to projective techniques.

The Draw-A-Person Test (DAP) first received recognition in 1926 as the Draw-A-Man Intelligence Test.[2] Since that time, a large number of studies have served to validate Goodenough's original hypotheses concerning the relationship between the drawing of a human figure and intelligence until the test now finds itself an accepted member of the

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[1]Florence Goodenough, Measurement of Intelligence by Drawings, Lewis M. Terman; (Chicago Illinois: World Book Company, 1926).

[2]Ibid.

intelligence test family.

Florence Goodenough, now deceased, and other advocaters of the DAP recognized other potentials in the test and suggested its possible use as a projective measure of personality.[3]

Since 1926, and especially as a result of the extensive use of diagnostic tests during World War II, human figure drawings have received increasing amounts of attention by psychologists and other researchers. Brower and Abt made an intensive survey of the literature up to 1956 in an attempt to assess the value of the DAP as a projective instrument and stated in summary,

> It is astonishing and regrettable that so much research effort should leave so muddied a picture of the validity of human figure drawings. The inconclusiveness of so many experimenters stems from their inadequate research design which makes them incapable of rendering a decisive answer and from failure to carry a study through its necessary completion. At the present time the validity of human figure drawings is clearly undecided. The obvious need is for experiments to yield definitive answers.[4]

In 1949 Karen Machover offered suggestions on the significance of variability in human figure drawings pertinent to personality. She reported finding that certain aspects of the personality of the individual were frequently shown in features of his drawings and that specific personality types would be more likely to present given

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[3] Ibid., 80.

[4] Daniel Brower and Lawrence E. Abt, Progress in Clinical Psychology, (New York, London: Grimes and Stratton, 1956), II, 68-72.

patterns which would enable the clinician to make diagnostic differentiation.[5]

Reviewers of Machover's book[6] almost unanimously agreed that the book was little more than a progress report based on fifteen years of clinical experience with abnormal individuals. They criticized her lack of proper validation procedures and seemed to feel that it would be dangerous to accept the book as a manual because of the abundance of subjective interpretations made by Machover concerning the drawing behavior of abnormal individuals. They were also in agreement with Brower and Abt that the validity of the projective interpretability of human figure drawings was clearly undecided.

Although Machover's suggestions served as a catalyst for further research in this area, it also tended to confine subsequent research to those statements expounded by Machover concerning the interpretations of human figure drawings. While a few researchers found valid clinical uses for the DAP as a projective instrument,[7] many found no relationship between certain drawing behaviors[8] and known personality

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[5]Karen Machover, Personality Projection in the Drawing of a Human Figure, (First Edition: Springfield Illinois: Charles C. Thomas, 1949).

[6]The Fourth Mental Measurements Yearbook, Oscar Krisen Buros, (Highland Park New Jersey: The Gryphon Press, 1953), 112-13.

[7]Using Machover's suggestions for interpretation. Supra.

[8]As described by Machover. Supra.

configurations.

A study reported by Murray, Wexler and Holzberg[9] confirmed previous findings which successfully differentiated normals and schizophrenics through an analysis of human figure drawings.

Reznikoff and Mundy successfully used human figure drawings as an independent and objective method of assessing the therapeutic process.[10]

Stanley Graham in his study on the reliability of human figure drawings stated, "Human figure drawings continued to reflect a consistent picture of the self image, despite attempts on the part of the subject to disguise or conceal what they knew or imagined to be significant details relative to weaknesses in their own personalities."[11]

Fisher and Fisher in their test of certain assumptions regarding figure drawing analysis stated, "Total results suggest that it is precarious to accept most of the current assumptions regarding figure analysis (particularly as expounded by Machover) without the confirmation of further

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[9]Murray, Wexler and Jules D. Holzberg, "A Further Study of the Variability of Human Form Drawings," Journal of Projective Techniques, XVI, (June 1952 No. 2), 249-51.

[10]Marvin Reznikoff and Lawrence Mundy, "Changes in Human Figure Drawings Associated with Therapy: A Case Study," American Journal of Psychotherapy, S, (July 1956), 542-49.

[11]Stanley R. Graham, "A Study of Reliability in Human Figure Drawings," Journal of Projective Techniques, XX, (December 1956), 385-86.

research."[12]

Sipprelle and Swenson found no significant relationship between the patient's sexual adjustment and the sexual characteristics of their human figure drawings.[13]

Ribler in his work with schizophrenics, neurotics and normals suggested that further work was necessary before the variables of eye and ear emphasis (as suggested by Machover) could be used with any degree of confidence by the practicing clinician.[14]

The high degree of variability of the results of studies reported above and the ambivalent nature of many other studies from 1956 to the present time suggests that the actual value of the DAP as a projective instrument is still clearly undecided. Therefore, the question of the DAP's value as a projective technique, at this time, is not clear as to its applicability to the general population, much less the relatively untouched area of mental retardation.

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[12]Seymour Fisher and Rhoda Fisher, "Tests of Certain Assumptions Regarding Figure Drawing Analysis," Journal of Abnormal and Social Psychology, SLV, (January 1950), 727-32.

