THE RORSCHACH AS A MEASURE OF PERSONALITY CHANGE IN CHILDREN IN A RESIDENTIAL SCHOOL FOR MENTALLY HANDICAPPED

Thesis for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY

Mary Ella Hand

1955

This is to certify that the

thesis entitled

THE RORSCHACH AS A MEASURE OF PERSONALITY CHANGE IN CHILDREN IN A RESIDENTIAL SCHOOL FOR MENTALLY HANDICAPPED

presented by

Mary Ella Hand

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Psychology

Donald W. Johnson
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Date November 28, 1955

O-169

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A THESIS

Submitted to the School of Graduate Studies of Michigan State University of Agriculture and Applied Science in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Department of Psychology

1955

ACKNOWLEDGMENT

The author is grateful to Dr. Albert I. Rabin for his advice regarding this study. Sincere thanks are also expressed to Dr. Donald M. Johnson, who directed the completion of the study, and to other members of the doctoral committee, Dr. Milton Rokeach and Dr. Marian Kinget for their constructive criticisms and helpful suggestions.

Grateful acknowledgment is extended to Dr. Robert H. Haskell, former superintendent of the Wayne County Training School, for his cooperation in making available the Rorschach protocols, and clinical records used in this research.

Thanks are also expressed to Mrs. Z. Pauline Hoakley, former director of the psychology department, for making possible the completion of the greater part of the testing while the author was employed at the Training School.

Deep appreciation is due to Mrs. Hoakley for scoring the Rorschach records; to Mrs. Hoakley and Miss Hedwig Minckiewicz for their careful reading and evaluation of the material contained in the clinical folders and to Mrs. Norma Walton for her competent work in assessing personality changes as expressed in differences between two Rorschach protocols.

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AN ABSTRACT

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Approved Donald W. Johnson

ABSTRACT

The purpose of this study is to investigate the usefulness of the Rorschach as a measure of personality change in high grade mentally handicapped children who are in residence in a publicly supported institution. Three hypotheses were formulated: (1) evaluations of personality change based on the comparison of Rorschachs are in agreement with evaluations of behavioral change based on descriptive reports for the same period of time; (2) evaluations of personality change based on Rorschach findings are in agreement with evaluations of adjustment at the termination of the experiment; (3) changes in certain Rorschach scores and combinations of scores are related to change in observed behavior.

The original group of subjects consisted of sixty consecutive admissions with an age range of 10-0 to 12-0 years. A Rorschach was administered at admission and at the end of a years residence. A third Rorschach was administered to thirty boys with an average time interval of three years seven months between the second and third tests. In order to obtain a more homogeneous group, 47 children were selected and considered separately. The Chi-square technique was used to determine the probability of a significant relationship between Rorschach and behavioral evaluations.

The relation between the evaluations obtained from comparing Rorschachs II and III and the behavioral evaluations for the same time interval for each subject was significant at the five percent level.

Relationships stated in the remaining sections of hypotheses I and II were not statistically significant. However, the probability of a significant relationship between Rorschach findings and terminal adjustment was increased when the time interval between Rorschachs was increased or when the group with a reasonable expectation of return to community was considered separately. Only one of the twelve signs tested was found to be significantly related to behavioral change.

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I. INTRODUCTION

Clinical workers have long been interested in using projective tests to aid them in their evaluation of personality structure and dynamics, and have become increasingly concerned with the application of their findings to the solution of practical situations.

The present study has grown out of need for a more adequate means of judging the progress made by high-grade mentally handicapped children in a publicly supported residential school. This investigation proposes to compare judgments of behavior changes based on descriptive reports with judgments obtained by an evaluation of the direction and degree of change occurring between two Rorschach administrations.

The Wayne County Training School is an institution for high-grade mentally retarded children which is located near the Detroit metropolitan area. The children accepted for residence are presumed to be capable of profiting from stable living conditions and specialized training to an extent that will enable them eventually to function as self-supporting, law-abiding members of the community. Since retarded children are so often enrolled in school programs which are ill suited to their special needs, they are deprived of the satisfaction in achievement and success which the majority of children of average ability experience. As a result of such frustration they frequently tend to cause trouble both at school and in the community. Often unfavorable home conditions aggravate their poor adjustment. Parents may be divorced and one or both remarried.

They may lack interest in the child, or may find that the problems of coping with a mentally handicapped child are too much for them. One or both of the parents may also be mentally handicapped or even mentally ill. Inadequate family income usually complicates the situation still further. Thus, the children who are admitted to the Training School tend not only to be mentally retarded, but socially and emotionally maladjusted as well. While the acquisition of academic skills and vocational training is important, the establishment of more satisfactory behavior patterns is also necessary. Measurement of the degree and type of personality changes in these children has always been difficult and the various departments have tried to maintain a system of descriptive reports which would provide evidence from which judgments of individual progress could be formulated.

Many psychological clinics have found the Rorschach helpful in furnishing information regarding level of personality development. The instrument is designed to reveal growth toward maturity both in respect to the individual's inner life and in his relations with other persons. It furnishes information regarding control, not only in the sense of conformity but also in the sense of control based on some degree of self-awareness and understanding, and on a regard for the feelings of others. Another important feature is that it provides for an estimation of ability to understand the viewpoints of others sufficiently well to get along with them. Therefore it appears that the Rorschach might provide information about changes in personality patterns that could be helpful in this particular situation. The points mentioned above--degree of

maturity, adequacy of self-control, and ability to get along with people--are fundamental criteria in determining whether or not an individual would be able to adjust to community living.

II. REVIEW OF STUDIES RELATING TO THE PROBLEM

Since the program of the Wayne County Training School is planned to benefit mentally handicapped children, the main criteria of admission are school retardation and an IQ that is assumed to indicate limited ability. However, in the majority of cases, a request for admission also contains statements regarding behavior. A list of problems would include truancy, stealing, fighting, cruelty, hyperactivity, attention seeking, hitting others, snatching things from others, enuresis, and the inability of teachers and parents to maintain control. Thus, children in residence present behavior problems as well as a learning difficulty. Therefore, we are interested in the use of the Rorschach with both problem and retarded children.

A. Validation with Problem Children

Krugman (19) has made a study regarding clinical validation of the Rorschach with problem children. The subjects consisted of 25 children who had been referred for diverse problems to a branch of the Bureau of Child Guidance, New York City. Ages ranged from 5 years 3 months to 18 years 2 months with a median age of 9 years 8 months. Eighty percent of the children were below 12 years at the time of the initial examination. Intelligence levels extended from borderline to superior. Rorschachs were interpreted by the investigator and also by the chief psychologist. Clinical material included psychiatric and psychological examinations, social history and miscellaneous data. Both the Rorschach

interpretations and case studies were outlined in chart form under the following headings: intellectual aspects, personality configuration, emotional aspects and diagnosis. The charts were cut apart and the Rorschach interpretations were matched with the outlines of the clinical case studies in groups of five pairs. This was done by five judges. The average coefficient of contingency was 0.850. The forecasting efficiency of this coefficient was 64 percent. An "r" with an equivalent forecasting efficiency would equal 0.933. The average percentage of correct matchings for five judges equaled 84 percent. Only one judge had less than 80 percent correctly matched. The charts were put together and the same five judges, using a five-point scale, rated the agreement between the Rorschach interpretation and the case study abstract for the four aspects used in outlining the material. About 95 percent of the ratings were at the two upper points of the scale.

Krugman concludes that the Rorschach personality interpretations of these problem children possesses a high degree of objectivity, reliability and clinical validity.

Young and Higginbotham (30) have also studied the relation between Rorschach findings and observed behavior. Rorschachs were administered to 21 boys at a psychiatric camp. Ages ranged from 10 through 15 years. Problems included antisocial behavior, withdrawn personality, overconcern with health, physical symptoms of a psychogenic origin, and neurotic manifestations objectionable to others. In order to effect a framework for this comparative study, Rorschach interpretation on each of the tests was divided into six categories. In regard to intellectual functioning,

the Rorschach was found to be quite successful in estimating the general level of intelligence. Of 19 known Binet IQs, 16 supported the Rorschach estimates. When the Rorschach deviated from the IQ, it agreed with the picture of functioning at camp. The destructive effect of severe impulsive trends upon rational thinking was shown by inaccurately perceived color-determined responses of indefinite form (CF^{-}). The second category considered was emotional factors. In this area simple quantitative enumeration of single determinants failed to correlate significantly with corresponding traits. Only by careful consideration of these increments in their relationship against the background of the total configuration could affective drive and reaction be evaluated with success. The greatest diagnostic success was attained with responses showing successful integration of form with color (FC). Out of the 21 Rorschach tests, 17 were well supported by behavior in camp, four merely deviating in degree. The assumption that anxiety is indicated on the Rorschach by strong reaction to chiaroscura (K,k) was not conclusively supported by this behavior. Rather it appeared that chiaroscuro and its effect upon form perception gave a picture of the individual's control over whatever anxieties he had. Clues to sexual anxieties were often obtained and were verified without exception. Predominance of animal movement (FM) over human movement (M) was one of the most consistent factors found in those cases exhibiting neurotic behavior symptoms. However, only five of the group had FM greater than M. Two of the boys displayed behavior that seemed indicative of more serious personality disorder, and the Rorschach was sensitive to these trends. An investigation of

interests based on Beck's treatment of content matter failed to give significant clues to the interests of the children. Two exceptions to this were aesthetic inclinations and sexual preoccupation. The authors conclude that although inconsistent in many details, the Rorschach test in most cases gave a total personality picture not inconsistent with the total picture of the child derived from case records composed largely of observations of behavior. Successful evaluation of behavior tendencies could only be arrived at through careful analysis of the total configuration. Single determinants and simple relations in the Rorschach psychogram were of little prognostic value.