[13]Carl N. Sipprelle and Clifford H. Swenson, "Relationship of Sexual Adjustment to Certain Characteristics of Human Figure Drawings," Journal of Consulting Psychology, XX, (June 1956), 197-8.

[14]Ronald Ribler, "Diagnostic Prediction from Emphasis on the Eye and Ear in Human Figure Drawings," Journal of Consulting Psychology, XXI, (June 1957), 223-5.

Purpose and Importance of Studying the Problem

Since the DAP is currently used by the Psychology Department at Parsons State Hospital and Training Center (P.S.H.T.C.) as a screening device for intelligence and as a projective test, a study of the utility of the DAP as a projective technique was undertaken with the following specific objectives:

1. How does the mentally retarded population of males and females between the ages of fourteen and twenty-two years inclusive, IQ 50-75, who are resident patients at P.S.H.T.C. perform as a group on the DAP?
2. What is the relationship between chronological age and sex to the task of drawing a human figure?
3. Is the Machover system of projective interpretation of human figure drawings applicable to the above mentioned population?

The underlying hypothesis of the Machover system is based on this statement: "the human figure drawn by an individual.....relates intimately to the impulses, anxieties, conflicts and compensations characteristic of that individual. In some sense, the figure drawn is the person.....". Again in the interpretation section, "each characteristic of the drawing is considered separately."[15]

Although Machover never makes a direct statement, the following remarks, "the concave or orally receptive mouth

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[15]Buros, 112-13.

is frequently encountered in the drawings of infantile, dependent individuals.....the eyes are the chief point of concentration of the feeling of 'self' and the vulnerability of the self.....severely shaded or reinforced fingers are generally regarded as guilt indication,"[16] would seem to indicate that an underlying hypothesis of the Machover system is that items must either be present in order for an analysis to be made or that leaving off of body parts may be projectively significant if a developmental stage has been reached for the normal occurrence of those items. For all practical purposes, an individual who has a chronological age of thirteen years or higher is capable, if normal intelligence is assumed, of including the characteristics which were used in this study.

Logically then, this population would have to consistently include items when drawing a human figure before the Machover system could be realistically applied.

Thus, since there is nothing in the available literature which indicates that the value of the DAP as a projective test with mentally retarded adolescents has been adequately assessed and since we must conclude that the DAP is currently being used somewhat blindly, it seems clear that this study is of utmost importance to the field of clinical psychology, and more specifically to the Psychology Department at P.S.H.T.C.

Scope and Limitations

This study will include only those individuals who are

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[16] Ibid.

between the ages of fourteen and twenty-two years of age inclusive, male and female, who have a recorded intelligence quotient of 50-75. This somewhat arbitrary selection was made in order that at least a minimal performance on the DAP (mental age of three years or higher) would be assured. Further, results of this study will apply only to those individuals who have for some reason become institutionalized at P.S.H.T.C. Length of institutionalization, cottage placement, educational and/or psychiatric diagnoses were not controlled in this study. These factors, however, will be discussed as to their possible importance in Chapter III.

In the majority of cases, only the self drawing was scored. This by definition limits the study to those drawings even though it is very conceivable that the other drawings contained pertinent material.

CHAPTER II

SETTING OF THE STUDY

As stated earlier, there are many variables present in an institutional setting which are difficult to control. Varied educational and/or training programs, places of residence, psychiatric and medical prescriptions and various peer group affiliations are only a few of these. Since these factors presumably affect each child in some way, it seems clear that these factors will be reflected in each child's behavior. Logically then, since test performance is behavior and since behavior is at least partially dependent upon the immediate environment, an awareness of the immediate environment would be most conducive to the understanding of specific individual and group behaviors. For this reason, a brief description of the institution and the testing program (part of the child's immediate environment) is included here so as to offer a more complete and comprehensive overview of the study.

P.S.H.T.C.[17] is a psychiatric treatment center for children between the ages of six and twenty-one (there are a few exceptions) who are residents of the State of Kansas. Admission requirements are based on the chronological age of the child, a reported low mental level and any emotional disturbance which renders a child incapable of receiving

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[17]As described in the Twenty-eighth Biennial Report, June 1958.

instruction in the public school system in either regular or special classes. A small percentage of children are also admitted here not because they could not benefit from special education classes but because there are no available special education facilities in or near their communities.

Services offered to these children are residential care, medical, psychiatric and psychological examinations, educational and/or training programs and specific therapies in line with each child's particular problem, whether it be learning difficulties or emotional maladjustment. The ultimate goal of the program is rehabilitation.

Every child receives a comprehensive evaluation within three weeks of his admission. He is observed by a psychiatrist, physician, psychologist, social worker and by the various adjunctive services in order that adequate future plans may be made for him. A representative of each discipline attends each evaluation conference and discusses the emotional, social, intellectual and physical assets, limitations and needs of each child as observed in that area during the evaluation period. From this conference there evolves a tentative treatment plan which seems most suitable for the child under consideration. The word tentative as used here is an important one, as similar conferences are held upon recommendation from any one of the services that a child is either not responding to the psychiatric prescription or has received maximum benefit from

the program and is ready for discharge from the institution.

Also included in the services offered each child are the adjunctive services, which will include, according to the psychiatric prescription, any one or all of the following: Special Education, Occupational Therapy (Arts and Crafts), Vocational Training and Guidance, Speech and Hearing Therapy, Recreational Therapy, Music Therapy, and Religious Education and Counseling.

Each child is housed in one of the resident cottages on the basis of chronological age, functional level and treatment needs. These cottages are attended by qualified psychiatric aides who deal with the child according to the psychiatric prescription (arranged by the resident psychiatrist and administered through the Nursing Services Department). Although homogeneity of groupings is always desired, this is not always accomplished for a variety of reasons which range all the way from bed shortage to the particular psychologic problems of the child.

Thus, the above mentioned approach, which also includes individual psychotherapy or counseling, becomes what is now considered by the hospital a multi-disciplinary approach designed to meet the needs of each child regardless of the medical and/or psychological problem presented.

Testing Program

Although all children have received some type of psychological examination during their stay at P.S.H.T.C.,

it was not until November of 1957, when a department of clinical psychology was developed, that a systematic psychological testing program was fully initiated.

The program now consists of a standard test battery which is not only administered to all newly admitted children and referrals from other services, but to all resident patients on a routine basis every two years. There is also an outpatient evaluation service. Although there are a few exceptions, a standard battery of psychological tests including the Wechsler Intelligence Scale for Children (WISC) or Wechsler Adult Intelligence Scale (WAIS), the Draw-A-Person Intelligence test (DAP), the Bender-Gestalt (BG) and the Rorschach Ink Blot Test are administered to each child by a staff psychologist. Each test is interpreted and the recommendations and diagnostic information yielded becomes the major contribution of the Psychology Department in the multi-disciplinary team. The psychologist is also responsible for knowing and including in his report the more salient features of the medical and social history of each child. In many cases this information is merely supportive in nature, but for some this information serves as the etiological clue for the psychologist. Thus the whole child is considered in the psychological diagnosis which contains all the major aspects of his medical, social and psychological life. Obviously, when the history is not complete, this cannot be fully accomplished; however,

most children, upon admittance, have a fairly complete social and medical history.

This type of program, which is considered to be administratively sound, has several definite advantages: (a) all children are evaluated by the same instruments, (b) growth or deterioration processes can be readily ascertained on the basis of a comparison of initial and subsequent test results on an indentical test, and (c) this procedure facilitates the examination of the major personality characteristics of the child being tested whether he be brain damaged and/or emotionally disturbed.

Finally, a functional level, the presence or absence of organic factors and/or emotional maladjustment, possible etiological clues to either or both of these, and a suggested treatment program are derived from the psychologists' observations of the child and their interpretations of the psychological test results.

The other feature of the program which deserves mention at this point is the reason for the more than arbitrary selection of those tests which constitute the test battery. The psychologist is asked in every instance to answer those diagnostic questions which pertain to functional levels and potentials; organic and/or emotional factors, etiology of either or both of these; and possible rehabilitation potential. The extent to which he is successful in answering these questions is dependent upon the validity of the

psychological instruments at his command and his subjective and objective interpretations of these instruments. The above mentioned test battery was chosen because of its widespread use and its applicability to the P.S.H.T.C. population.

The DAP, one of the tests in the battery, is most often used as an instrument for determining an individual's IQ; however it also provides the psychologist with an additional projective device and is usually used to supplement such projectives as the Rorschach or Thematic Apperception Test. In many cases it is used as a guide to the personality dynamics of the child and is in all cases considered an expression of the child's personality. However, because of the lack of objective data concerning this test and the mentally retarded child, all personality evaluations derived from it are either purely subjective or at most are based on the psychologist's past clinical experience. In fact, the psychologist, because of the nature of the test material, may very easily project more of his own personality into the drawings than did the patient. None the less, an abundance of interpretative material concerning the patient's self concept, his contact with reality, etc., has been derived on the basis of an analysis of the DAP and included in his case file.

CHAPTER III

PLAN AND PROCEDURE

Description of the Sample

The sample used in this study consisted of fifty-two male and female patients at P.S.H.T.C. between the ages of fourteen and twenty-two years inclusive who had recorded intelligence quotients in the past two years of 50 to 75. This sample is considered to be a representative sample of the total population of patients who have similar intelligence quotients and chronological ages. Selection of the sample was made in the following manner. Names of the total population of males and females who were between the ages of fourteen and twenty-two years and had recorded IQ's of 50-75 were taken from the Psychology Department Files. In all, there were one hundred and fourteen subjects who met this criteria. Although the sample was initially considered as a total group, a sub-division of four groups of thirteen each was used to show the relationship, if any, between chronological age (CA) and sex of the patient and drawing behaviors on the DAP. The sub-division process resulted in the following group description: Group A (male, CA 14-18, IQ 50-75), Group B (female, CA 14-18, IQ 50-75), Group C (male, CA 18-22, IQ 50-75, and Group D (female, CA 18-22, IQ 50-75). Each name in each of the four groups was then placed in alphabetical order and assigned a number, the first alphabetical name in each group

receiving the number 1 and so on. A table of random numbers was then used to assure a representative sample of each group and the total population. The total number of the sample was arbitrarily decided to be fifty-two, thirteen in each sub-group. This not only provided an acceptable sample in numerical terms but also facilitated statistical computation. This sample was chosen specifically in order to insure at least minimal performance on the DAP (mental age 3 years or higher). The mean age and IQ for the total group is indicated in the following table.