B. Validation with Mentally Defective Problem Children

Patterson and Magaw (23) have investigated the validity of the Rorschach Technique as applied to mentally defective problem children in a study carried on at Wayne County Training School. In applying the Rorschach to feebleminded individuals they expected to find something of the general pattern of response characteristic of feeblemindedness but they also believed the test should show how one individual differs in his personality from other feebleminded individuals of his intellectual level. This differentiation would be based either on qualitative differences in intelligence or in such non-intellectual personality traits as caution, self-assertion, conformity, sensitiveness, irritability, good or ill humor, achievement of friendly or hostile relationships with others, emotional stability or instability. The subjects were 30 boys selected from one cottage. The age range was from 14 years 8 months to

26 years 10 months with a median of 17 years 1 month. In intelligence, the IQ's ranged from 37 to 79 with a median IQ of 67. The material to be used for matching consisted of a personality sketch, a Rorschach psychogram and interpretation of the psychogram. The personality sketch was based on observation of the boy in question. The author of the personality sketches acted as assistant supervisor of the cottage and had served in this capacity for a period of six months before any of the sketches were written. As an additional check, he copied excerpts of opinions recorded in the boy's clinical folder. The Rorschach examiner had no contact with the boy except during the period when the Rorschach was administered. The thirty subjects were arranged by the writer of the personality sketches into groups of five. Matching was done by the author of the personality sketches and the Rorschach examiner. In matching second choices were always indicated by the tester and fifteen second choices were made by the observer. When results were tabulated, the number of correct matchings for the examiner were 12 first choices and ten second choices. The correct matchings for the observer were 22 first choices and three second choices. For the tester's matchings, the contingency coefficient is 0.45. For the observer's matchings, the contingency coefficient is 0.80. The highest possible value of the contingency coefficient when five things are matched at a time is 0.91. Both coefficients indicate more than chance relationship between the personality sketches and the Rorschach interpretations.

The authors conclude that the Rorschach Technique will distinguish between personalities of adolescent boys of moron or borderline

intelligence, and it is highly probable that the test has sufficient validity to be used in diagnosis of personality problems of individuals within this group. Thus, these studies furnish evidence of a clinically valid relationship between Rorschach interpretations and observed behavior and are a necessary foundation for later investigations of the relation between Rorschach change over a period of time and observed behavior change for the same period of time.

C. Test and Retest Studies Related to This Problem

Our next interest is the use of the Rorschach as an instrument with which to measure personality change over varying intervals of time. It has been used with a variety of factors intervening between the first and second tests. In early experiments the number of subjects was small and the conclusions were drawn from direct comparison of protocols at times supplemented by comparison of psychograms. There was the need to build up a body of information regarding the type of change that would occur. Investigators had sufficient contact with their subjects to relate Rorschach findings to observed behavior. From this interaction of experimental findings and Rorschach theory, concepts of desirable and undesirable test changes were constructed. The desirability of testing hypotheses in a more objective way was recognized. With larger experimental groups, statistical handling of material became possible. However, as the number of subjects increased, it became necessary for the investigator to depend on the judgment of other individuals for validating criteria for Rorschach findings. As a part of this attempt to attain greater objectivity, collections of Rorschach factors were

termed signs by some investigators. Observation of changes in these signs were used as a measure of the personality change during the interval between two tests. However, others felt that the method of using signs neglected important characteristics and that a valid comparison should take into consideration the complete protocols.

(1) Qualitative Analysis as the Principal Method of Evaluating Change

Some of the earlier studies were of individuals with brain lesions concerning whom information regarding personality changes resulting from operative procedures was desired. Tallman (28) administered three Rorschachs at yearly intervals to a man from whom a large part of both frontal lobes had been removed. These test results were interpreted by Klopfer. Decrease in the number of responses (R) and in the use of common details (D) indicated an increase in negligence toward everyday problems. The fact that whole responses (W) became careless and slovenly was considered evidence that the increase in negligence was characteristic of his general mental activity. In the ratio of F:c, F, which is the number of form determined responses, remained fairly constant while c, which is associated with a desire for contact decreased, showing an impoverishment in relationship to his surroundings. This had also resulted in banality and slovenliness in the color-determined responses.

Harrower-Erickson (11) tested two 12-year old boys both before and after the removal of brain tumor. In one case the marked increase in the percent of form-determined responses indicated the presence of anxiety while increase in the percent of animal responses and decrease

in the percent of originals showed the limiting effect of this anxiety on mental life. In the second case the post-operative Rorschach indicated that a definite improvement in social adjustment might be expected. The presence of human movement (M) was the main sign of improvement in the personality pattern. That the expected improvement was realized was confirmed by the parents' reports after several months.

Harrower-Erickson (12) also made a study of patients with focal epilepsy, all of whom were operated on for the removal of scar tissue in areas of atrophy or microgyra. Ten patients were tested before and again six weeks after the operation. Four patients were tested post-operatively and again one year later. In three cases, records were obtained while the patient was receiving medication and again while he was without medication. Four patients for whom an exploratory operation yielded negative results were also included in this study. The chief method of studying results was by means of a psychograph for each of the two Rorschachs of the subjects. The results for the group of ten are also summarized in a composite psychograph for the preoperative records and in a composite psychograph for the postoperative records. The same procedure was carried out for the four patients with a negative exploration. The factors included in the psychographs were the number of responses, four location areas, and nine of the determinants. The psychographs were supplemented by a brief discussion of the differences between the test and retest for each individual. This was particularly valuable in cases where the abnormalities of the records were not apparent in the psychographs. The discussion included an evaluation as to whether the

second record was considered improved or not improved. The author gave 14 of the records individual consideration partly to bring out their diversity and lack of conformity to a basic pattern and partly because the composite picture gave too simplified an impression and did not indicate the individual abnormalities and changes which make the record of particular interest and value. Five criteria that were considered to have prognostic value were stated.

Kisker (14) studied 28 psychotic subjects during insulin shock and metrazol convulsive therapy with Rorschachs administered before therapy was initiated when possible and at intervals of approximately one month during the course of treatment. A control group of 11 subjects was also tested once a month. The most significant sign differentiating pre-therapy examinations from post-therapy examinations was the presence of responses showing inaccurate perception (F^-). This was never greater than 10 percent in the control group and ranged up to fifty percent in the tests results of the psychotic group prior to receiving therapy. In cases showing clinical improvement, the percentage of F minus decreased. Two other significant signs were order and approach. In cases showing clinical improvement, there was a tendency for the order to shift from confused and irregular to methodical. Control subjects tended to maintain a relatively constant ratio in the use of common details, wholes and rare details (D:W:Dr).

Kogan (17) was interested in determining whether the Rorschach would show the effects of a critical period on institutionalized delinquent boys. Approximately a month elapsed between the time a boy knew his

name was to be acted on by a parole committee and the time he was informed of the committee's decision. This was called the "critical period," and six boys were tested at the beginning and end of this period. A combined psychograph was made for all the first tests and compared with a combined psychograph of the retests. The two main trends were improvement in the balance between human movement and animal movement (M:FM) and the increase in the number of form determined responses. Other, less marked trends were the decrease in the use of black (C^1) as a factor determining response, the decrease in color responses of indefinite form (CF) and the decrease in the use of inanimate movement (m). The improvement in the M to FM ratio was primarily due to an increase in the M. The C^1, CF and m changes occurred in individual records but were not characteristic of the entire group. Consistent trends in factors not expressed in the psychograph were: improvement in the ratio of whole to human movement responses (W:M); increase in the number of responses; improvement in the relation of wholes, large details and small details; and increase in the percent of accurately seen form-determined responses ($F^+\%$). The shift that was sighted as the most consistent and most significant was the tendency for the retest to have a more clear-cut picture of constriction. Shifts in the shadings of meaning and content could not be organized so as to be expressive of what was happening to the group as a whole.

Siegel (27) reports the use of the Rorschach as an aid in selecting clients for group therapy and in evaluating the program. Two cases are reported, one child having been tested twice and a second child tested

three times. Brief interpretations are given with the conclusion that the tests reflected the difficulty of the case, analyzed the personality structure underlying the clinical observations, added concrete data, and were generally helpful in giving directions to the treatment plan.

A more recent study involving two subjects is Lord's (18) comparison of two sets of Rorschach records obtained before and after brief psychotherapy. Both subjects, one male and one female were 25 years old at the time of the first contact. The two subjects had a series of therapeutic interviews over a period of six months, followed by a similar period of time during which no regularly scheduled interviews were held. The retest was then administered one year after the initial test. Observed and reported behavior indicated improved adjustment. The test records were analyzed in the following ways: (1) by comparing the paired psychograms, (2) by making qualitative comparisons based on the usual interpretations of the Rorschachs, (3) by computing the Buhler-Buhler-Lefever Basic Rorschach Scores and determining the integration levels of the subjects on each of the tests, and (4) by examining the negatively and positively weighted components of the records which were present or absent in the two sets of data. When the four psychograms were mixed, persons of little or no experience with psychological tools were able to separate and pair the graphs belonging to Case A and to Case B. Summaries of alterations of scoring symbols are given for both cases. When the Buhler-Buhler-Lefever Basic Rorschach Score is applied to the records, it is found that A's score changes from -7 to +15. The first score would classify the subject in Level III which is described

as the Level of Impairment or Defect. The score of +15 obtained on re-examination is the upper limit of Level II, the Level of Conflict. Subject B achieved a Basic Rorschach Score of -5 before therapy and a +22 after therapy. She changed from Integration Level III to Level I, that is from the Level of Impairment and Defect to the Level of Adequacy. Summaries of the negatively weighted components present before and absent after psychotherapy and of the positively weighted components absent before and present after psychotherapy are given. Lord (18) concludes that basic personality configurations remain recognizably constant despite successful brief psychotherapy and that measurable personality changes do occur within subjects as a concomitant of brief therapy. The two changes found in both cases were: (1) a more adequate inner balance between intellectual and emotional personality components, and (2) the emergence of thinking processes that were in line with community thought. Other changes within the subject probably vary with, and are determined by, the unique personality structure of each individual.

Rioch (29) uses a larger group in her assessment of change in patients under psychotherapy. Fourteen ambulatory and 22 hospitalized patients were receiving psychoanalytically oriented intensive psychotherapy. Test and retest were administered at intervals averaging 18 months apart. Rioch believes that from a clinical point of view the evaluation of change by means of the Rorschach can most fruitfully be done on an individual basis by careful scanning and detailed interpretation of the "before and after" protocols of each patient. One patient

who did not attribute masculine and feminine characteristics to the same figure on the retest was worrying less about her homosexual interests. On the retest patients tended to be more deliberate, more careful, and to produce more responses. They were more relaxed and able to investigate their problems. There was a decrease in the alarming, frightening faces and a decrease in phobia symptomology. At the time of retest each patient was rated by his therapist as improved, unchanged or worse. The therapists' judgments and Rorschach findings were in complete agreement for the ambulatory group. In regard to the hospitalized patients, there was complete agreement for 10 cases, disagreement for four and qualified agreement for eight. The most significant and favorable change that took place was in the types of color response. There was an increase in FC and a decrease in CF and C. This occurred in 11 of the 14 ambulatory patients. The hospitalized patients did not show this change. In the group it was found that both an increase and decrease in CF was associated with improvement. The ambulatory patients also showed an increase in F percent. Decrease in W percent and increase in P were consistent trends. The author felt that these might be a function of the retest. In all cases the second tests were indicative of neurotic, schizoid or schizophrenic processes. Rioch also states that the essential similarity between the first and second tests of most patients could be observed.

(2) Statistical Evaluation of Rorschach Change

Muench (22) was one of the first investigators to apply a statistical method to the data obtained in a study of this type. He used the

Rorschach in an attempt to evaluate 12 cases of non-directive therapy. The first test was administered before the therapist saw the client and the second test after therapy was terminated. Twenty-two signs labeled as personal and social adjustment factors were used. Raw scores for these signs were obtained and classified as satisfactory or unsatisfactory according to whether they met or failed to meet the criteria stated. Individual scores on the first and second tests were compared for all signs. Evidence of change was classified as improvement, none, or decrement according to whether the score on the second test was greater than, equal to, or less than the score for the first test. The number of improvements minus the number of decrements yielded a final score for each case. For eleven of the twelve subjects this difference was a positive number. Thus eleven cases were rated improved. The twelve cases were then considered as a group and Fisher's "t" was used to determine whether the differences between means were significant. For the change in satisfactory personal and total factors the significance was found to be 0.01 and for social factors the significance was 0.012. A second comparison was made to test the significance of difference between the means for the number of increments and the number of decrements. The significance for social and total factors was 0.01 and for personal factors it was 0.07. Other methods of evaluation used were the Kent-Rosanoff Free Association Test, and Bell Adjustment Inventory and the judgment of the therapist as to the outcome of therapy. All three tests agreed in seven of the twelve cases and the therapist's evaluation seemed to be consistent with the results of the various tests

in nine of the twelve cases. According to the Rorschach signs of adjustment, the greatest changes which occurred during non-directive therapy are as follows: a decrease in anxiety; a greater degree of personal integration; a greater tendency toward doing the expected thing; and a better integrated emotional life, including greater emotional stability, control and adaptability. Muench concluded that the Rorschach is a means of evaluating the success of psychotherapy.

Two years later Carr (5) made a similar study evaluating nine non-directive psychotherapy cases. He used only the Rorschach and counselor evaluation. His quantitative analysis of Rorschach results followed the same plan as Muench's. However, Carr's results reversed Muench's and he found that in the cases taken as a group, there were no significant differences present between pre- and post-therapy Rorschach protocals. In addition to this there was a qualitative analysis in which the worker was asked to make a thorough study of the total records and to indicate for each pair the degree of change demonstrated by the evidence on hand. He found five cases with no significant change and four with slight improvement. The counselor reported three with no significant change, three with slight improvement, and three with outstanding improvement.

Four years after the report of her study of two children Siegel (23) published another study using a larger group of subjects. The Rorschach was used not only for diagnostic and prognostic purposes but to gauge the effectiveness of therapy. The test was administered twice, with an interval of at least one year between examinations, to 26 children referred to the Jewish Board of Guardians. Problems most frequently

reported were listed and environmental status was rated on a 4-point scale. The empirical clinical method of validation was emphasized. The clinical case record of each subject was abstracted and the improvement or non-improvement was also rated on a 4-point scale. Categories used were: considerable improvement, partial improvement, no change and worse. Each case was rated in the area of over-all changes in specific areas, which included clinical symptomatology, personal relationships, school or work adjustment, and interval pressures.

Rorschach and psychiatric diagnoses were compared at the times of the first and second administrations. At the time of the first Rorschach the percent of agreement for the two diagnoses was 61.5 and at the time of the second Rorschach it was 88.5. There was no change in Rorschach diagnoses but seven psychiatric diagnoses were changed to agree with the Rorschach findings. The statistical procedure applied to the Rorschach data consisted of the computation of indices which represented the quantitative differences between the percentage of incidence of each factor in the improved and non-improved groups. The eight factors found to be associated with the improved group were: refusals, color-determined responses of definite form (FC), the percent of whole responses, shading determined responses with definite form (Fc), human form responses (H), testing the limits, the number of accurately seen original responses (O) and the percent of accurately seen form-determined responses ($F^{+}\%$). The four factors associated with the non-improved group were: originals for which the concept did not fit the blot area used (O^{-}), color-determined responses of indefinite form, both the accurately

and inaccurately perceived, (CF, CF^-) and shading shock.

The statistical treatment was supplemented by reports that gave clinical and Rorschach findings at the times of the first and second tests for eight cases. The use of the positive and negative indicators is demonstrated emphasizing the fact that signs must be used judiciously within the essential configuration of the test pattern. Seigel concludes that the test is useful not only for diagnostic and prognostic purposes but also to gauge the effectiveness of therapy.

Krout, Krout and Dubin (18) have also used the Rorschach as a measure of progress in psychotherapy. Their subjects are divided into three sections: a group of 19 receiving analytic therapy, a group of 14 receiving non-analytic therapy and a control group of nine who were in need of therapy but did not receive treatment. In this study the authors recognized the value of the global evaluation of Rorschach material and also the need for reporting findings in terms which experienced clinicians have used for some time. Ten dynamic concepts were chosen and Rorschach factors used in the evaluation of each were listed. The test-retest material was grouped according to the presence and direction of change. The Chi-square test with the correction for small samples was applied as a measure of significance. For the analytic group, the categories of libido, hostility, guilt, interpersonal relations, integration and approach showed change significant at the one percent level. Also significant at the one percent level were the categories of libido and interpersonal relations for the non-analytic group and approach and productivity for the control group. The greater number of significant changes found in the analytic group may be due to

intensity of the therapy rather than to a difference in techniques. The authors organized an original and useful method of analyzing Rorschach material for the purpose of evaluating change.

(3) Relation Between Rorschach Scores and Adjustment Level

Barry, Blyth, and Albrecht (2) found few significant results in their study of the relationships between Rorschach scores and adjustment level. The Rorschach test and interview data were obtained during the treatment of each of 31 male subjects. The pooled judgments of adjustment level made by the junior authors and based upon interview data constituted the criterion. Retest and follow-up interview data were obtained from the subjects 15 months or more after the first test and after treatment had been concluded or discontinued.

When change in the pooled judgments of adjustment level from the time of the initial test to the time of the retest was correlated with retest changes in Rorschach scores and combination of scores, only three of the 70 rank-order correlations coefficients computed were significantly greater than zero at the five percent level of confidence. Change in the direction of improvement in the pooled judgments of adjustment level was associated with increased form-color production and increased production of human content. This small number of significant correlation coefficients could be attributed to chance alone.