TABLE I

MEAN AGE AND INTELLIGENCE QUOTIENT OF THE SAMPLE

	Total Group	Group A	Group B	Group C	Group D
Mean Age	18-3*	17-3	17-0	19-9	19-2
Mean IQ	61.1	61.4	59.4	64.3	59.4

In general, specific attention was not given to the individual patient's cottage placement, educational and/or training program, or medical and/or psychiatric diagnosis. It was realized at the outset that these factors might have

*Mean ages given in years and months

a considerable effect upon the patient and further that these effects would be reflected in his drawing behavior. It is conceivable, for example, that cottage placement may be reflected in a patient's drawing behavior. A patient residing on a cottage composed entirely of mongoloid children would probably perceive and draw the world about him as being a mongoloid world filled with mongoloid people doing mongoloid things. Similarly, if he were the largest child on his cottage, it is likely that he would see and draw himself as being larger than his peer group. This particular variable is somewhat lessened in this instance as to its overall effect since the majority of the patients included in this study, because of their age and functional level, are housed on the same or similar cottages. It should be interjected at this point that the cottages are homogeneous in regard to age and functional level but not necessarily in the psychiatric diagnosis. The education and/or training programs are likewise similar for the group being studied. The whole question of psychiatric diagnosis is certainly an important factor in understanding the drawing behavior of this group; however, this factor could not be realistically evaluated in this study since the psychiatric diagnosis was, in part, derived from the results obtained from the DAP. Let it suffice to say that all of the children used in this study are, to some extent, emotionally disturbed. This is not to say that all retarded children are emotionally disturbed, but rather that those children who require institutionalization in most instances presented some type of

psychiatric problem in the community which interfered with a normal class room setting, even of the special education variety, which necessitated their leaving the community in favor of a more structured situation. Thus, there are a group of factors present in an institutionalized population which separates them from the same type of population in the community. Obviously, the psychiatric question has not been answered as yet. It was not intended to be answered in this study, although future studies might be designed for that purpose.

Development of the Design

Sources of Data. Since one of the factors involved in this study concerned the chronological age of the patient, special attention was given each file to insure the correctness of the chronological age on the test administration date. In those cases where the chronological age of the patient at the time of testing did not coincide with the group being considered or where the patient had not been tested in the past two years, new patients were randomly selected from the files or new testing was accomplished. Patients' intelligence quotients were based on their performance on a standard individual intelligence test (either the WISC or the WAIS depending upon their chronological ages at the time of testing*) for an individual measure of each

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*Individuals sixteen years and older receive the WAIS.

patient's functional level. The majority of the drawings used had been collected by several psychologists over a two-year period and housed in the Psychology Department files.

Procedures for Collection of Data. The drawings were then distributed among three staff members of the Department of Clinical Psychology who were asked to count on a "presence or absence" basis the following characteristics: head, eyes, ears, nose, mouth, eye brows, eye lashes, pupil of eyes, hair, trunk, arms, hands, fingers, leg, feet, clothing, transparency or shading. An item was scored present if at least one of the possible features was included in the drawing; e.g., one eye or one ear. In most cases the self drawing was scored. This is the third drawing obtained from each patient, the first two consisting of a man and woman drawing, and is usually the one which contains the highest number of scorable items. However, if either the man or woman drawing had received the highest score in the initial evaluation it was scored in preference to the self drawing. In a very few instances a fourth drawing was scored. Occasionally the patient does not include the body in the first three drawings and is then asked to draw a whole person. In other words, each patient's drawing which scored highest in the initial evaluation was used in this study.

After each psychologist had independently scored each test, the results were tabulated for inter-examiner agreement.

In those cases when they had failed to agree, the drawings were re-scored by the group. In a few instances there was still some question as to whether a certain item was a hand or fingers and agreement was not reached. When this occurred, the decision was reached on the basis of a majority vote.