D. Present Status of the Problem

Thus we have evidence that Rorschach interpretations of personality structure are consistent with evaluations based on case studies and observed behavior not only for problem children with normal intelligence

but also for those who are mentally handicapped. On the whole test and retest studies show that the Rorschach has been useful in measuring and describing change in personality pattern that has taken place over a period of time. Muench (22) found statistically significant differences between pre- and post-therapy records, while Carr (5) did not. However, both groups were too small for the results to be considered conclusive. In both cases the quantitative analysis was based on the use of signs. This method may overlook some of the changes that occur. Harrower-Erickson (11) found that many records needed individual attention in order to bring out the characteristics and changes that made them of particular interest and value. Rioch (24) states that from a clinical point of view the evaluation of change is most useful when done on an individual basis. Young and Higginbotham (30) found that particularly in the case of emotional factors, it was necessary to consider determinants in relation to the total configuration. The experience of the author over several years of work with the Rorschach has also led to the conclusion that qualitative analysis of test and retest records is necessary in order to form a valid judgment regarding personality change.

The Rorschach is an effective instrument for studying personality structure and gaining understanding of the dynamics underlying overt behavior. It is useful for both diagnosis and prognosis in the various types and degrees of personality disturbance. Various scores and combinations of scores are associated with personality traits. In test and retest studies, it has been found that the basic personality configuration remains recognizably constant while changes that occur

are reflected in behavior changes. The Rorschach is selected as an effective instrument for use in this study, since by means of successive administrations it provides a measure of personality change.

At present we are interested in evaluating the effect of living in a residential school for mentally handicapped children. As has been previously stated, many of the children constituting the Wayne County Training School population come from homes of lower cultural and economic levels. Frequently they have lacked adequate care and supervision. The transfer from community to residence at the Training School introduces a marked change into their way of living. Meals, bed time, recreation and school attendance become a matter of routine. Children have adequate clothing, medical care and good food. They are assigned tasks according to their age and ability and are encouraged to develop skills and responsibility. Often a child who has been neglected in the community finds a teacher, a member of the cottage personnel, or perhaps a vocational supervisor who gives him the individual interest and friendship that is an important element of normal development. It is believed that these major changes in the conditions of a child's life will produce personality changes that can be measured by the Rorschach and can also be recognized by change in behavior.

III. HYPOTHESES

It is expected that residence in the Training School will ultimately result in improved emotional and social adjustment. The descriptive reports are maintained for recording the evidence of such progress. Since the Rorschach has been found clinically valuable in indicating changes in personality pattern, it might be expected to prove useful for a similar purpose in evaluating such changes in the Training School population.

On the basis of this expectation, we have formulated the following hypotheses:

I. The evaluation of personality change based on the qualitative analysis of two Rorschach protocols would agree with the evaluation of behavioral change obtained from the descriptive reports.

   a. A period of one year would be sufficient to effect personality changes that would be reflected in the Rorschach responses and in the observed behavior. In most cases overt behavior change is positively effected through social pressure by adults and peers. Therefore, it is possible that our subjects could interiorize the prevailing behavioral norms sufficiently to modify personality patterns (29).

   b. When there is a longer time interval between Rorschach administrations, there would be a greater probability of agreement between Rorschach evaluations and evaluations based on descriptive reports.

c. When the records of children free from serious retardation, severe developmental anomaly, organic pathology and psychosis are considered separately, there would be a greater probability of agreement between Rorschach evaluations and evaluations based on descriptive reports. A good many of the Rorschach factors that indicate improvement also depend on intellectual ability. Some of these defective children may show considerable improvement in behavior and still be unable to improve the quality of their Rorschach responses. On the other hand, some of them will show improvement on the Rorschach and be unable to demonstrate it in their behavior.

II. The evaluation of personality changes based on the qualitative analysis of two Rorschach protocols would agree with the evaluation of adjustment at the end of the experiment.

a. Evaluation of changes in Rorschach responses after one year of residence would agree with evaluation of terminal adjustment.

b. When there is a longer time interval between Rorschach administrations, there would be greater probability of agreement between Rorschach evaluations and evaluations of terminal adjustment.

c. When the records of children free from serious retardation, severe developmental anomaly, organic pathology and psychosis are considered separately, there would be a greater probability of agreement between Rorschach evaluations and the evaluation of terminal adjustment. Seriously defective children will

always require supervision. Even though the Rorschach pattern shows improvement, the child is unable to meet the demands of community living. Thus terminal adjustment tends to be classified as "worse" and indicates lack of intellectual ability rather than lack of progress.

III. Changes in certain selected Rorschach scores and combinations of scores would be in agreement with the evaluations of behavioral improvement obtained from the descriptive reports. With the exception of the second, these factors are derived from Davidson's signs (7) of adjustment. Her study contains evidence concerning the internal consistency of this list of signs and shows that this list does differentiate among individuals and between groups. Since Davidson is using these as measures of adjustment, norms are given for each sign. However, in this study we are concerned with whether or not change takes place rather than the meeting of definite criteria. Nevertheless the fact that Davidson found these signs useful as a measure of adjustment serves to reinforce the judgment of the author in regard to their value as indicators of desirable personality change. A list of the selected factors with the direction of change that should occur from test to retest in order to indicate improvement follows:

1. Increase in R
2. Increase in R plus percent
3. Decrease in F percent
4. Decrease in A percent
5. Increase in M
6. Improvement in the ratio of M:FM. M greater than FM
   M equal to FM
7. Improvement in the ratio of W:M
8. Increase in FC
9. Improvement in the ratio of FC:CF. FC greater than CF,
   FC equal to CF.
10. Increase in the percentage of responses to cards VIII,
    IX and X
11. Increase in FK plus Fc
12. Increase in the number of P

A brief discussion of the meaning of these Rorschach symbols based on Klopfer's hypotheses (15) and the reasons for selecting these 12 signs will be presented. Since the majority of the children being

studied come from homes of poor economic and cultural level, records tend to be impoverished and constricted. Thus, in general, any evidence of a richer personal life, such as an increase in originality or creativity, a greater variety in the content of responses or the use of concepts involving color and shading is desirable.

1. Increase in R

R represents the total number of responses given by a subject in any test period. A small number of responses indicates unproductivity, except where the responses are good, well-organized wholes. On the other hand, a very large number of responses may indicate a compulsive need for completion or quantity. A moderately large number of responses is probably optimum. McFate and Orr (21) find the median for 13 year old boys to be 11, and for 13 year old girls it is 14. Low productivity may be the result of conflict situations. In these cases, increase of R indicates lessening of emotional disturbance.

2. Increase in R Plus Percent

R plus percent represents the percentage of total responses that are accurate. An accurate response is one in which the concept fits or matches the blot area in terms of outline, shape, or form. This includes concepts of both definite and indefinite shape. Inaccurate concepts may be due to careless and hasty generalizations. They may also be the result of personal needs strong enough to distort perception. A high degree of inaccuracy is associated with limited intelligence or poor contact with reality. A weakening of ties to reality results in

inadequate control while perfect accuracy would represent over-cautiousness and too great rigidity. On the whole, elimination of inaccurate responses and increase of R plus percent represents a desirable trend.

3. Decrease in F Percent

F. percent represents the percentage of responses in which blot areas are seen in outline only. The subject does not enrich his perception with his own imaginative processes nor utilize to the full the obvious nuances of color and shading. This is a limited kind of perception and the hypothesis is that such a person has also a limited view of his world. A moderate amount of F is useful as it enables the individual to view his world in an impersonal matter-of-fact way that serves as an aid to controlled adjustment. From 20% to 50% is considered the optimum range. High F percent may be due to limited intelligence or a neurotic constriction in which a person inhibits the more richly differentiated response of which he is intellectually capable. Since these records tend to be constricted, a decrease in F percent is considered desirable.

4. Decrease in A Percent

A percent represents the percentage of animal responses. The optimum range is considered to be from 20 to 35%. A percentage of animal responses of over 50 tends to be associated with low intellectual capacity or disturbed adjustment. The hypothesis is that this high an A percent indicates too narrow a range of interests. Since these records

tend to be sterotyped, a decrease in A percent is considered desirable.

5. Increase in M

M is the Rorschach symbol used to designate human movement responses, that is, inclusion of a kinesthetic quality in human concepts. A complex body of interpretative hypotheses has been built up around the M response. Ability to give M shows that the individual is free to use his imaginative processes to enrich his perception of the world. In this way it serves as an aid to adjustment by giving stability in that it represents inner resources available to the individual in times of stress. The presence of M is also associated with an inner system of conscious values, self acceptance, and the capacity for good emphatic relationships with other human beings. Thus in ten and eleven year old children, increase in M is particularly valuable as an indication of growth towards maturity.

6. Improvement in the Ratio of M:FM. M greater than FM, M equal to FM.

FM is the Rorschach symbol for animal movement responses. The assumption regarding FM is that it represents an awareness of impulses to immediate gratification. These tend to be impulses regarding which the person lacks insight, understanding and acceptance. M greater than or equal to FM is needed for the integration of the impulse life with the conscious value system. When this relationship is present, the individual is expected to possess self-acceptance and the capacity to defer gratification of impulses without undue frustration, conflict, or inhibitions.

We would expect improvement in this relationship to indicate an improvement in adjustment.

7. Improvement in the Ratio of W:M

W, or whole responses, are those in which all or nearly all of the blot is used. The W:M ratio is believed to give an indication of the relation between the aspiration level and the creative potential of the individual. The 2:1 ratio is considered optimum. Since there are exceptions, it is necessary to use caution in applying this hypothesis. It seems more certain that overemphasis on W is undesirable. If the W are mediocre with little organization it is assumed that there is a general interference with the use of intellectual capacity, or low capacity itself. Since the first Rorschachs tend to have high W with none or few M, improvement in the W:M ratio is considered a favorable sign.

8. Increase in FC

FC is the Rorschach symbol used for concepts that are colored objects of definite form. This type of response represents a successful integration of color within a context of definite form. The ways in which color is handled in responding to the blot are believed to cast light on the overt emotional reactions of the subject to the impact of his social environment. The hypothesis regarding FC is that it indicates a ready control over emotional impact without loss of responsiveness. This is a mature emotional reaction and as a child approaches adolescence presence and increase of FC responses are desirable.

9. Improvement in the Ratio of FC:CF, FC greater than CF, FC equal to CF.

The meaning of FC has been discussed in the previous paragraph. CF is the Rorschach symbol for concepts that are colored objects of vague or indefinite form. The hypothesis regarding CF is that it represents a somewhat uncontrolled but appropriate and genuine emotional response to the reality demands of the situation. Some CF is desirable as it indicates spontaneity and capacity for emotional responsiveness. However, FC should be greater than or equal to CF since this is a sign of control over impulsive expression of emotionality.

10. Increase in Percentage of Responses to Cards VIII, IX and X

While the FC and CF responses are related to overt reactivity, the percentage of responses to the last three cards indicates general responsiveness to emotional stimuli from the environment whether expressed in overt reality or not. The expected number is from 30 to 40 percent of the total number of responses. In the absence of color-determined concepts, this furnishes an index to the degree of unused extraversial capacity. Since many of these children have not had relations with adults that are satisfying to them, their response to cards VIII, IX, and X furnishes information regarding their capacity for forming emotional relationships with other people. It is assumed that an increase in the percentage of responses to cards VIII, IX and X would be desirable.

11. Increase in FK Plus Fc

FK is the Rorschach score for vista viewed horizontally where the shading contributes to the depth effect. The blot material is seen as

having perspective with some objects closer and others farther away. The rationale of the use of shading is based on the general hypothesis that the way a person handles the shading aspects of the blot is related to the way in which he handles the primary security need and the derived needs for affection. Thus FK indicates an attempt to handle affectional anxiety by introspective efforts. In reasonable numbers, it is considered a stabilizing influence in that it enables a person to tolerate his own anxiety.

The Rorschach symbol c refers to shading that gives the impression of surface or texture. Fc represents a response where an object possessing surface or texture qualities has definite form or where the surface or texture effect itself is highly differentiated. Fc responses indicate an awareness of and acceptance of affectional needs experienced in terms of desire for approval, belongingness and response from others. FK and Fc in moderate quantity indicate a sensitive control function, assisting the individual in his interaction with other people without implying a vulnerable overdependency on response from others. FK and Fc are relatively mature responses. Since improvement in the area of relations with other people is desired increase in FK plus Fc is considered a favorable trend.

12. Increase in the Number of P

In the Klopfer scoring system, ten commonly seen responses are designated as populars. The average number given is five but a range of four through six is considered satisfactory.

The number of populars given is an indication of ability to see things as others do. While we are glad to find evidence of originality, some conformity to group thinking is needed for an individual to have the understanding of the viewpoints of others that is needed if he is to get along with them. Since ability to get along with others is important for these children, increase in P is considered desirable.

IV. METHODOLOGY

A. Subjects

The subjects consisted of 60 children with an age range of 10-0 to 12-0 years at the time of their admission to the Wayne County Training School. This group was unselected in that it was composed of 60 consecutive admissions within the age range without regard to sex or race. The mental age range is 4-11 to 10-6 and the IQ range from 44 to 91. A further analysis of these figures gives the following information.

TABLE I

AGE AND INTELLIGENCE OF SUBJECTS

	Range	Q1	Q2	Q3
C. A.	10-0 to 12-0	10-6	11-0	11-6
M. A.	4-11 to 10-6	7-2	7-10	9-2
I. Q.	44 to 91	65	73	79

The mental ages and intelligence quotients given in the above table are results obtained from the Stanford-Binet Intelligence Test. In some cases, admission to the Training School was based on the IQ obtained on the Detroit Learning Aptitude Test. A Binet is always administered to these children soon after admission so that comparable tests scores are

available. When the admission test was not a Binet, the IQ from the first Binet after admission was used.

B. Procedure

1. Administration of Rorschach

The Rorschach was administered within one month after admission and again one year later. At the time this study was planned, the age range and interval of a year between tests was chosen in order to avoid the adolescent period. However, it was realized that more than a year may be required for a change in adjustment that is great enough to be measurable. Therefore, a third Rorschach was administered to 30 of the original group. The population was necessarily limited to children still in residence in the Training School. Although the group of 60 included both sexes, it was decided to administer the third test only to boys in order to limit the group to one sex. It was impossible to maintain a constant time interval between the second and third tests as the author was no longer employed at the Training School. The average time between these tests was found to be three years seven months with a range of two years nine months to four years eight months and only one boy having a time interval of less than three years between tests.

While the main purpose of this study was to determine the usefulness of the Rorschach as applied to the general population of the Training School, it became apparent that the sample of 60 children was by no means a homogeneous group. Although the aim of the Training School is to accept children who can be returned to the community as self

supporting and self directing, it is not always possible to predict correctly particularly in regard to the younger children. Thus the group contained several children who obviously would always require assistance and supervision. If the family did not assume the responsibility, transfer to an institution that accepted custodial cases would be necessary. In this group, the more incapable children were those with severe brain damage, serious emotional disturbance, a mongoloid and, in view of the IQ range of 44 through 91, some who were seriously retarded. Since our main concern is with children who can be returned to the community, we were interested in considering them separately. It was discovered that this group consisted of 47 children with an IQ range of 65 to 91. By eliminating those in the lower quartile of intelligence quotients, children with conditions severe enough to seriously interfere with functioning were also eliminated.

To insure identical test situations, all tests were administered by the writer, who is a member of the Rorschach Institute. The method is basically that of Dr. Klopfer (12). However, instructions were amplified in order to help put the child at ease and arouse interest in the task. The instructions for the first test are as follows:

> You know how sometimes when you're writing with ink you get an ink blot on your paper? Well, sometimes people make ink blots on purpose, and try to find pictures in ink blots. They make a game out of it. They take a pen, not one like this but the other kind, dip it in a bottle of ink, shake it on a sheet of paper, fold the paper up the middle, press on it, then when they open it up the ink would be rubbed all over, wouldn't it? Then they try to find pictures in it. Now, that is what we are going to do, only we've got some ink blots that are already made and copied off on these cards. Now, I'll give you one and you hold it in your hands and tell me what it looks like to you, or reminds you of, or makes you think of. And you don't have to hurry, you look

just as long as you want to and tell me all the things you see and when you're through you put the card down on the desk and I'll know you're ready for the next one.

The instructions for the second test omit some of the introductory material and are as follows:

> Do you remember finding pictures in the ink blots for me? Well, we thought it would be sort of fun to do it again and see if you find the same pictures or new pictures. Probably what you'll do is find some of the old ones and some new ones, too. That's the way it usually goes. Now you remember you take the card and tell me what it looks like to you, what it reminds you of, or what it makes you think of. You look as long as you want to and when you are through, you lay the cards down on the desk and I'll know you're ready for the next one.

For the third test the examiner said:

> Do you remember finding pictures in the ink blots? You are one of the boys who has done it twice and we thought it would be interesting to have a few of you do it once more. We'd like to see what pictures you find now. So you tell me what it looks like, reminds you of, or makes you think of. Remember you don't have to hurry. Tell me all the things you see and when you are through put the card on this desk, and I'll know you are ready for the next one.

2. Scoring of Rorschachs

All records were scored by the examiner. They were also scored independently by a second person who is also a member of the Rorschach Institute. Scoring on the whole was found to be very consistent with agreement estimated as at least 90 percent. When differences were found they were discussed and the final decision made on the basis of which scoring more nearly satisfied the Klopfer requirements. When the difference was a question of the accuracy of a concept, reference was made to scoring standards of Beck (2) and Hertz (9). These tables supply information regarding the frequency of responses.

3. Evaluation of Personality Change Based on Comparison of Rorschachs

After the scoring was completed the first test was compared with the second and then the second test was compared with the third. In each comparison a judgment was to be made as to which test indicated the more satisfactory personality pattern or whether there was no significant difference. This evaluation was based on a qualitative analysis. After the elimination of all notations disclosing the sequence of administration, the 120 protocols consisting of the first and second tests were thoroughly mixed and then reassembled into 60 pairs of records, the order for each pair being entirely chance. The records were studied by the examiner and a second judge who also is a member of the Rorschach Institute and has had extensive experience with the Rorschach. A statement was made as to which record showed the better personality adjustment and the chief reasons for the decision. In some cases no significant change was found. The pairs of records were then checked for the actual sequence of administration. The second record was labeled as improved, worse, or no significant change.

The second protocols for the thirty boys who received the third test were sorted out. The same procedure was followed with 60 protocols consisting of the second and third records of 30 boys.

Judgments based on clinical qualitative analyses were used because some factors do not lend themselves to statistical analysis. For example, in quantitative analysis an increase in M (human form seen in action) would be classified as a positive change. However, there are occasions when a large number of M may be indicative of hypomania or, in the case

of a withdrawn child, may also show the presence of autistic and regressive fantasy. In these cases a decrease of M is usually desirable. Comparing the number of M itself is not adequate. The desirability of an increase in M can be determined only by considering this factor in relation to the complete personality pattern. Also, the content of responses, which is very useful in showing the presence of emotional disturbance, is not usilized in quantitative analysis. Thus the author's judgment based on previous studies and her own experience is that the qualitative method which considers the total record is the more valid method of evaluation.