Statistical Method

Since the presence or absence of characteristics in the drawings could be considered as discrete, dichotomous events, chi square was used in analyzing the data. Chi square is never negative, since each term in the numerator is a square and each denominator is a positive number. If the observed frequencies should agree completely with the hypothetical, chi square (x^2) would be zero. X^2 increases in size as the observed frequencies depart more and more from the hypothetical. It is commonly used when the scores from two independent random samples all fall into one or the other of two mutually exclusive classes, i.e., every subject in both groups obtains one of two possible scores. The scores are represented by frequencies in a 2 x 2 contingency table as illustrated in Figure 1. The two independent groups, A and B, are tested to determine whether they are the same, whether they differ in the proportion with which they fall into two classifications, presence or absence. For the data in Figure 1 (where a, b, c, and d signify frequencies) it would be possible to determine whether Group A and B differ significantly in the proportion of pluses and minuses* attributed to them.

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*Pluses in this instance refer to presence of body parts.

By using this formula on a 2 x 2 frequency table, differences, if any, between any two sub groups on each characteristic could then be determined.

Figure 1

Group A	a	b	a+b
Group B	c	d	c+d
Total	a+c	b+d	

Walker and Lev suggest that when the expected frequency in any cell in a 2 x 2 table is 5 or less the Yates correction formula should be used. Since this was the case in the majority of the 2 x 2 tables in this study, the Yates correction formula was used throughout. The formula as stated by the authors is

$$Xy^2 \quad \frac{(ad\ bc\ -N/2)^2 N}{(a+b)\ (a+c)\ (b+c)\ (c+d)} \qquad ^{18}$$

The null hypothesis (no differences between groups) was stated and all possible comparisons were made between the four sub-groups on each characteristic to determine the significance of difference if any between groups on each characteristic. Stated in another manner, the relationship between chronological age and sex factors and drawing behavior was determined in this analysis. The .05 level* of confidence was selected for rejection of the null hypothesis.

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[18]Helen M. Walker and Joseph Lev, Statistical Inference, (New York: Henry Holt and Company, 1953), 106.

*.05 level of confidence is a somewhat arbitrary selection, and is based, in part, on its common usage in current psychological studies.

In order to describe the drawing behavior which was typical of each group, a percentage table was devised to indicate the percentage of individuals in each group who included each characteristic in their drawings. A rank order of characteristics according to their incidence was also indicated for each group as well as for the total group. This table was specifically designed to enable the reader to evaluate, in terms of items included, the applicability of the DAP with a mentally retarded group of adolescents.

CHAPTER IV

RESULTS

Fifty-two mentally retarded adolescents were classified according to chronological age and sex. This classification resulted in four sub groups, Groups A, B, C and D, which were then compared as to their drawing behavior on the DAP. Chi square was used to test the null hypothesis. The results of these comparisons are presented in Tables II, III and IV. Table II contains the chi square values for each group comparison on eighteen characteristics.

Six significant differences were noted on the sub-group comparisons. These are: Young females included the eye brow and the pupil of the eye in their drawings more frequently than the young male group. Similarly, young females emphasized the pupil of the eye and the clothing, in the young female-old male comparison. Young females, when compared to the older female group, included clothing in their drawings more often than did the old female group. In the older male-female comparison, a significant difference was noted on the ear in favor of the male group.

In the case of the chronological age comparison (presented in Table III) the null hypothesis was not rejected with the exception of the clothing characteristic where the younger group included this item significantly more times than did the older group.

TABLE II

CHI SQUARE VALUES FOR THE COMPARISON OF GROUPS A, B, C AND D ON THE PRESENCE OR ABSENCE OF EIGHTEEN CHARACTERISTICS

	COMPARISONS					
CHARACTERISTICS	A to B	A to C	A to D	B to C	B to D	C to D
Head	--	--	--	--	--	--
Eye	--	--	--	--	--	--
Ear	.154	--	3.02	.63	.679	3.869*
Nose	--	--	--	--	--	--
Mouth	--	--	--	--	--	--
Brow	3.869*	.63	.63	.679	.679	--
Lashes	2.836	.537	1.5	.679	.18	--
Pupil	5.538*	--	1.46	3.869*	.679	1.462
Hair	--	.99	--	.99	--	.216
Trunk	.99	.216	--	--	.295	--
Arm	.012	--	.216	.537	2.659	.216
Hand	1.95	.295	.99	.18	--	--
Finger	1.462	--	--	1.46	2.521	--
Leg	--	--	.295	--	--	--
Clothing	3.087	--	.154	4.513*	6.11*	--
Transparency	--	--	.537	--	.541	.57
Shading	.99	.216	2.659	--	--	.57
Feet	--	.679	--	1.625	.216	.162

* Significant at the .05 level of confidence

-- Chi square value of 0.0

TABLE III

CHI SQUARE VALUES FOR THE COMPARISON OF AGE FACTORS FOR GROUPS A, B, C AND D WHEN COMPARED ON THE PRESENCE OR ABSENCE OF EIGHTEEN CHARACTERISTICS

CHARACTERISTICS	YOUNG-OLD	CHARACTERISTICS	YOUNG-OLD
Head	--	Trunk	--
Eye	--	Arm	.664
Ear	.076	Hand	.097
Nose	--	Finger	1.232
Mouth	--	Leg	.147
Brow	--	Feet	1.499
Lashes	--	Clothing	3.866*
Pupil	.311	Transparence	--
Hair	.664	Shading	.664

* Significant at the .05 level of confidence

-- Chi Square value of 0.0

In the case of sex factors (presented in Table IV) the null hypothesis was not rejected with the single exception of the females' significant inclusion of the pupil of the eye in their drawings.