Since there were 60 comparisons of first and second records and 30 comparisons of second and third records, a total of 90 judgments was required. The judgments by the two examiners were the same for 79 pairs of records which is an a greement of 88%. However, this is a minimal figure as there was no measure for the amount of disagreement. Actually differences were slight and involved pairs of records with mild variations so that it was difficult to decide whether they should be classified as changed or as no significant change. The two judges discussed these eleven cases and were able to arrive at a common conclusion regarding them.

4. Evaluation of Behavioral Change Based on Descriptive Reports

Evidence of change in the behavior of the subjects was obtained from the clinical folders. These folders contain pre-admission information, medical reports, records of psychological testing, results of

achievement tests, teacher evaluations, notes written by cottage parents, social service reports, and special reports covering any unusual behavior or occurrences. While reports from these sources are available for all children, the problems vary and therefore the type of information varies. For this reason, the construction of a rating scale seemed impossible and a global approach the most advisable. However, a summary was made of the important points that should be considered. Living was divided into two main areas: school and cottage. Gain in IQ and in scores on arithmetic and reading achievement tests was considered an indication of improvement since intellectual functioning should improve as emotional disturbance decreases. Teachers' reports were read for information regarding the child's ability to get along with other children and with adults, his willingness to take directions and to follow routine, the degree to which he could work without continual supervision, and whether or not he met his "goal", which was an objective set for each child according to his ability.

From the cottage notes we again wanted to know how well the child could get along with adults and with other children. Some children who adjust well in school have continued difficulty in the cottage or the reverse. We needed to know whether the child had been assigned a routine job in the cottage. The type of job and reports on performance furnished information regarding capability and dependability. Being sent on errands to different parts of the grounds was also an index of reliability. Notes on appearance gave information as to whether the child was reasonably clean and neat and whether he measured up to the standards for his

age in caring for himself. There were two boys' cottages that were known as self-determining cottages. Boys living in these cottages were given more freedom and also more responsibility. Transfer to one of these cottages and the ability to remain there was an indication of satisfactory adjustment. On the other hand there were two "locked" cottages, one for boys and one for girls. Children were detained there, usually for brief periods when they were too disturbing to remain with larger groups of children. The number of times a child was transferred to a locked cottage was an index to the frequency and seriousness of his difficulties. When boys and girls reach the age of 15 they go to school one half day and work one half day. At the age of 16, they leave school and work a full day. Success with these jobs was important in determining whether or not an attempt would be made to return a child to the community. When a boy or girl was again living outside the Training School, Social Service notes were very useful in furnishing information regarding the community adjustment. Social Service notes were also useful in telling about the adjustment of younger children on vacation periods, or when they went home for week-ends. Special reports were also written by the personnel when the child was involved in any unusual event such as a physical injury or seriously anti-social behavior. The clinical folders were read by the author and two other psychologists acting as judges. Some time had elapsed since the author had worked with the Rorschach records so judgment of clinical material was not influenced by recall of Rorschach results. One of the judges had been director of the psychology department at the Training School.

The author had been employed at the Training School for several years and the third judge was a member of the psychology department at the time the judging was done. All three judges were familiar with the type of material the clinical folders contained. However, it was necessary to compare notes in order to be sure that judgments were based on the same evidence. The categories applied to the Rorschachs were used and adjustment was described as improved, worse, and no significant change. These evaluations were made: (1) for the first year of residence for the original group of 60, (2) for the interval of time from the second to the third Rorschach for the group of 30 boys, (3) and an evaluation that might be called the terminal adjustment for all 60 subjects. This would be based on all available material for those in residence, for those in the community supervised by the Social Service Department and for those who had been discharged.

The total number of evaluations of behavioral change required was 150. All three judges agreed in 94% of the cases. When agreement between individual judges was considered, the figures obtained for each of the three pairs were 95, 96 and 97%. Differences were slight and in the cases where there was disagreement, the evaluation of the two judges who had reached the same conclusion was accepted.

This experiment was continued over a period of nine years with the first of the Rorschach's administered in June 1945 and the evaluations of behavioral change made in August 1954.

C. Treatment of Data

The purpose of this study was to determine the probability of a relationship between evaluations of personality change obtained from qualitative analysis of Rorschach protocols and evaluations of behavioral change based on descriptive reports. In both cases the categories of improved, worse, or no significant change were used. The Chi-square test was applied to determine the significance of the relationship under the following conditions.

1. Comparison of Rorschach findings and behavioral evaluations for the same interval of time.

   a. Rorschach findings at the end of a year were compared with the evaluation of behavior at the end of a year for the group of 60.

   b. Rorschach findings resulting from the comparison of the second and third Rorschachs were compared with the evaluation of behavior for the same time interval for each boy.

   c. Rorschach findings at the end of a year were compared with the evaluation of behavior at the end of a year for the selected group of 47 who were in the IQ range of 65 through 91.

2. Comparison of Rorschach findings with evaluation of terminal adjustment.

   a. Rorschach findings at the end of a year were compared with the evaluation of terminal adjustment.

b. Rorschach findings resulting from the comparison of the second and third Rorschachs were compared with the evaluations of terminal adjustment.

c. Rorschach findings at the end of a year were compared with the evaluations of terminal adjustment for the selected group of 47 with an IQ range of 65 through 91.

A second purpose of this study was to investigate the probability of a relation between change in the selected scores and combinations of scores with the evaluations of behavior based on descriptive reports. The first and second records for each of the original group of 60 children were compared to determine whether there was an increase, decrease or no change in these 12 signs. The Chi-square test was used to determine the probability of a relation between the desired change in each sign and the evaluations of behavior for the first year.

V. RESULTS

The statistical treatment of the collected data involved a Chi-square analysis of the relation between Rorschach findings regarding personality change and evaluations of behavioral changed based on descriptive reports. Tables are given in the original 3 x 3 form in order to show the details of distribution. These were transformed to 2 x 2 tables in order to eliminate the small cell frequencies and Yate's correction for continuity for small samples was made. Hypothesis I is concerned with the probability of a relationship between Rorschach findings and behavior evaluations for the same period of time. Confirmation requires that the value of Chi-square be significant at least at the five percent level.

TABLE V

Chi-square analysis of the relation between the evaluation of adjustment obtained from comparing Rorschachs at the end of the first year and the evaluation of observed behavior change at the end of the experiment. IQ Range: 44 through 91

		Rorschach Change (I and II)			
		Worse	No Significant Change	Better	N
Observed Behavior Change (at end of experiment)	Better	10	4	29	43
	No Significant Change	2	1	1	4
	Worse	4	1	8	13
	N	16	6	38	60

		Rorschach Change		
		Worse and No Change	Better	N
Observed Behavior Change	Better	14	29	43
	Worse and No Change	8	9	17
	N	22	38	60

$X^2 = 0.57$
$P = 0.46$

Hypothesis II (a) states that the evaluation of personality changes based on the qualitative analysis of the two Rorschachs protocols, the first administered at the time of admission and the second a year later, would agree with the evaluation of adjustment at the end of the experiment. The results do not support this hypothesis.

TABLE III

Chi-square analysis of the relation between the evaluation of adjustment obtained from comparing the second and third Rorschachs with the evaluation of observed behavior change for the corresponding interval for each child. IQ Range: 44 through 91.

Rorschach Change (II and III)

		Worse	No Significant Change	Better	N
Observed Behavior Change (For same time interval)	Better	6	0	16	22
	No Significant Change	4	0	0	4
	Worse	1	1	2	4
	N	11	1	18	30

Rorschach Change

		Worse and No Change	Better	N
Observed Behavior Change	Better	6	16	22
	Worse and No Change	6	2	8
	N	12	18	30

$X^2 = 3.76$
$P = 0.05$

Hypothesis I (b) stated that there would be a greater probability of a relationship between Rorschach and behavioral evaluations when the interval between Rorschachs was lengthened. A value of Chi-square significant at the five percent level confirms this hypothesis.

TABLE IV

Chi-square analysis of the relation between the evaluation of adjustment obtained from comparing the first and second Rorschachs with the evaluation of observed behavior change at the end of the first year for the limited group of 47. IQ Range: 65 through 91

Rorschach Change (I and II)

		Worse	No Significant Change	Better	N
Observed Behavior Change (1st year)	Better	8	2	22	32
	No Significant Change	5	3	7	15
	Worse	0	0	0	0
	N	13	5	29	47

Rorschach Change

		Worse and No Change	Better	N
Observed Behavior	Better	10	22	32
	Worse and No Change	8	7	15
	N	18	29	47

$X^2 = 1.28$
$P = 0.26$

Hypothesis I (c) stated that there would be a greater probability of a relationship between Rorschach and behavioral evaluations when the composition of the group was more homogeneous. The results do not support this hypothesis.

Hypothesis II is concerned with the assumption that a personality change reflected in the Rorschach will persist and that an evaluation obtained from comparing two Rorschachs will agree with an evaluation of adjustment at a later period in the individual's life. Confirmation for this hypothesis also requires that the value of Chi-square be significant at least at the five percent level.