TABLE IV

CHI SQUARE VALUES FOR THE COMPARISON OF SEX FACTORS FOR GROUPS A, B, C AND D WHEN COMPARED ON THE PRESENCE OR ABSENCE OF EIGHTEEN CHARACTERISTICS

CHARACTERISTICS	MALE-FEMALE	CHARACTERISTICS	MALE-FEMALE
Head	--	Trunk	.123
Eye	--	Arm	--
Ear	3.769	Hand	1.641
Nose	--	Finger	.308
Mouth	--	Leg	.147
Brow	1.875	Feet	.374
Lashes	3.095	Clothing	.709
Pupil	6.267*	Transparency	.66
Hair	.147	Shading	2.641

* Significant at the .05 level of confidence

-- Chi square value of 0.0

It would appear that when the groups were combined they tended to cancel out some of the previously noted significant differences. Thus, there seems to be certain sub-group dynamics which are reflected in an individual comparison but which seem to disappear when the group is considered as a whole.

Finally, since there were only six significant differences

noted in the sub group comparisons and since five and four tenths of these would be expected by chance in one-hundred and eight comparisons, it must be concluded that drawing behavior, as it was evaluated in this study, does not differentiate between males and females in either the young or old group comparisons. This does not mean that males and females are the same nor does it necessarily infer that the differences noted were not due to age and/or sex factors. In fact, the high level of significance on several of the comparisons suggests that age and sex factors do play a definite role in human figure drawing; however, further research is needed before any realistic and valid conclusions about these differences and their meanings can be attached to them.

Table V consists of the percentage of patients in the total group and each sub-group who included each characteristic in their drawings.

TABLE V

PERCENTAGE ANALYSIS OF INDIVIDUALS INCLUDING CHARACTERISTICS IN THEIR DRAWINGS

CHARACTERISTICS	TOTAL GROUP	MALE 14-22	FEMALE 14-22	MALE 14-18	FEMALE 18-22	MALE 14-18	FEMALE 18-22
Head	100	100	100	100	100	100	100
Eye	100	100	100	100	100	100	100
Mouth	100	100	100	100	100	100	100
Nose	98	100	96.1	100	100	100	92.3
Hair	84.6	80.7	88.4	92.3	69.2	92.3	84.6
Arm	84.6	84.6	84.6	84.6	84.6	100	69.2
Leg	84.6	88.4	80.7	92.3	84.6	84.6	76.9
Trunk	80.7	77.0	84.6	69.2	84.6	92.3	76.9
Feet	71.1	65.3	77.0	76.9	53.8	84.6	69.2
Clothing	57.6	50.0	65.3	53.8	46.1	92.3	38.4
Brow	53.8	42.3	65.3	30.7	53.8	76.9	53.8
Finger	51.9	46.1	57.6	46.1	46.1	76.9	38.4
Ear	50.0	65.3	34.6	61.5	69.2	46.1	23.1
Pupil	46.1	26.9	65.3	23.1	23.0	76.9	53.8
Hand	25.0	15.3	34.6	7.6	30.7	38.4	30.7
Lash	19.2	7.6	30.7	0.0	15.3	38.4	23.1
Shading	15.3	26.9	3.8	30.7	23.0	7.6	0.0
Transparency	13.4	19.2	7.6	15.3	23.0	15.3	0.0

The rank order of preferred characteristics for the total group is as follows: head, eye, mouth* nose, hair, arm, leg, trunk, feet, clothing, brow, finger, ear, pupil of the eye, hand, lash, shading and transparency.

Since the null hypothesis was not rejected in every instance except two and since the group as a whole consistently left off body parts, it seems clear from Table V that the absence of body parts is primarily a function of mental retardation and not the many psychogenic factors usually ascribed to this behavior.** Certainly individual differences were evident, as were a number of sub-group differences which have already been mentioned, and this would lend credence to the notion that psychogenic factors are directly involved in the task of drawing a human figure.

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*Head, eye and mouth are included 100 per cent of the time; thus no rank order can be assigned for these characteristics. The writer's experience, however, is that the head is always drawn first.

**Remembering that the subjects posed a wide variety of psychological problems; thus overall retardation would be reflected more than specific psychologic problems as such even though these were surely involved in individual performances.

Also it is entirely conceivable that there are various age and sex differences other than those noted here which are involved in the task of drawing a human figure but which were not measured in this study. However, it seems clear that further research is necessary before the DAP can be effectively and safely used as a projective instrument with a mentally retarded institutionalized population such as the one used in this study. Further, it would be inadvisable to continue using this test as a projective instrument until this research is accomplished.

CHAPTER V

DISCUSSION

Even though each sub group performed in much the same manner, certain significant differences which were noted between the groups deserve discussion here and, even though it is of the post hoc variety, may partially explain those differences which were not due to chance factors. That males differ from females is not a startling revelation; however it is interesting to note the particular way these differences were reflected in their drawings. Four items, the brow, lashes, pupil and clothing, which were drawn predominantly by the female group, would seem to lend credence to the notion that these are primarily items of female interest in our culture. In the younger male-female comparison females significantly included the brow and pupil in their drawings and had a tendency to include the lash and clothing more often than the male group. Younger females also differed significantly from older males on items pupil and clothing.

The most striking difference and the least expected one was found in the young female and the old female comparison where the young female group placed a great deal of emphasis on clothing while the older group seemed to almost completely ignore this characteristic in their drawings. At first glance this seems to be a complete reversal of the expected pattern of behavior for these two groups; that is, if clothing is considered a developmental characteristic.

Clothing is included as a group characteristic 57.6 per cent of the time, which would seem to indicate a developmental process; however, 92.3 per cent of the young female group included this item. On the one hand this tends to be misleading in that it raises the total percentage for the group but at the same time lends support to the notion that this is not a developmental question at all. It would be entirely proper to assume that males and older females, although developmentally matured to the point of including clothing, nonetheless do not usually include this item in their drawings. The reasons for this type of behavior are not clear; however, two possible explanations are offered here. The younger females who are currently working through problems typical of adolescence are presumably preoccupied with dressing up, looking nice and so forth, while the older female group, having passed through the adolescent period, are no longer interested in this particular aspect of life. The male groups' unconcern for clothing is probably reflective of the "blue jean" practice in our culture where the male does not become clothes conscious, if at all, until much later in life. Another possible explanation, which might be even more plausible than the first, especially when one considers that our population is allowed only minimal initiative in choosing their clothing (this would tend to limit a clothing emphasis in any of the groups), is the unnatural male-female relationships which are fostered by

the institution. Males are not free to interact with members of the opposite sex in a normal way, being closely supervised on every occasion by nurses, cottage aides, or other staff members. In many cases this leads to a type of homosexual acting out behavior in the male group which is not as evident in the female group. It is interesting to note in this regard that a large percentage of the male population, when frustrated, act out in a wide variety of ways, while the female group, as a rule, either elope and have a sexual experience in the process or, what is more common, either discard their clothing or tear it up when they become frustrated. The leaving off of clothing by the older females, then, could conceivably be a sublimation process in which the female gains some degree of satisfaction in thinking of herself as naked (and desirable) in the eyes of her male peer group. Whatever the explanation, a great deal of emphasis is placed on clothing by the female group.

The significant inclusion of the ear by the male group both in the older male-female and the total male-female comparisons is fairly easily explained in terms of an individual's tendency to draw what he sees in himself, at least physically. Thus, the female who typically does not see her ear because it is usually covered by her hair will have a tendency to overlook this item when drawing a human figure.

The pupil, which was significantly drawn more often

by the female group in the male-female comparison, in conjunction with a tendency to include brows and lashes, is merely a manifestation of previous sub-group behaviors which have already been fully discussed.

Young females also more closely resemble the older male group than the younger male group on total characteristics. This would seem to further validate the physiological construct that females generally mature at a faster rate than do males.

Of the two major tables, the percentage table is probably the most diagnostically valuable and therefore useful to the clinician. It answers more fully the question, what drawing behaviors are typical of mentally retarded patients who are between the ages of fourteen and twenty-two and have IQ's ranging from 50-75. The psychologist, by examining the table, can readily ascertain the usual drawing characteristics of any of the sub-groups reported on in this study. He can then more easily detect individual deviations in the performance of future patients who fall into the defined population and will most assuredly be in a better position to make diagnostic inferences about those patients. The research optometrist has given the psychologist a clearer lens for his clinical glasses.*

The table itself clearly shows that the leaving off of body parts is a function of mental retardation and not the wide variety of psychogenic problems usually attributed to this behavior.

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* Granted, the glasses will always be more hazy in areas of mean performances.

Thus, it would seem to be a dangerous procedure to attach any projective meanings to those behaviors which are typical of this group. This is not to say, however, that the group which received consideration in this study does not present psychogenic problems, rather that they do not all present the same psychologic disorder and as a group tend to reflect their retardation in their drawings more consistently than any specific personality disorder as such.

Lastly, since current projective methods are concerned with either the failure to include various items after a developmental level has been reached which would normally allow for the inclusion of those items or certain drawing nuances of items which are included, and since this population as a result of retardation typically leaves off body parts, it would appear to be a dangerous procedure to continue to use the DAP as a projective test with this population.