Hypothesis III is concerned with the Chi-square analysis of the probability of a relation between each of 12 signs and the evaluation of observed behavior at the end of the first year after admission. The tables for these distributions are given in the appendix. Improvement in the ratio of W:M is the only one of the 12 signs that supports the hypothesis. This is significant at the one percent level. The four signs with a probability range of 0.22 to 0.16 are: improvement in the ratio of M:FM, decrease in A percent, improvement in the ratio of FC:CF and increase in the number of FC.

VI. DISCUSSION

The relation of the Rorschach findings concerning personality change with the evaluations of behavior based on descriptive reports for the first year of residence is not statistically significant. However, a study of the data brings to light some of the factors influencing results.

There is evidence that one year is not the optimum period of time for comparing Rorschach and behavioral evaluations. This particularly applies to the first year of residence. There is a pattern of behavior that is fairly common among new admissions. When a child first enters, the situation is new, interesting and may be quite an improvement over his home life. It seems worth-while to him to gain the approval of adults and other children. Thus he may go along with very little difficulty for some time. However, as the environment becomes more familiar, the old behavior difficulties reappear. After this, improvement is gradual, but when accomplished it is on a more permanent basis. Apparently the end of the year came at a time when some of the children were showing a recurrence of the same problems that they presented prior to admission and thus behavior was rated as "no significant change".

The fact that a year is not an optimum period is also borne out by a study of the Rorschach and behavioral evaluations. Quite often change will appear in one area before there is any evidence of it in the second area. The Rorschach findings and observed behavioral evaluations agree

for thirty of the sixty cases. It is the remaining thirty in which we are interested at this point. There were eleven children whose Rorschachs showed improved adjustment while observed behavior showed no significant change. For ten of these, behavior was evaluated as improved on a later rating. For the eleventh it remained "no significant change".

Two children were rated as "no significant change" on the basis of Rorschach findings and as "improved" regarding behavior. A third Rorschach was available in both cases and showed improved adjustment.

A Rorschach evaluation of "worse" with "improvement" in observed behavior was obtained for eight cases. On a later rating of observed behavior, one showed no significant change, one was worse and six had continued to improve. A third Rorschach available for four of these six showed improved adjustment.

There were seven whose adjustment, according to the Rorschach, was worse and who showed no significant change in behavior. At a later evaluation of observed behavior, four showed improvement, two were worse, and one had no significant change. None of these seven were in the group that received a third Rorschach so we do not know whether there would have been agreement at a later date.

One child who was classified as "better" on the Rorschach and "worse" on behavior was rated as "better" at a later date.

The remaining case showed better adjustment on the Rorschach and no significant change in behavior. The final behavior rating was still "no significant change".

The third Rorschach was administered to the group of thirty boys and compared with the second Rorschach in order to investigate the effect of lengthening the time interval. It should be remembered that this group of 30 is to some extent a selected group. It consists of boys who were still in the Training School and had not returned to the community. Although some may be the less capable or those with more severe personality problems, this is not always the case. The family is an important factor in determining how soon a child will leave the Training School. If the family can provide a home, adequate supervision and find work for the boy, he will return to the community in a relatively short time. If the family is not capable of doing these things and the Social Service department must act as substitute, the boy will remain in the Training School until he is more capable of self-direction. Thus the group of 30 includes both capable and incapable children.

The results bear out the supposition that a longer time interval between Rorschachs is needed. It is for this group of 30 boys that the probability of a relation between Rorschach findings and behavioral evaluations is significant at the five percent level.

The attitude of the family of a child is an extremely important factor in determining the extent to which he will benefit from institution residence. Some families visit regularly, write letters, remember special occasions such as Christmas and birthdays and take the child home for summer vaction and for week ends. Other families pay little or no attention to the child once he has been placed in the Training School. Abel (1) states that one of the three most important factors

contributing to the success of mentally deficient girls is a stable home in which the girl is not rejected to any marked degree. The type of family is a factor that would be very difficult to control.

Thus the one year period following admission to the Training School is not sufficient to demonstrate behavioral change either by descriptive report or by comparison of Rorschach responses. This finding also holds for children without severe retardation or the complicating factors of severe developmental anomoly, organic pathology and psychoses as well as for the group as a whole. When the period over which behavior is evaluated is extended to approximately three years, the probability of agreement is significant at the five percent level.

Probably the most important factor influencing result is the heterogeneity of the experimental group of 60 children. With an IQ range of 44 through 91, there is considerable variation in intellectual ability. However, the majority lies within the range accepted by the special classes in the public school. Thus some additional problem such as home or community difficulty or failure to benefit from placement in a special class has resulted in commitment to the Training School. These children are a sample of the Training School population in that they are 60 consecutive admissions. On the other hand it should also be remembered that they have already been selected out of the community and present a wide variety of problems and conditions. The group contained one mongoloid, several children whom observation lead us to believe were brain damaged, children with various degrees of emotional disturbance, two of whom were seriously disturbed and children whose

behavior difficulties were due to lack of training rather than emotional disturbance.

An attempt to control these factors and obtain a more homogeneous group resulted in the selection of 47 children. However the probability of a relation between Rorschach and behavioral evaluations for the period of a year is approximately the same as for the group of 60. This is probably due to the fact that evaluations are concerned with individual improvement and not the achieving of any standard. Many of the less capable children show improvement both on the Rorschach and in their behavior. Better social adjustment, more adequate personal care and willingness to follow directions may make a child much pleasanter to live with even though his performance is very limited. Thus it is not surprising to find that results for a period of one year are similar for both the group of 60 and the selected group of 47.

Neither the Rorschach findings at the end of the first year nor the results obtained from comparing Rorschachs two and three are significantly related to evaluation of adjustment at the end of the experiment. However, this is the area in which the factor of intellectual ability is the most important. A certain amount of intelligence is necessary if an individual is to live in the community and manage his own affairs. Children with severe brain damage make very little academic progress and their IQ's tend to drop. They may do simple tasks satisfactorily and be quite well adjusted socially as long as they have adequate supervision. These children may show improvement on the

Rorschach and improved behavior during institution residence but are unable to adjust to community living.

Some children may be so seriously disturbed at the time of admission that the change to the more stable life of the Training School is not sufficient to effect a cure. They, too, will be unable to live in a community without supervision.

Although for the group as a whole, the probability of agreement between the Rorschach behavioral evaluation at the end of the first year and the terminal descriptive evaluation was no better than chance when the records of children free from serious retardation, and severe pathology are considered separately, there is evidence of greater probability between Rorschach evaluations and evaluations based on descriptive reports. When the period between Rorschach administrations approximates a three year interval, the probability of agreement between Rorschach evaluations and the terminal descriptive behavioral evaluations is also increased.

TABLE VIII

SUMMARY OF FINDINGS

	N = 60 Rorschachs I and II		N = 30 Rorschachs II and III		N = 47 Rorschachs I and II	
	X^2	P	X^2	P	X^2	P
Relation of Rorschach findings with behavioral evaluation for the same interval	1.61	0.21	3.76	0.05	1.28	0.26
Relation of Rorschach findings at end of one year with terminal adjustment	0.57	0.46	1.41	0.24	1.72	0.19

When the relation of the twelve signs to evaluations of behavior for the first year are investigated, only one is found to be significant. This is improvement in the W:M ratio which is significant at the one percent level. The reason for the lack of significant results may also lie in the heterogenity of the group. Such a dissimilar group produces unlike records. Evidence of improvement is based on Rorschach changes that vary from one record to another. The change in the W:M ratio seems to be the only consistent trend. The first Rorschachs tend to contain a high percent of simple, easily seen whole responses. Thus both a reduction in W and an increase in M are desirable. Apparently changes in these two factors have resulted in a ratio that is associated with improved behavior for this group.

The question of a control group was considered but for various reasons such a group was not included in this study. The present problem is to determine the value of the Rorschach as a measure of personality change in children residing at the Wayne County Training School. As far as this problem is concerned, a control group is not necessary. There is also the fact that an attempt to form a control group would present almost unsurmountable difficulties. When a child is committed to the Training School, the home, school and community have already exhausted their resources. It is highly improbable that a longer stay in the community would result in improved behavior. An attempt to form a control group by accepting one child and asking the community to keep a second one would meet with resistance. The situation is already

intolerable both to the child and to the adults concerned. By the time application is made for commitment, there is apt to be no place for the child to go to except the Training School. The age range of the experimental group at the time of admission was ten to twelve years. Children remaining in the community a year longer and entering the Training School at the ages of eleven and twelve years would not form a comparable group. The very fact that they have remained in the community a year longer indicates that their problems are less severe than those of the group who entered at an earlier age. For these reasons a control group was not included in this study.

There are two main implications for further research along this line. The period of time between Rorschachs should be extended. A period of two years would probably be satisfactory. This of course makes the research more time consuming and thus more difficult to carry on. Criteria should be used that will provide an experimental group of more homogeneous composition. There are some children who obviously will never be self-supporting, self-directing members of a community and these should be excluded.

The relationship of Rorschach scores and combinations of scores to observed behavior changes does not appear to be a fruitful area for further investigation as far as the results of this study are concerned.

VII. SUMMARY

A review of the literature has shown that there is considerable agreement between personality sketches based on Rorschach findings and those based on observed behavior. There is also evidence that certain scores and combinations of scores are representative of changes in personality structure. Furthermore, the Rorschach has been used to measure the effects of psychotherapy over certain periods of time. Thus it seemed that the Rorschach should prove to be a useful instrument for measuring the effects of an environmental change upon personality structure.