CHAPTER VI

SUMMARY

The P.S.H.T.C. population and its testing program were described. A sample population of fifty-two resident patients, male and female, between the ages of fourteen and twenty-two inclusive, having recorded IQ's of 50 - 75 were randomly selected from the total population. The DAP was administered to the sample group and independently scored by three staff members of the Psychology Department for presence or absence of the following body parts: hand, eye, ear, nose, mouth, eyebrow, eye lashes, pupil, hair, trunk, arm, hand, finger, leg, feet, clothing, transparency and shading. The group was then divided into four sub-groups consisting of Group A (male, 14-18), Group B (female 14-18), Group C (male 18-22), and Group D (female 18-22). The IQ range for the total group was 50 - 75. The groups were then compared by using the chi square test to ascertain differences between the groups on eighteen characteristics. All possible comparisons were made. The group was then described by percentages as to their individual performance on each characteristic. Characteristics were then ranked according to their incidence for each sub-group and the total group. Results of the chi square comparisons and the percentage analysis were tabulated and stated in table form in conjunction with a discussion of the tables and their

significance. Suggestions were made pertaining to further research. Generally the following questions were answered: What drawing characteristics as observed on the DAP are typical of mentally retarded males and females between the ages of fourteen and twenty-two who have recorded IQ's of 50 - 75? How are sex, chronological age and intelligence related to drawing behavior on the DAP? Is the DAP applicable as a projective instrument with the above mentioned population?

The following things were found. On the whole, the above mentioned population performed similarly on the DAP with only eight significant differences being noted out of one hundred and forty-four separate comparisons on eighteen characteristics. The significant differences were:

1. Characteristics eyebrow and eye lashes -- young male and female comparison, females included these items most often.
2. Characteristics pupil of eye and clothing -- young female and old male comparison, female group included these items most often.
3. Characteristic ear -- older males to older females, males included this item most often.
4. Characteristic clothing -- young females to old females, young females included this item most often.
5. Characteristic clothing -- total young group to total group, young group included this item most often.

6. Characteristic pupil of eye -- total male group to total female group, female group included this item most often. These could have occurred on a chance basis.

The total group showed the following characteristic preference: head, eye, mouth, nose, hair, arm, leg, trunk, feet, clothing, eyebrow, finger, ear, pupil of eye, hand, lashes, shading and transparency.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

From an analysis of the results, the following conclusions were drawn:

1. It is characteristic of mentally retarded adolescents to leave off body parts when drawing a human figure. In most part, the leaving off of body parts is a function of retardation. Thus, it would seem to be a dangerous procedure to attach any other meaning to this behavior.
2. Sex and chronological age differences do exist in the sub-groups' drawing behavior and should be taken into consideration when interpretations of the DAP are made. However, further research is needed before the real meaning of these differences (including possible chance occurrences) can be realistically evaluated.
3. The Machover system, as it is now used, is not applicable to this population.

Recommendations

The following recommendations are based on the results of this study and its limitations:

1. This study should be replicated in a different setting with a similar population.

2. Effects of length of institutionalization, sociological background, cottage placement and educational and/or training programs as they are manifested in human figure drawings should be intensively studied in order to give a more complete picture of the clinical value of the DAP as a projective instrument with the mentally retarded.
3. The whole question of medical and/or psychiatric syndromes needs to be carefully considered. A suggested study would consist of studying the drawing behavior of a group of defined individuals who presented certain medical and/or psychiatric characteristics in an attempt to discover any relationship between the two.
4. The young female group should be retested in three years and compared with the results gained from the older group of females in this study. In this regard, a comparison of this group with a non-institutionalized retarded population could be very revealing.
5. Until the above mentioned research has been accomplished, the psychologist working with a mentally retarded population should exercise extreme caution when using the DAP for projective purposes.

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APPENDIX

Raw Data

CHARACTERISTIC	GROUP	PRESENCE	ABSENCE
Head	A	13	0
	B	13	0
	C	13	0
	D	13	0
Eye	A	13	0
	B	13	0
	C	13	0
	D	13	0
Ear	A	8	5
	B	6	7
	C	9	4
	D	3	10
Nose	A	13	0
	B	13	0
	C	13	0
	D	12	1
Mouth	A	13	0
	B	13	0
	C	13	0
	D	13	0
Brow	A	4	9
	B	10	3
	C	7	6
	D	7	6
Lashes	A	0	13
	B	5	8
	C	2	11
	D	3	10

CHARACTERISTIC	GROUP	PRESENCE	ABSENCE
Pupil	A	3	10
	B	10	3
	C	4	9
	D	7	6
Hair	A	12	1
	B	12	1
	C	9	4
	D	11	2
Trunk	A	9	4
	B	12	1
	C	11	2
	D	10	3
Arm	A	11	2
	B	13	0
	C	11	2
	D	9	4
Hand	A	1	12
	B	5	8
	C	3	10
	D	4	9
Finger	A	6	7
	B	10	3
	C	6	7
	D	5	8
Leg	A	12	1
	B	11	2
	C	11	2
	D	10	3
Feet	A	10	3
	B	11	2
	C	7	6
	D	9	4

CHARACTERISTIC	GROUP	PRESENCE	ABSENCE
Clothing	A	7	6
	B	12	1
	C	6	7
	D	5	8
Transparency	A	2	11
	B	2	11
	C	3	10
	D	0	13
Shading	A	4	9
	B	1	12
	C	2	11
	D	0	13