The purpose of this study is to investigate the usefulness of the Rorschach as a measure of personality change in high grade mentally handicapped children who are in residence in a publicly supported institution. Three hypotheses were formulated: (1) evaluations of personality change based on the comparison of Rorschachs are in agreement with evaluations of behavioral change based on descriptive reports for the same period of time; (2) evaluations of personality change based on Rorschach findings are in agreement with evaluations of adjustment at the termination of the experiment; (3) changes in certain Rorschach scores and combinations of scores are related to change in observed behavior.

The original group of subjects consisted of sixty consecutive admissions with an age range of 10-0 to 12-0 years. A Rorschach was

administered at admission and at the end of a years residence. In order to investigate the effect of a longer time interval, a third Rorschach was administered to thirty boys who were members of the original group. As it also seemed desirable to study a more homogeneous group, children without severe retardation, serious developmental anomaly, organic brain damage or psychosis were considered separately. The Chi-square technique was used to determine the probability of a significant relationship between Rorschach and behavioral evaluations.

The relation between the evaluations obtained from comparing Rorschachs II and III and the behavioral evaluations for the same time interval for each subject was significant at the five percent level. Relationships stated in the remaining sections of hypotheses I and II were not statistically significant. However, the probability of a significant relationship between Rorschach findings and terminal adjustment was increased when the time interval between Rorschachs was increased or when the group with a reasonable expectation of return to community was considered separately. Only one of the twelve signs tested was found to be significantly related to behavioral change.

Suggestions for improved methodology were discussed.

BIBLIOGRAPHY

1. Abel, T. M. Follow-up Study of Mentally Deficient Girls. American Journal of Mental Deficiency. 1940, 45, 66.

2. Barry, John R., Blyth, David D. and Albrecht, R. Relationships between Rorschach Scores and Adjustment Level. Journal of Consulting Psychology. 1952, 16, 30-36.

3. Beck, Samuel J., Rorschach's Test I. Basic Processes, New York. Grune and Stratton, 1949.

4. Beck, Samuel J., Rorschach's Test II. A Variety of Personality Pictures, New York, Grune and Stratton, 1949.

5. Carr, Arthur C. An Evaluation of nine nondirective psychotherapy cases by means of the Rorschach. Journal of Consulting Psychology. 1949, 13, 196-205.

6. Cronbach, Lee J., Statistical Methods Applied to Rorschach Scores, Psychological Bulletin, 1949, 46, 393-429.

7. Davidson, H. H. A Measure of Adjustment Obtained from the Rorschach Protocol. Journal of Projective Techniques, 1950, 14, 31-38.

8. Edwards, Allen L. Experimental Design in Psychological Research, New York. Rinehart and Company, Inc., 1950.

9. Fiske, Donald W. and Baughman, Emmett E. Relationship between Rorschach scoring categories and the total number of responses. Journal of Abnormal and Social Psychology, 1953, 48, 25-32.

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

11. Harrower-Erickson, M. R. Personality Changes Accompanying Cerebral Lesions II Rorschach Studies of Patients with Focal Epilepsy. Archives of Neurology and Psychiatry, 1940, 43, 1081-1107.

12. Harrower-Erickson, M. R. and Miale, F. R. Personality changes accompanying organic brain lesions: pre and post operative study of two adolescent children, Rorschach Research Exchange, 1940, 4, 8-25.

13. Hertz, Marguerite R. Frequency Tables to be used in Scoring Responses to the Rorschach Ink-Blot Test. Cleveland, Western Reserve University 1946.

14. Kisker, G. W. A Projective Approach to Personality Patterns During Insulin and Metrazol Convulsive Therapy. Journal of Abnormal and Social Psychology, 1942, 37, 120-124.

15. Klopfer, B., Ainsworth, M., Klopfer, W., Holt, R. Developments in the Rorschach Technique, Chicago, World Book Company. 1954.

16. Klopfer, B. and Kelly, D. The Rorschach Technique, New York, World Book Company, 1942.

17. Kogan, William., Shifts in Rorschach Patterns during a Critical Period in the Institutional Experience of a Group of Delinquent Boys, Rorschach Research Exchange, 1940, 4, 131-133.

18. Krout, J., Krout, M., and Dubin, T., Rorschach test-retest as a gauge of progress in psychotherapy, Journal of Clinical Psychology, 8, 380-384.

19. Krugman, J. I., A clinical validation of the Rorschach with problem children. Rorschach Research Exchange. 1942, 6, 61-70.

20. Lord, Edith, Two sets of Rorschach records obtained before and after brief psychotherapy. Journal of Consulting Psychology, 1950, 14, 134-139.

21. McFate, M. Q. and Orr, F. G. Through Adolescence with the Rorschach. Journal of Projective Techniques. 1949, 13, 302-319.

22. Muench, George A., An evaluation of non-directive psychotherapy. Applied Psychology Monograph No. 13, Stanford University Press, Stanford University, California, 1947.

23. Patterson, M. and Magaw, David C., An investigation of the validity of the Rorschach Technique as applied to mentally defective problem children, American Association on Mental Deficiency, 1938, 43, 179-185.

24. Rioch, Margaret J., The use of the Rorschach test in the assessment of change in patients under psychotherapy, Psychiatry, 1949, 12, 427-434.

25. Rorschach, H., Psychodiagnostics (2nd Ed.), New York, Grune and Stratton, 1942.

26. Siegel, M. G., The diagnostic and prognostic validity of the Rorschach test in a child guidance clinic. American Journal of Orthopsychiatry. 1948, 18, 119-133.

27. Siegel, M. G., The Rorschach test as an aid in selecting clients for group therapy and evaluating progress. Mental Hygiene, New York, 1944, 28, 444-449.

28. Tallman, G. and Klopfer, B., Personality studies of cases with lesions of the frontal lobes. III Rorschach Study of a bilateral lobectomy case.
A. Summary of the case history and Rorschach records. Rorschach Research Exchange, 1937, 1, 77-85.
B. A further Rorschach study of Mr. A. Rorschach Research Exchange. 1938, 3, 31-36.

29. Weiner, B. B. and Wadsworth, H. M. Introjection of Adult Behavioral Norms. American Journal of Mental Deficiency. 1955.

30. Young, R. A. and Higginbotham, S. A., Behavior Checks on the Rorschach Method. American Journal of Orthopsychiatry. 1942, 13, 87-94.

APPENDIX A

Chi-square analysis of the relation between each of the twelve selected signs and the evaluation of observed behavior at the end of the experiment.

1. Change in the Number of R

		Decreased	Increased	N	
Observed Behavior Change	Better	14	21	35	$X^2 = 0$
	No Significant Change	10	15	25	
	N	24	36	60	

2. Change in R plus Percent

		Decreased and No Change	Increased	N	
Observed Behavior Change	Better	20	15	35	$X^2 = 0.05$
	No Significant Change	15	10	25	P = 0.83
	N	35	25	60	

3. Change in F Percent

		Increased and No Change	Decreased	N	
Observed Behavior Change	Better	19	16	35	$X^2 = 0.05$
	No Significant Change	12	13	25	P = 0.83
	N	31	29	60	

4. Change in A Percent

Observed Behavior Change	Increased and No Change	Decreased	N	
Better	23	12	35	$X^2 = 1.65$
No Significant Change	21	4	25	$P = 0.19$
N	44	16	60	

5. Change in the Number of M

Observed Behavior Change	Decrease and No Change	Increase	N	
Better	21	14	35	$X^2 = 0.47$
No Significant Change	18	7	25	$P = 0.49$
N	39	21	60	

6. Change in the Ratio of M:FM

Observed Behavior Change	Same and Less Satisfactory	More Satisfactory	N	
Better	20	15	35	$X^2 = 1.53$
No Significant Change	19	6	25	$P = 0.22$
N	39	21	60	

7. Change in the Ratio of W:M

		Same and Less Satisfactory	More Satisfactory	N	
Observed Behavior Change	Better	11	24	35	$X^2 = 6.44$
	No Significant Change	17	8	25	$P = 0.01$
	N	28	32	60	

8. Change in the Number of FC

		Decreased and No Change	Increased	N	
Observed Behavior Change	Better	20	15	35	$X^2 = 2.48$
	No Significant Change	20	5	25	$P = 0.12$
	N	40	20	60	

9. Change in Ratio of FC:CF

		Same and Less Satisfactory	More Satisfactory	N	
Observed Behavior Change	Better	19	16	35	$X^2 = 2.10$
	No Significant Change	19	6	25	$P = 0.16$
	N	38	22	60	

10. Change in the Number of Responses to Cards VIII, IX and X

		Decreased and No Change	Increased	N	
Observed Behavior Change	Better	22	13	35	$X^2 = 0.64$
	No Significant Change	19	6	25	$P = 0.44$
	N	41	19	60	

11. Change in the Total of FK and Fc

		Decreased and No Change	Increased	N	
Observed Behavior Change	Better	23	12	35	$X^2 = 0.64$
	No Significant Change	13	12	25	$P = 0.44$
	N	36	24	60	

12. Change in the Number of P

		Decreased and No Change	Increased	N	
Observed Behavior Change	Better	14	21	35	$X^2 = 0.12$
	No Significant Change	12	13	25	$P = 0.73$
	N	26	34	60	

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